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FOREWORD

Presented number of Silesian University of Technology. Scientific Papers. Organization and Management Series. Presented papers contain result of researches conducted by various universities. The number consists of 52 papers.

The papers presented in the number concentrate on many topics connected with organization and management. There are in the number papers about: crisis management; Artificial intelligence implementation in management; human resource management; human capital management; onboarding; Industry 5.0; managerial competences; corporate social responsibility; economy 5.0; organizational culture; leadership and innovation management.

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THE CRISIS OF ENGAGEMENT AT WORK: CHALLENGES FOR MANAGERS

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Purpose: The aim is to identify the crucial factors for employee engagement in the work environment and determine the challenges for managers that stem from it. As a theoretical framework, the concept of work engagement was used, which defines engagement as a positive and active state related to well-being and psychological presence at work.
Methodology: A scoping review of literature was employed (Scopus, Web of Science) covering the years 2018-2025 in the fields of management and psychology. The search was conducted using the keyword "work engagement". After duplicate removal (N = 868 records), a multi-stage selection was carried out. The criterion for inclusion was empirical research identifying the determinants of work engagement. Ultimately, a total of 24 papers was selected for analysis.
Findings: The analysis confirmed the central role of mental well-being as an intermediary mechanism between the work environment and the level of engagement. Workplace resources were identified as the key antecedents of work engagement and divided into four categories: (1) work qualities; (2) leadership qualities; (3) psychosocial processes in the organization; and (4) factors related to the digital transformation of the work environment.
Research limitations: A limiting aspect of the method stems from the specific nature of scoping review, suitable for organizing knowledge, but failing to provide meta-analysis. Decisions regarding database selection and inclusion criteria may result in the exclusion of part of publications.
Practical implications: The paper offers managers a structured map of work resources vital for building an environment that fosters well-being and long-term employee engagement and identifies areas for intervention.
Social implications: Enhancing workplace resources that improve work engagement may lower the risk of professional burnout and foster long-term quality of life of employees.
Originality: A classification of workplace resource determinants of work engagement is presented in the context of employee well-being and psychological presence. This approach helps to organize dispersed research findings and formulate coherent recommendations for managerial practice.
Keywords: work engagement, well-being, work environment, managerial challenges.
Category of the paper: Research paper.

1. Introduction

The issues of work engagement mark a broad area of consideration among theorists and practitioners of management. A specific level of engagement determines the range of effort put into work, the motivation to collaborate with others, industriousness and innovation; hence, it shapes productivity and quality. A highly engaged employee is of indisputable value for every organization. Having knowledge about employee engagement seems crucial for today's managers, a fact reflected in the high number of studies.

Earlier research in this field, though very heterogenous due to centering on different aspects of employee activity, generally concerned explaining the phenomenon of engagement and its relation to workplace behavior. It dates back to the 1960s, with the 1980s and the 1990s being a period of its rapid growth.

Currently, in the third decade of the 21st century, a renewed interest in work engagement can be observed. It came to be a vital field of research again due to the growing phenomenon of decreased engagement and the weakened employee-organization relationship. These shifts indicate a crisis of work engagement. This leads to major losses of human resources, which in volatile and unpredictable conditions may threaten the organization's competitiveness.

The paper focuses on the current issue of low employee engagement, its determinants, and, above all, the challenges it poses for managers in modern organizations. As a theoretical basis for determining the desired managerial behaviors, the concept of work engagement was used as one most related to the aspects of engaging workplace environment and psychological presence in the workplace. To achieve the goal outlined, taking into consideration the vast and diverse pool of available empirical literature, the method of scoping review was selected. The survey conducted enabled the identification of the key factors for engaged activity in a workplace sensitive to employee well-being and organizational community.

2. Conditions for and Manifestations of Decreased Employee

A decrease in employee engagement and a weakened sense of work commitment are related to a number of factors. Of key importance are the changing attitudes to work and the rejection of "the cult of self-sacrifice" in favor of self-actualization (Kundi, Hollet-Haudebert, Peterson 2021). Employees are shifting from a traditional, linear career trajectory; they are willing to design their professional future themselves and they commit to a single organization less frequently. They view work through the lens of subjectively valued factors that contribute to their personal development and maintaining boundaries and balance in life (Posklinsky, 2025; Adamska-Chudzińska, Blachnicka, 2025). As a result, the lack of conditions to cater to their needs decreases the level of work engagement.

Low employee engagement is also a reaction to the current global sociopolitical instability. Events such as the pandemic, military conflicts, technological pressure, and economic volatility, referred to as "macro-level turbulence", triggered in some employees a sense of persistent anxiety and insecurity of living conditions (Martinescu et al., 2024). The awareness of the fragility of human life has increased and so has the need for a higher quality in all its spheres, including – the professional one. This, in turn, raised the level of employee expectations. Seeking security in the diversity of experiences acquired in many companies, they redefine the notion of success by associating it with mitigation of potential risks.

Thus, the job market reveals two disparate perspectives: that of employees, especially the younger cohorts, and that of employers with established principles of organizational management. Young employees wish to pursue careers unrestricted by the confines of a single company, based on their subjective sense of development and experience of joy in their professional and private lives (Solarczyk-Ambrozik, 2015). Meanwhile, the employers' limited capacity to meet these expectations and a concurrent rigidity and schematic nature of the principles for running a business reveal a major disconnect between employee aspirations and what employers offer (Randstad, 2026).

The consequences of the discrepancy between managers' attitudes toward meeting business objectives and employee expectations are reflected in the trends of decreased work engagement in the job market. After the pandemic, a trend emerged known as the "great resignation" (Serenko, 2023), and it resulted in mass resignations of employees. There are various factors behind the multitude of reasons to quit; however, these boiled down to seeking greater comfort in balancing work and private life, friendly atmosphere in the workplace, and better remuneration.

Relatively soon, the said trend was replaced with that of "quiet quitting" (Klotz, Bolino, 2022), which with an ever grater force revealed the fall in employee engagement and their non-commitment to the organization. The concept of this phenomenon does not involve resigning from work; instead, it consists in doing the bare minimum of responsibilities to avoid being made redundant, during the standard working hours only, and without any emotional involvement (Patel et al., 2025).

Another currently growing trend, that of “The Great Detachment" (Wigert, Tatel, 2024), has a broader social dimension, for what it involves is not a lowered level of commitment to a specific job, but a general attitude of psychological detachment from the employer, fueled by frustration and professional burnout. It involves situations when employees, despite willing to quit, feel imprisoned in their uninspiring roles. In a sense, it is their strategy for dealing with an unfavorable work environment (e.g., meaninglessness, frustration, the pressure of remote work) and managerial practices incongruent with their expectations.

Table 1 presents the data demonstrating the scale of the problem with work engagement, based on a Gallup report (2025). In Europe, a staggering 72% of the workforce are disengaged employees who opt for “quiet quitting” or “The Great Detachment”, with only 13% being fully

committed. Concurrently, in Poland, the percentage of fully engaged employees ranks among the lowest in Europe, at merely 8%. The indicators regarding disengaged and actively disengaging employees highlight the severity of the problem.

Table 1.
Work engagement of employees

Region / Country	Disengaged / "Quiet quitting / The Great detachment"	Actively disengaging ("Loud quitting")	Fully engaged
USA and Canada	52%	17%	31%
World	62%	17%	21%
Europe	72%	15%	13%

Source: own work based on: (Gallup, 2025)

The indicated phenomena of "quiet quitting" and "The Great Detachment", albeit subtle and often difficult to notice at first glance, carry far reaching negative consequences for organizational efficiency related to making a limited use of the potential of employees, especially those with desired qualifications, specialist knowledge, and much experience. Low engagement costs the global economy $8.8 trillion a year, i.e., 9% of the global GDP (Gallup, 2024). These losses consist not only of untapped productivity, lost profits and customers, but also psychological costs on the part of employees related to the discomfort stemming from energy drain, wasted potential, and the lack of meaningful results. The two types of losses are interconnected and further fuel the problem.

3. Methods

The analysis of the conditions of decreased work engagement has demonstrated that counteracting the crisis requires changes in managerial practices geared towards employee well-being. The identified research problem consisted in the knowledge on the key determinants of workplace environment that fosters engagement not having been adequately structured. The goal of the study was therefore to identify and schematize the factors relevant for shaping a balanced and engaging workplace environment.

To solve the research problem and meet the research goal, a scoping review was used, a method suitable for a vast and scattered literature scattered (Peterson et al., 2017), and considered useful for practitioners. The method allows for the recognition of the phenomenon and its determinants (Ćwiklicki, 2020) via the following stages: (1) the formulation of the research question; (2) the identification of sources; (3) the selection of studies; (4) the record of studies; (5) the summary of the results; and (6) the discussion of the results (facultative). These stages helped define the respective phases of the research conducted.

In the first stage, a theoretical framework was selected that could serve as the basis for the holistic shaping of change intended to incorporate aspects of psychological well-being into the practice of management. Considering the diversity of approaches to engagement and the interpretive inconsistency resulting therefrom, the results of a prior study were used (Adamska-Chudzińska, Andraszak, 2025); it was a comparison of the constructs of: "work engagement", "organizational commitment", and "job involvement". On such a basis, it was decided that the psychosocial presence of employees in the organization is best reflected in the concept of "work engagement", as it is associated strongly with well-being and positive emotions experienced in the workplace. The consistency of the findings with the subject of the research justified the choice of this concept as the foundation for seeking solutions to the engagement crisis. The following research question was proposed: What factors influence the shaping of a work environment that fosters full work engagement?

The second stage consisted in the identification of literature sources with materials relevant for the research question. It was decided that two databases would be used: Scopus and the Web of Science. As a keyword, the construct name of "work engagement" was used. The limitation involved: the years 2018–2025, publications in English, and the academic field of management and psychology. The query returned 755 hits in Scopus and 473 hits in the Web of Science. After duplicate removal, the total number of records stood at 868.

As the third stage, a multi-stage selection of studies was performed: first on the basis of their titles and abstracts' relation to the research question, and subsequently based on an analysis of the content of papers that elucidate the role of the determinants of "work engagement". The selection also incorporated a critical evaluation and data saturation related to the reproducibility of factors. Ultimately, a total of 24 papers focused on situational and individual factors influencing work engagement was selected for analysis.

The fourth stage consisted in registering the research via a narrative record of predetermined variables, systematically differentiating between situational and individual factors. Such a layout made it possible to impose on the data a preliminary structure oriented towards identifying job resources (qualities of the work situation) and individual resources. The fifth stage, analytical in nature, was intended as a synthesis of the results. A strong correlation was confirmed between "work engagement" and employee well-being as well as psychological presence in the workplace. Further analyses were aimed at structuring the factors determining work engagement and specifying their relevance for shaping an engaging work environment. Indicated as the main antecedents of the state of work engagement were job resources (qualities of the situation), subsequently subject to categorization (Table 2).

4. Selected results

Empirical literature on shaping work engagement unequivocally indicates the fundamental role of the mental well-being of employees. The survey conducted confirmed that engagement and well-being in the workplace are mutually related (Prakash, Kashyap, 2021), while an employee in good mental shape engages in work completely and experiences satisfaction (Sypniewska et al., 2023). Researchers indicate (Schaufeli et al., 2002) that work engagement is "a positive, work-related state of mind that is associated with vigor, dedication, and absorption". Over the years of research, it has been corroborated that the state constitutes a positive and highly active form of employee well-being (Bakker, 2022).

Survey results also pointed to the mechanisms behind the correlation between well-being and engagement. The research by Sim et al. (2023) demonstrated that well-being serves as an intermediary element in the relationship between job requirements, social support, and engagement. This view is complemented by the findings reported by Brosch et al. (2024), according to whom a high level of well-being and engagement helps maintain long-term effects of regeneration and their endurance over time.

At the same time, numerous studies have indicated specific job resources that have a predictive function for well-being and work engagement. Organizational support (Lu et al., 2025) proved to be one of the crucial resources. Also important is a positive meaning of work: it alleviates the negative consequences in relationships with superiors (Han, Sears, 2024) and reinforces well-being in the conditions of digital transformation (Deng et al., 2023).

Meanwhile, the research by Baquero (2023) points to the role of authentic leadership, which appears to foster well-being and work engagement mainly by virtue of relational transparency and sustainable information processing. One can draw similar conclusions from the research on empowerment-based leadership. It has been demonstrated that empowerment raises the level of engagement and strengthens the positive effects of innovative behaviors (Dwidienawati et al., 2025).

Another key factor in optimizing work engagement is job crafting and employees' ability to actively shape their work, which fosters its meaning and significance (Bakker, 2022). The research by Zhai et al. (2025) showed that job crafting serves as the central mechanism of a sequential path that involves professional identity, engagement, and well-being, by triggering processes that stimulate employees.

Theorists also emphasize the need for a holistic approach to the qualities of work (support from co-workers, meaningful tasks, autonomy) and leadership traits, including the relationship quality with superiors, and of the experience of transformational leadership (Mukaihata et al., 2020; Van Roekel et al., 2024). A synthesis of compelling evidence was offered by Bakker (2022), who indicated that work engagement results from psychosocial processes between the employee, manager, and colleagues, such as positive team interactions (Fortuin et al., 2021) as

well as relationship and communication improvement through supportive emotional interactions (Hoehl et al., 2021). The crucial role of positive emotions experienced in the workplace was further confirmed in the research of Gan et al. (2023).

The social dimension of fostering engagement was confirmed in a research demonstrating that pro-social environment enhances motivation and enthusiasm (Abid et al., 2018). A community atmosphere in the workplace decreases burnout levels and enhances engagement, laying the foundation for psychosocial safety (Jurek, Wyszomirska-Góra, 2025).

5. Synthesis of Identified Factors and Managerial Challenges

The juxtaposition of results of the studies analyzed confirmed that mental well-being is the central mechanism that mediates between workplace environment and the level of work engagement.

A series of well-being and work engagement predictors have been identified. The analyses enabled the differentiation between situational and individual factors. Work qualities were indicated as the main antecedent of engagement (Van Roekel et al., 2024); therefore, work resources are considered the determining factor for engagement development. While individual factors play a stimulating role and explain the variability of engagement from the point of view of personality traits, the key consideration remains to what extent the work environment allows employees to use their personal strengths (Bakker, 2018). According to the personal approach, some traits may generally predispose employees to engage in work (Rusu et al., 2020; Bakker, 2022); however, situational approach demonstrates that the level of engagement varies significantly depending on work environment qualities. In this study, a categorization is offered of the work resources identified, i.e., situational factors that determine well-being and engagement.

Based on the review, these were divided into four groups: work qualities, leadership qualities, psychosocial processes, and those related to digital transformation (Table 2). The factors listed in these categories complement one another in establishing the social context of work that fosters well-being and high levels of engagement. A workplace situation characterized by employee empowerment, meaningful tasks, autonomy, and elements of job crafting, as well as a friendly atmosphere continues to depend on managerial practices, corresponding psychosocial processes, and the way digital solutions are implemented. Their significance is revealed in employee experiences that holistically add up to well-being.

Table 2.
Categorization of work environment factors (work resources) determining well-being and work engagement

Work qualities	Leadership qualities	Psychosocial processes	Processes related to digital transformation
Employee empowerment	Transformational and authentic leadership	Organizational support	Positive impact of digital transformation
Meaning and significance of tasks	Enhancing meaningfulness and feedback	Community-orientedness and pro-social motivation	Adaptive use of technology
Autonomy and job crafting	Stimulation of independence and autonomy	Experience of respect and recognition (appreciation)	Technostress reduction
Pleasant workplace atmosphere	Quality of the manager-employee relationship	Emotion regulation in relationships	

Source: own work.

The aforementioned factors have been identified on the basis of the literature review. These do not exhaust all aspects relevant for shaping an emotionally supportive work environment. However, as the most often indicated by researchers, they have enabled the identification – with all due caution – of the key challenges for managers:

- Transformational and authentic leadership style – relational transparency and balanced information processing, inspirational attitudes.
- Orientation toward employee empowerment – respect, recognition, and the use of employees' specific traits and abilities.
- Entrusting socially important and meaningful tasks – task transparency, vision-based motivation, constructive feedback.
- Providing adequate autonomy and potential for job crafting – the recognition of employee identity, professional experience, and creative capabilities.
- Cultivating supportive workplace atmosphere (the foundation for psychosocial safety) – community-orientedness, organizational support, prosocial motivation, relevant team role, emotional regulation.
- Operating adaptively in the reality of AI – technostress reduction, positive significance of the digital transformation.

The challenges presented outline the directions of changes in employee management within contemporary organizations. What they mean in practice is the need to deliberately shape work resources through authentic and transformative leadership which fosters mental well-being and cultivates engagement. A balancing act between productivity requirements and employee empowerment becomes particularly important; it involves: increasing task meaningfulness, autonomy, and potential for job crafting, while at the same time cultivating an atmosphere of mental safety. Within the regime of digital transformation, managers ought to develop competences that foster adaptive use of technology and technostress reduction. Coherent synchronization of these areas brings about the experience of psychological presence in the workplace, which is a prerequisite for a highly engaged human capital.

6. Conclusions

From the considerations undertaken, it may be concluded that the origin of today's crisis of engagement should not be reduced to "demanding attitudes" or mere passing trends; instead, it should be conceived of as the result of complex shifts in the expectations from work, as well as rising levels of psychosocial strain and the pressure of digital transformation. In the analysis, the concept of work engagement was adopted, for this vantage point justifies the framing of engagement as a positive and active form of mental well-being and helps grasp the vital role of psychological presence of employees in the workplace. At the same time, it highlights a relevant correlation between engagement and the quality of employee experience, alongside the need to take this perspective into consideration in strategies for the development of work resources.

The scoping review method used enabled the identification and systematization of work resources that determine well-being and engagement, and a division of these into four groups: work qualities, leadership qualities, psychosocial processes, and processes related to digital transformation. This served as the basis for defining the key challenges for managers, which involve embracing authentic and transformational leadership. Nowadays, managers face the task of shaping an environment that at the same time ensures productivity and responds to the needs of empowerment: meaningful tasks, autonomy, potential for job crafting and development. Equally important is fostering organizational support and community-orientedness, as well as cultivating an atmosphere of psychological safety that promotes emotional regulation. An additional challenge remains the ability to operate adaptively in the regime of AI and reduce technostress so that technology can contribute to well-being. Future research should include quantitative studies verifying the strength of the influence of particular work resources, comparative sectoral and cross-cultural analyses, as well as verification of the correlation model during periods of intense digital transformation.

A systematic implementation of these solutions may lay the foundation for a work environment that fosters long-term work engagement of employees. Places of work – grounded in empowerment-based management and positive emotions – are beneficial for employee health and fulfilment, while at the same time they enhance productivity and innovation. Furthermore, work engagement also boosts personal effectiveness, which translates into organizational efficiency, cost effectiveness, and added value for the stakeholders.

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References

1. Abid, G., Sajjad, I., Elahi, N.S., Farooqi, S., Nisar, A. (2018). The influence of prosocial motivation and civility on work engagement: The mediating role of thriving at work. *Cogent Business & Management*, *5*(1), *Article 1493712*. http://doi.org/10.1080/23311975.2018.1493712
2. Adamska-Chudzińska, M., Andraszak, N. (2025). Work engagement as a challenge for contemporary management. In: M. Adamska-Chudzińska, J. Pawlak (Eds.), *Work engagement and employee well-being: Psychosocial support to build engaged human capital* (pp. 9-29). Routledge. https://doi.org/10.4324/9781032715407-2
3. Adamska-Chudzińska, M., Blachnicka, K. (2025). *Mentoring w karierze menedżerskiej kobiet.* Warszawa: PWE.
4. Bakker, A.B. (2022). The social psychology of work engagement: state of the field. *Career Development International*, *27*(1), 36-53. https://doi.org/10.1108/CDI-08-2021-0213
5. Bakker, A.B., Hetland, J., Olsen, O.K., Espevik, R. (2018). Daily strengths use and employee well-being: The moderating role of personality. *Journal of Occupational and Organizational Psychology*, *92*, 144-168. https://doi.org/10.1111/joop.12243
6. Baquero, A. (2023). Authentic leadership, employee work engagement, trust in the leader, and workplace well-being: A moderated mediation model. *Psychology Research and Behavior Management*, *16*, 1403-1424. https://doi.org/10.2147/PRBM.S407672
7. Brosch, E.-K., Binnewies, C., Gröning, C., Forthmann, B. (2024). The role of general work engagement and well-being for vacation effects and for vacation fade-out. *Applied Psychology*, *73*(2), 509-539. https://doi.org/10.1111/apps.12488
8. Ćwiklicki, M. (2020). Metodyka przeglądu zakresu literatury (scoping review). In: A. Sopińska, A. Modliński (eds.), *Współczesne zarządzanie – koncepcje i wyzwania* (pp. 53-68). Warszawa: Szkoła Główna Handlowa.
9. Deng, D., Xu, G., Qin, C. (2023). Influence of employees' perception of digital transformation meaning on work engagement and well-being. *Social Behavior and Personality: An International Journal*, *51*(9), 1-13. https://doi.org/10.2224/sbp.12623
10. Dwidienawati, D., Ratnasari, E.D., Nugraha, I.O., Maharani, A., Arsan, M.F. (2025). The influence of well-being, empowering leadership, and career development on work engagement in Generation Z in Indonesia. *WSEAS Transactions on Business and Economics, 22*, 32-47. https://doi.org/10.37394/23207.2025.22.4
11. Fortuin, D.J., van Mierlo, H., Bakker, A.B., Petrou, P., Demerouti, E. (2021). Team boosting behaviours: Development and validation of a new concept and scale. *European Journal of Work and Organizational Psychology, 30*(4), 600-618. https://doi.org/10.1080/1359432X.2020.1854226

12. Gallup (2025). *State of the Global Workplace.* Retrieved from: https://www.gallup.com/workplace/349484/state-of-the-global-workplace.aspx
13. Gan, S.K., Zeng, Y., Wang, Z. (2023). Social anxiety mediates workplace incivility and work engagement. *Frontiers in Psychology, 14*. https://doi.org/10.3389/fpsyg.2023.1320703
14. Han, Y., Sears, G.J. (2024). Does leader–member exchange ambivalence hinder employee well-being? Exploring relations with work engagement and emotional exhaustion. *Stress and Health*, *40*(3), https://doi.org/10.1002/smi.3334
15. Hoehl, S., Fairhurst, M., Schirmer, A. (2021). Interactional synchrony: signals, mechanisms and benefits. *Social Cognitive and Affective Neuroscience, 16*(1-2), 5-18. https://doi.org/10.1093/scan/nsaa024
16. Jurek, P., Wyszomirska-Góra, M. (2025). The role of a communal workplace climate in occupational well-being: Associations with lower burnout and higher work engagement. *Health Psychology Report*, *13*(3), 271-283. https://doi.org/10.5114/hpr/203970
17. Klotz, A.C., Bolino, M.C. (2022). When Quiet Quitting Is Worse Than the Real Thing. *Harvard Business Review*. Retrieved from: https://hbr.org/2022/09/when-quiet-quitting-is-worse-than-the-real-thing
18. Kundi, Y.M., Hollet-Haudebert, S., Peterson, J. (2021). Career adaptability, job crafting and subjective career success: the moderating roles of lone wolf personality and positive perfectionism. *Personnel Review, 51*(3), 945-965. https://doi.org/10.1108/PR-04-2020-0260
19. Lu, L., Ding, F., Ye, Z., Wu, Y., Yang, D. (2025). Job crafting, perceived organizational support, and well-being: Enhancing teachers' work engagement under China's double-reduction policy. *Social Behavior and Personality: An International Journal, 53*(8), 1-11. https://doi.org/10.2224/sbp.15058
20. Martinescu, E., Edwards, M.R., Leite, A.C., Randsley de Moura, G., Marques, A.G., Abrams, D. (2024). The interactive effect of job skill level and citizenship status on job depression, work engagement and turnover intentions: A moderated mediation model in the context of macro-level turbulence (of 'Brexit'). *Human Resource Management Journal, 34*(3), 523-539. https://doi.org/10.1111/1748-8583.12489
21. Mukaihata, T., Fujimoto, H., Greiner, C. (2020). Factors influencing work engagement among psychiatric nurses in Japan. *Journal of Nursing Management, 28*(2), 306-316. https://doi.org/10.1111/jonm.12923
22. Patel, P.C., Guedes, M.J., Bachrach, D.G., Cho, Y. (2025). A multidimensional quiet quitting scale: Development and test of a measure of quiet quitting. *PLoS ONE, 20*(4), https://doi.org/10.1371/journal.pone.0317624
23. Peterson, J., Pearce, P.F., Ferguson, L.A., Langford, C.A. (2017). Understanding scoping reviews: Definition, purpose, and process. *Journal of the American Association of Nurse Practitioners, 29*(1), 12-16. https://doi.org/10.1002/2327-6924.12380

24. Posklinsky, I. (2025). Autoethnography: a person-centered approach to unraveling modern career mobility. *Journal of Organizational Ethnography, 14*(3), 293-306. https://doi.org/10.1108/JOE-09-2024-0066
25. Prakash, P., Kashsyap, B. (2021). Relationship Between Employees' Workplace Well-Being And Work Engagement. *Elementary Education Online, 20*(2), 2300-2306. Retrieved from: https://ilkogretim-online.org/index.php/pub/article/view/1927/1872
26. Randstad (2026). *Raport Workmonitor Randstad*. Retrieved from: https://www.randstad.pl/workmonitor2026/
27. Rusu, P.P., Colomeischi, A.A. (2020). Positivity Ratio and Well-Being Among Teachers: The Mediating Role of Work Engagement. *Frontiers in Psychology, 11*, 1608. https://doi.org/10.3389/fpsyg.2020.01608
28. Schaufeli, W.B., Salanova, M., Gonzàlez-Romä, V., Bakker, A.B. (2002). The measurement of engagement and job burnout: A two-sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3*, 71-92. https://doi.org/10.1023/A:1015630930326
29. Serenko, A. (2023). The Great Resignation: the great knowledge exodus or the onset of the Great Knowledge Revolution? *Journal of Knowledge Management, 27*(4), 1042-1055. https://doi.org/10.1108/JKM-12-2021-0920
30. Sim, J.Y.Y., Mustamil, N.M., Wider, W. (2023). Psychosocial working conditions and work engagement: The mediating role of psychological well-being. *FWU Journal of Social Sciences, 17*(4), 1-20. https://ojs.sbbwu.edu.pk/fwu-journal/index.php/ojss/article/view/2413
31. Solarczyk-Ambrozik, E. (2015). Nowe trendy w teoriach rozwoju karier – implikacje dla poradnictwa kariery. *Studia Edukacyjne, 35*, 21-53.
32. Sypniewska, B., Baran, M., Kłos, M. (2023). Work Engagement and Employee Satisfaction in the Practice of Sustainable Human Resource Management – Based on the Study of Polish Employees. *International Entrepreneurship and Management Journal, 19*, 1069-1100. https://doi.org/10.1007/s11365-023-00834-9
33. Van Roekel, H., Wigger, E.F.J., Veldkamp, B.P., Bakker, A.B. (2024). What is work engagement? A text mining approach using employees' self-narratives. *Applied Psychology, 73(3),* 1071-1102. https://doi.org/10.1111/apps.12501
34. Wigert, B., Tatel, C. (2024). *The great detachment: Why employees feel stuck*. Retrieved from: https://www.gallup.com/workplace/653711/great-detachment-why-employees-feel-stuck.aspx
35. Zhai, Y., Xiao, W., Sun, C., Sun, B., Yue, G. (2025). Professional Identity Makes More Work Well-Being Among In-Service Teachers: Mediating Roles of Job Crafting and Work Engagement. *Psychological reports, 128*(4), 2983-3000. https://doi.org/10.1177/00332941231189217

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ARTIFICIAL INTELLIGENCE IN RECRUITMENT SYSTEMS: EVALUATION METHODOLOGY AND PRACTICAL APPLICATIONS

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Purpose: This study develops an original methodology for evaluating AI-based employee selection systems, grounded in the AIPT maturity model (Assist–Inform–Predict–Transform), and verifies its usefulness through a comparative analysis of two recruitment solutions representing different technological classes.
Design/methodology/approach: The study adopts a conceptual-empirical approach. The theoretical part draws on maturity models in management and HR, including People CMM and HR-AIMM, as well as frameworks of algorithmic HRM. On this basis, the AIPT model was applied to assess four levels of AI maturity in recruitment systems: operational support, information-based decision support, prediction and recommendations, and transformation of HR processes. The empirical part compares eRecruiter and SAP SuccessFactors Recruiting using criteria aligned with the AIPT dimensions.
Findings: The analysis confirms the usefulness of the AIPT model for evaluating AI applications in recruitment systems. Both systems demonstrate high maturity in the Assist and Inform dimensions, offering automation of recruitment workflows and support for data-driven decision-making. Differences are more visible at the Predict and Transform levels, especially in predictive functionalities, integration with HR architecture, and the extent to which AI influences process design and user roles.
Research limitations/implications: The study is exploratory and covers only two systems, which limits generalizability. The analysis is based mainly on vendor materials and organizational documentation, which may create information asymmetry. Future research should include more systems and primary data on recruitment effectiveness, decision quality, and candidate experience.
Practical implications: The proposed methodology may support HR managers in selecting and implementing AI-based recruitment systems by enabling a structured assessment of system functionalities, organizational fit, and maturity level. It may also reduce implementation risks resulting from misalignment between technology and HR processes.
Social implications: The study supports transparent and responsible implementation of AI in recruitment, contributing to reducing algorithmic discrimination and strengthening candidate trust.

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Originality/value: The originality of the study lies in integrating maturity-model logic with a practical evaluation method for AI-based recruitment systems and demonstrating its applicability to systems from different technological classes.
Keywords: maturity model, recruitment systems, AI in employee selection, AIPT model, AI system evaluation.
Category of the paper: Research paper.

1. Introduction

The contemporary discourse on the use of artificial intelligence (AI)[1] in human resource management is characterized by a holistic approach, in which not only algorithmic efficiency is analyzed, but also the impact of technology on the functioning of HR processes, decision-making mechanisms, candidate experience, and ethical and regulatory aspects (Bąk-Grabowska, Bartkowiak, 2026, pp. 4-6). Taking these interrelated perspectives into account creates a need to refer to multidimensional maturity models, which can serve as a framework for methodologies for evaluating systems using AI in employee selection across technological, organizational, social, and legal dimensions. These models, adopting a multi-criteria approach, focus on a sequence of stages from an evolutionary perspective, which enables the categorization of the level of advancement of AI-based solutions. Consequently, maturity models primarily serve a diagnostic and decision-support function (Lahrmann, Marx, 2010, pp. 522-525).

In the context of this study, recruitment is understood as the process of attracting and identifying potential candidates for employment, while selection refers to the process of evaluating and choosing the most suitable candidates from the applicant pool. These processes are increasingly supported and transformed by AI-based systems, which affect both operational efficiency and the quality of decision-making.

A variety of AI tools are available on the market, covering nearly every aspect of human resource management, including more than one hundred dedicated to employee selection (Zhang, 2025, pp. 1-35). This raises the question of how to facilitate decision-making for HR practitioners regarding the adoption of a given solution. At the theoretical and methodological level, the answer to this question may be linked to the use of maturity model assumptions to develop a methodology for evaluating solutions that adopt AI and are applied in employee selection.

The aim of the study was to develop an original methodology for evaluating employee selection systems utilizing AI, based on the AIPT maturity model (Assist-Inform-Predict-Transform), and to verify its usefulness through a comparative analysis of two selected

[1] In this study, it was decided to use the abbreviation AI from the English term artificial intelligence, because the abbreviation SI, and especially the expression "SI system", is used to describe the International System of Units.

solutions. The AIPT model was developed as a conceptual and operational representation of the development of AI applications in human resource management, with particular emphasis on employee selection (Bąk-Grabowska, Bartkowiak, 2026, pp. 39-50). The application of the evaluation methodology was exemplified using two solutions: eRecruiter and SAP SuccessFactors Recruiting. The analyzed solutions represent different classes of technological systems- a local ATS-type system and a global ERP-class solution. The empirical data concerning the systems selected for analysis, used in this study, were derived from organizational documentation, including publicly available data provided by system vendors.

In the study, the theoretical part presents maturity models serving as a reference point for developing the evaluation methodology for AI-based employee selection systems. The assumptions of the proposed evaluation methodology are presented. A comparative analysis of two employee selection systems is conducted based on selected evaluation criteria. The conclusion focuses on presenting the findings from the application of the evaluation methodology, indicating its advantages, including its potential for practical application, as well as the limitations of the conducted study.

2. Maturity models as a source of guidelines for the methodology y of evaluating AI-based employee selection systems

The methodology for evaluating systems utilizing artificial intelligence requires grounding in reference frameworks that enable the determination of the level of development and advancement of the analyzed solutions. One of the well-established approaches in this area is maturity models, whose origins in the organizational context can be traced back to the concept proposed by P. Crosby (1979, pp. 14-18). This concept serves as a point of reference for numerous subsequent approaches assessing the level of development, capabilities, and improvement potential of domains within organizations.

Maturity models enable the systematic identification of strengths and weaknesses within the analyzed area, as well as the comparison of the current state with the desired level (Lahrmann and Marx, 2010, pp. 312-315). Their essence lies in their iterative nature and the division of the examined domain into archetypal levels reflecting stages of development and professionalization (Mettler and Rohner, 2009, pp. 5-7). In the literature, the term “maturity” primarily refers to:

- process maturity (the degree of process definition and effectiveness),
- object maturity (the level of sophistication of a technical product),
- people competencies (the ability of the workforce to create knowledge) (Mettler, Rohner, 2009, p. 6).

Maturity models serve descriptive, explanatory, or predictive functions. All of them reflect the state of a given domain, regardless of whether they describe the current situation or suggest a target state. It is important to distinguish between a model ("what" constitutes the ideal state) and a method ("how" to achieve it), which represents a key methodological distinction (Lahrmann, Marx, 2010, p. 314). Methods are systematic, purposeful, and repeatable, which makes them more practical in diagnosis and in supporting managerial decision-making. The literature shows a growing interest in the application of maturity models in information systems (Mettler, Rohner, 2009, pp. 3-4). In the context of human resource management, this evolution includes the assessment of process maturity and the analysis of technological advancement, including the use of solutions based on AI algorithms (Duggan et al., 2020, pp. 115-118; Kellogg, Valentine, Christin, 2020, pp. 368-372).

Maturity models have become a tool for structuring the degree of formalization of HR processes and the integration of digital technologies with HRM practices. Among the key approaches are the People Capability Maturity Model (People CMM), which constitutes the foundation of thinking about HR maturity, and the Artificial Intelligence Maturity Model for Human Resources (HR-AIMM), which responds to the challenges of the fourth industrial revolution and the algorithmization of HR processes.

The People CMM model is an organizational change model and originates from software engineering. It assumes that sustainable improvement in HR requires simultaneous changes in organizational behaviors, management structures, and decision-making processes (Curtis, Hefley, Miller, 1995, pp. 3-10; 2001, pp. 27-34; 2009, pp. 41-52). The People Capability Maturity Model distinguishes five stages of human capital development:

- Level 1 (Initial – Inconsistent Management) – HR practices are inconsistent and reactive, dependent on individual decisions.
- Level 2 (Managed – People Management) – the organization repeats effective practices, including in recruitment, and managers assume responsibility for basic processes.
- Level 3 (Defined – Competency Management) – HR practices are standardized and integrated with strategy; coherent competency management develops.
- Level 4 (Predictable – Capability Management) – process effectiveness is measured quantitatively using HR analytics.
- Level 5 (Optimizing – Change Management) – human capital management is subject to continuous improvement, and innovation and learning become a permanent element of the organization (Curtis, Hefley, Miller, 2001, pp. 27-34).

In the context of implementing AI-based employee selection systems, People CMM constitutes an important point of reference. Level 3 is particularly critical, as the standardization of processes and their integration with strategy create the conditions for effective AI implementation. The absence of this level fosters fragmented use of technology and limits the organization's ability to derive value from advanced algorithmic systems.

An extension of the process maturity-based approach in HR is represented by models that directly address the use of artificial intelligence in human resource management. One of the most comprehensive is the Artificial Intelligence Maturity Model for Human Resources (HR-AIMM) developed by Armutat, Wattenberg, and Mauritz (2024, pp. 50-55). It was created in response to the limitations of general AI maturity models, which do not account for the specificity of HR processes and the role of HR in the context of digital transformation (HR 4.0, HR 5.0). The authors emphasize that implementing AI in HR is not purely a technological endeavor, but a complex organizational process encompassing strategy, structure, culture, competencies, and data management. HR-AIMM is multidimensional and serves to assess the readiness and advancement of organizations in adopting AI within the HR function, supporting the analysis of factors determining its effective application. The model includes eleven dimensions reflecting technical, social, and organizational aspects, including: integration of AI with strategy, scope of application in HR processes (including recruitment), ethical principles, data management, infrastructure, implementation organization, development of HR competencies, attitudes toward AI, organizational experience, accountability, and the perceived impact of AI on HR function performance. It distinguishes four levels of maturity:

- Level 1 (Curious start) – interest in AI without operational implementation.
- Level 2 (Learning experimentation) – experiments and pilot projects in selected HR areas.
- Level 3 (Project-related implementation) – project-based implementations with a defined scope.
- Level 4 (Holistic integration) – sustained integration of AI with HR processes and organizational strategy (Armutat, Wattenberg, Mauritz, 2024, pp. 55-56).

An important feature of HR-AIMM is the possibility of assessing multiple dimensions simultaneously, which allows for the identification of both advanced areas and those requiring development. The model allows for varying levels of maturity across different HR areas and does not assume uniform progress.

It is also worth noting commercial models that strongly influence business practice. The Deloitte model (Bersin, 2017, pp. 42-45) describes an evolution from “systems of record” to “systems of intelligence”, in which AI not only collects data but also generates recommendations. The Gartner model emphasizes the transition from the automation of simple tasks to the transformation of the HR operating model (Gartner, 2023, pp. 4-7). At the same time, approaches are being developed that do not meet the criteria of maturity models sensu stricto but serve as analytical frameworks and diagnostic tools supporting the qualitative assessment of AI use in HR. These include the concept of algorithmic human resource management (Meijerink, Bondarouk, Lepak, 2021, pp. 3-8). The authors do not reconstruct sequential stages of development but instead analyze the relationships between algorithms, decision-making processes, and the roles of organizational actors in conditions of HR automation. They emphasize the degree of delegation of decisions to algorithms,

the autonomy of AI systems, and the implications for responsibility, control, and human agency. This approach captures the social and normative dimension of algorithmization but does not enable comparative evaluation of systems or their classification according to maturity levels.

An example of a diagnostic approach is also the method for assessing organizational progress in the use of AI in HR (Ulrich et al., 2024, pp. 6-12). It includes, among others, business justification, value creation for stakeholders, accountability, development of AI competencies, principles of responsible technology use, metrics, and integration with business processes. It has a practical character and supports managerial reflection; however, similarly to algorithmic HRM frameworks, it is not based on the formal logic of maturity models nor on clearly defined stages of development. It enables the diagnosis of selected dimensions of AI but does not allow for systematic comparison of systems or their multidimensional assessment of advancement.

3. The AIPT model as a foundation for the methodology of evaluating AI-based employee selection systems

The AIPT model was developed as a conceptual and operational representation of the development of artificial intelligence applications in human resource management, with particular emphasis on recruitment and selection processes (Bąk-Grabowska, Bartkowiak, 2026, pp. 39-50). In the context of employee selection, characterized by high decision sensitivity, a direct impact on candidates' professional situations, and increasing regulatory and ethical requirements, it becomes justified to apply a methodology that combines the logic of maturity models with the possibility of multidimensional evaluation of AI systems. In response to this need, an original methodology for evaluating AI-based recruitment systems was developed, based on the AIPT maturity model (Assist–Inform–Predict–Transform).

The fundamental assumption of AIPT is the staged nature of AI implementation and use, ranging from operational support to the strategic transformation of the HR function. The model does not describe only the increase in technological advancement, but primarily the change in the role that artificial intelligence plays in decision-making, organizational, and relational processes. The AIPT model distinguishes four stages of maturity:

- Assist – at this stage, artificial intelligence performs a supporting function in the execution of routine and repetitive tasks in the recruitment process. AI systems are primarily used to automate operational activities such as initial application screening, scheduling interviews, and handling communication with candidates. Recruitment decisions remain fully on the human side, and the role of AI is instrumental.

- Inform – this stage is characterized by the use of artificial intelligence for data analysis and the provision of information supporting the decision-making process. AI systems generate reports, summaries, and data visualizations, enabling recruiters and HR managers to make decisions based on empirical evidence. However, AI does not formulate autonomous recommendations, and its role is limited to informing and structuring knowledge.
- Predict – at this stage, AI systems use predictive models to forecast the outcomes of recruitment processes, such as candidate–job fit, probability of hiring success, or risk of turnover. Algorithms formulate recommendations that have a real impact on recruitment decisions, and the role of humans shifts toward interpreting results and supervising the operation of the system.
- Transform – the highest level of maturity, at which artificial intelligence becomes an integral element of the architecture of HR processes and organizational strategy. AI not only supports recruitment decisions but also co-shapes process design, redefines the roles of recruiters and HR managers, and influences value creation for the organization and its stakeholders. At this stage, a transformation of the recruitment operating model as a whole becomes possible.

The AIPT model has a framework-based and analytical character. It does not assume uniform progress across all areas of system functioning, nor does it require achieving the same level of maturity in every organization. Instead, it enables the structuring and comparison of recruitment systems in terms of the way artificial intelligence is utilized, as well as the identification of their current level of maturity and development potential.

4. Comparative analysis of systems: eRecruiter and SAP SuccessFactors Recruiting within the AIPT framework

The AIPT model was used as the basis for the methodology of comparative evaluation of two recruitment systems representing different technological classes. This made it possible to empirically verify the usefulness of the model as a tool for analyzing AI systems in employee selection. A synthetic characterization of the individual stages of the AIPT model, taking into account the role of AI, the scope of its impact on the recruitment process, and the evolving role of humans, is presented in Table 1.

Table 1.
Characteristics of the stages of the AIPT model (Assist–Inform–Predict–Transform)

Model stage	Dominant role of AI	Scope of impact on the recruitment process	Role of humans	Significance for system maturity
Assist	Operational support	Automation of individual, repetitive tasks (e.g., CV pre-screening, communication)	Main decision-maker	Low level of maturity - AI as a tool
Inform	Providing information	Data analysis, reporting, visualization of the recruitment process	Decision-maker supported by information	Medium level of maturity - data-driven decisions
Predict	Forecasting and recommendations	Prediction of recruitment outcomes, candidate ranking, recommendations	Supervisor and interpreter of AI outputs	High level of maturity - AI influences decisions
Transform	Co-shaping processes	Reorganization of the recruitment process, changes in HR roles, strategic integration	Strategic partner of AI	Very high level of maturity - AI transforms the HR function

Source: Own elaboration based on (Curtis, Hefley, Miller, 2001; Armutat, Wattenberg, Mauritz, 2024).

In the comparative analysis, the AIPT model (Assist–Inform–Predict–Transform) was adopted as a framework for assessing the maturity of AI applications in recruitment systems. The model enables the structuring of AI functions according to their increasing impact: from the automation of operational tasks (Assist), through data-driven decision support (Inform), to prediction and recommendations (Predict), and finally to the transformation of HR roles and processes (Transform). The subject of comparison consisted of two IT systems:

- eRecruiter, a product of eRecruitment Solutions, representing a mature ATS system strongly embedded in the Polish market, developed as SaaS and extended with AI functionalities (including pre-screening, tagging, generative content, and an AI assistant) (eRecruiter, 2025, 4.02.2026),
- SAP SuccessFactors Recruiting, an enterprise-class solution (HCM/ERP) offered by SAP, in which the Recruiting component functions as an ATS supporting the entire process from requisition to candidate selection, and whose AI functionalities include, among others, AI-assisted skills matching/applicant screening, role recommendations based on CV analysis, and the generative assistant Joule within the SuccessFactors ecosystem (SAP SuccessFactors Recruiting, 2025, 4.02.2026).

Table 2 presents a comparison of eRecruiter and SAP SuccessFactors Recruiting based on the AIPT model.

Table 2.
Comparison of eRecruiter and SAP SuccessFactors Recruiting based on the AIPT model

AIPT dimension	Evaluation criterion	eRecruiter (ATS SaaS)	SAP SuccessFactors Recruiting (enterprise ATS / HCM)
Assist	Operational automation of recruitment (workflow, communication, process organization)	Automation of routine recruitment tasks: application handling, candidate communication, organization of submissions. AI performs a tool-based role, with decisions remaining on the recruiter's side.	Automation of recruitment processes within a standardized workflow (requisitions, applications, interviews, offers) as part of a broader HCM system.
Inform	Reporting, dashboards, process insights, source analysis	Analysis of process data and reporting (candidate sources, time-to-hire, channel effectiveness). Support for data-driven decisions.	Use of candidate and job data within a skills-based approach; information embedded in HR processes and system reports.
Predict	Prediction and recommendations supporting recruitment decisions (candidate–job fit, outcome forecasting)	Pre-selection and matching of candidates using AI (semantic matching, shortlists, generative profile summaries).	AI-assisted applicant screening and skills matching; recommendations of roles and candidates based on CV and competency analysis.
Transform	Integration of AI with HR processes and impact on recruitment design and decision-making roles	Development of AI toward supporting the entire recruitment cycle and improving candidate experience; transformation is gradual and functional.	Integration of AI with the HCM ecosystem (SuccessFactors + Joule); AI influences the way HR processes are carried out and user roles at the organizational scale.

Source: Own elaboration based on source materials from official websites (eRecruiter, 2025; SAP SuccessFactors Recruiting, 2025, 4.02.2026)

The comparison of eRecruiter and SAP SuccessFactors Recruiting within the AIPT framework indicates that both solutions follow the logic of the staged development of AI applications in recruitment, although they do so within different organizational and technological contexts. At the Assist and Inform levels, both systems demonstrate a high degree of maturity, offering advanced mechanisms for operational automation and process data analysis that support recruitment decision-making. Differences become more pronounced at the Predict stage, where both eRecruiter and SAP SuccessFactors use matching and pre-selection algorithms, but differ in scope and scale—eRecruiter focuses on supporting the operational work of recruiters, whereas SAP SuccessFactors embeds prediction within a broader, skills-based approach characteristic of enterprise-class solutions.

The most significant differences emerge at the Transform stage, which in the AIPT model refers not to the mere increase in technological advancement, but to changes in the design of recruitment processes and the role of the HR function. In the case of eRecruiter, transformation is gradual and functional, aimed at improving the entire recruitment cycle and enhancing user experience. In contrast, SAP SuccessFactors realizes the transformational dimension through the integration of artificial intelligence within the HCM ecosystem and the introduction of a conversational layer, which fosters the redefinition of user roles and the way HR processes are executed at the organizational level.

5. Conclusion

The analysis of both classical maturity models and conceptual and diagnostic frameworks revealed a research gap. On the one hand, maturity models offer a structured development framework and enable the classification of organizations according to their level of advancement; on the other hand, they often abstract from the detailed evaluation of specific AI systems, their algorithmic quality, their impact on users, and their compliance with ethical and regulatory requirements. In turn, diagnostic frameworks and concepts of algorithmic HRM provide in-depth qualitative insights but do not offer coherent comparative criteria or tools enabling the evaluation of systems across different technological classes. These limitations justified the need to develop a methodology for evaluating AI systems in recruitment that would integrate the logic of maturity models with a multi-criteria approach encompassing technological, organizational, user-related, and ethical-legal dimensions.

The identified gap is addressed by the original methodology based on the AIPT model, which describes four stages of maturity of AI applications in employee selection: Assist, Inform, Predict, and Transform. The conducted analysis confirms the usefulness of the AIPT model for identifying the maturity level of AI applications in recruitment, as well as for capturing qualitative differences between systems representing different technological classes. Both analyzed systems demonstrated a high level of maturity in the Assist and Inform dimensions, offering advanced operational automation and data-driven decision support. At the same time, differences were identified at the Predict and Transform levels, where both the scale of predictive use and the degree of integration of AI with HR process architecture and organizational strategy differ. Further operationalization of the AIPT model in the form of measurement scales enabling the quantitative assessment of maturity levels is possible.

The developed methodology may serve as a tool supporting decision-makers in the process of selecting and implementing AI-based recruitment systems. Its application may contribute to more informed investment decisions, reduce the risk of implementing solutions misaligned with the organization's maturity level, and improve the management of digital transformation within the HR function. From an economic perspective, this may result in the optimization of recruitment costs, improved candidate-job fit, and increased efficiency of HR processes. It should be noted, however, that the study is exploratory in nature and is based on the analysis of two systems representing specific technological classes, which limits the generalizability of the results. The data sources consisted primarily of vendor materials and organizational documentation, which may involve the risk of information asymmetry and a lack of full insight into algorithmic functioning.

In conclusion, the use of artificial intelligence (AI) in recruitment systems may contribute to increased efficiency of the selection process, particularly through faster data processing, improved matching accuracy, and enhanced decision support. However, the actual effectiveness

of these systems depends on the quality of input data, model design, and the degree of human oversight. In addition to data-related limitations, the implementation of AI in recruitment systems involves a number of challenges, including the risk of algorithmic errors, a lack of transparency in decision-making processes, and potential resistance from users. Furthermore, regulatory requirements and ethical considerations may limit the scope and manner of AI deployment in HR processes.

Future research directions should include expanding the empirical scope of the proposed methodology by analyzing a larger and more diverse set of recruitment systems representing different technological classes and organizational contexts. An important direction is also the operationalization of the AIPT model in the form of measurable indicators enabling the quantitative assessment of AI maturity levels. It would also be valuable to investigate the impact of AI-based recruitment systems on recruitment effectiveness, decision quality, and candidate experience using primary data. Further analyses should also consider ethical and regulatory aspects, particularly in the context of transparency, fairness, and the risk of algorithmic discrimination.

References

1. Armutat, S., Wattenberg, M., Mauritz, N. (2024). Designing an Artificial Intelligence Maturity Model for Human Resources (HR-AIMM). In: *Proceedings of the 5th International Conference on AI Research, ICAIR 2024*, *5*(1), 50-58. https://doi.org/10.34190/icair.5.1.3070
2. Bąk-Grabowska, D., Bartkowiak, J. (2026). *Artificial intelligence in employee selection – applications, opportunities, challenges* [*Sztuczna inteligencja w doborze pracowników – zastosowania, szanse, wyzwania*]. Wrocław: Wrocław University of Economics Publishing House, forthcoming.
3. Bersin, J. (2017). The journey from systems of record to systems of intelligence. *Deloitte Review*, *21*.
4. Crosby, P.B. (1979). *Quality Is Free: The Art of Making Quality Certain*. New York: McGraw-Hill.
5. Curtis, B., Hefley, W.E., Miller, S.A. (1995). *People Capability Maturity Model* (CMU/SEI-95-MM-02). Pittsburgh: Software Engineering Institute, Carnegie Mellon University.
6. Curtis, B., Hefley, W.E., Miller, S.A. (2001). *People Capability Maturity Model (P-CMM), Version 2.0* (CMU/SEI-2001-MM-01). Pittsburgh: Software Engineering Institute, Carnegie Mellon University.

7. Curtis, B., Hefley, W.E., Miller, S.A. (2009). *People Capability Maturity Model (P-CMM), Version 2.0, Second Edition* (CMU/SEI-2009-TR-003). Pittsburgh: Software Engineering Institute, Carnegie Mellon University. https://doi.org/10.1184/R1/6581894.v1
8. Duggan, J., Sherman, U., Carbery, R., McDonnell, A. (2020). Algorithmic management and app-work in the gig economy: A research agenda for employment relations and HRM. *Human Resource Management Journal*, *30*(1), 114-132. https://doi.org/10.1111/1748-8583.12258
9. eRecruiter (2025). Retrieved from: https://www.erecruiter.pl, 04.02.2026.
10. Gartner (2023). *AI in HR: From Efficiency to Transformation*. Retrieved from: https://www.gartner.com, 04.02.2026.
11. Kellogg, K.C., Valentine, M.A., Christin, A. (2020). Algorithms at work: The new contested terrain of control. *Academy of Management Annals*, *14*(1), 366-410. https://doi.org/10.5465/annals.2018.0174
12. Lahrmann, G., Marx, F. (2010). Systematization of maturity model extensions. In: R. Winter, J.L. Zhao, S. Aier (Eds.), *Global Perspectives on Design Science Research. DESRIST 2010. Lecture Notes in Computer Science*, *6105* (pp. 522-525). Berlin/Heidelberg: Springer. https://doi.org/10.1007/978-3-642-13335-0_36
13. Meijerink, J., Boons, M., Keegan, A., Marler, J. (2021). Algorithmic human resource management: Synthesizing developments and cross-disciplinary insights on digital HRM. *The International Journal of Human Resource Management*, 32(12), 2545-2562. https://doi.org/10.1080/09585192.2021.1925326
14. Mettler, T., Rohner, P. (2009). Situational maturity models as instrumental artifacts for organizational design. In: *Proceedings of the 4th International Conference on Design Science Research in Information Systems and Technology*. New York: ACM. https://doi.org/10.1145/1555619.1555649
15. SAP SuccessFactors Recruiting (2025). Retrieved from: https://www.sap.com/products/hcm/recruiting-software.html, 04.02.2026.
16. Ulrich, D., Brockbank, W., Kryscynski, D., Ulrich, M. (2024). AI in HR: A ten-dimension framework for responsible implementation. *Workforce Solutions Review*. Retrieved from: https://www.ihrim.org, 04.02.2026.
17. Zhang, Q. (2025). Checks and balances: Leveraging artificial intelligence for tri-balance personnel selection systems. *The International Journal of Human Resource Management*. https://doi.org/10.1080/09585192.2025.2498563

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THE IMPACT OF REMOTE WORKING ON THE WELLBEING OF GENERATION Z EMPLOYEES

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Purpose: The purpose of the article was to investigate whether remote work affects employees' sense of social isolation, feelings of being overlooked in the workplace, or a decline in their own productivity while working remotely.
Design/methodology/approach: The article is theoretical and empirical in nature. The theoretical section provides a review of the literature on the subject in the context of Generation Z employees' well-being in the labor market. The empirical section presents the results of primary research conducted in the form of a survey using a questionnaire.
Findings: Gen Z employees easily manage their work schedules while working remotely. Their productivity remains comparable to that of in-office work. On the other hand, however, remote or hybrid work has a negative impact on the development of employee relationships. Gen Z employees feel left out of important company matters. Furthermore, they experience various forms of exclusion, including being cut off from communication with colleagues, receiving incomplete documentation, and having access to company information restricted—or receiving important information only when it is already too late.
Research limitations/implications: This study was a pilot study, and the sample size appropriate for this type of research was 66 respondents. Additionally, the study was limited to a single sample (Generation Z).
Practical implications: The findings of this study are particularly relevant to human resources management within an organization because they highlight the need to adapt tools to the specific nature of remote work. It is also crucial to develop managerial competencies in the areas of managing distributed teams and monitoring employee well-being.
Social implications: The findings and conclusions of the study can serve as a key basis for minimizing negative social attitudes toward remote work and the marginalization of remote workers. An analysis of the study's findings provides a better understanding of the challenges posed by long-term remote work.
Originality/value: This article explores the forms of exclusion experienced by Generation Z, which makes it a unique approach to the topic under discussion.
Keywords: remote work, Generation Z, feelings of exclusion, employee well-being.
Category of the paper: Research Paper.

1. Introduction

The rapid advancement of technology, coupled with changing organizational needs, has made remote work an integral part of the labor market (Męcina, 2023). Remote work, a flexible form of employment, was introduced into Polish law following the outbreak of the COVID-19 pandemic (Wróbel, 2022). To minimize the risk of infection, work was moved to the home whenever possible (Kołodziej, Jaworek, 2024). Currently, remote work is considered a convenient way to perform one's job (Antczak, 2022). However, despite the many advantages of remote work—such as better time management and the ability to adjust work hours to fit one's daily routine—this type of work is not without its drawbacks (Dolot, 2020).

One of the main challenges of working remotely is the limited face-to-face interaction with the team (Czerkawska, 2018). Remote work, particularly among young employees, may be more likely to trigger symptoms of depression or increase anxiety and stress (Nordenmark, Vinberg, 2023). The purpose of this analysis is to examine the impact of remote work on the well-being of Z employees, with a particular focus on the negative aspects of remote work, such as feelings of isolation, being overlooked in communication, and the quality of remote work.

2. Literature review

Initially, the concept of employee well-being was explored within the field of positive psychology (Czerkawska, 2018). Interest in the concept of well-being in the field of human capital management stems primarily from the desire to reduce costs, particularly those associated with employee turnover, sick leave, and excessive control (Kozioł, Wójtowicz, 2016).

Occupational well-being is one of the key areas of interest in contemporary occupational psychology and the fields of management and quality science (Hauk, Zwardoń-Kuchciak, 2025). Considering both the importance of organizational culture and the benefits of enhancing well-being, values such as dialogue with employees, needs assessment, and the appropriate leadership style and competencies of leaders influence the shaping of employee well-being (Białas, Molek-Winiarska, Pelc, 2023). The Ministry of Family, Labor, and Social Policy defines remote work as performing work entirely or partially at a location designated by the employee (at the employee's home address) and agreed upon on a case-by-case basis with the employer (gov.pl, 2026).

On the other hand, hybrid work refers to a flexible, blended employment model in which some duties are performed from home and others from the office (Randstad, 2026). In most cases, hybrid work involves a 50/50 split between working in the office and working from home. In special cases, an employer may approve working 80% or 100% from home, thereby making it full-time remote work. The prevalence of remote work in Poland varies by sector. Remote work is most common in the information technology, finance, education, and public administration sectors. In sectors such as manufacturing or construction, where physical presence is required, the possibility of remote work is limited. Generation Z is a group of young workers born between 1995 and 2012, and according to the World Economic Forum, by 2030 Generation Z will account for one-third of the global labor market (Zielonalinia, 2026). The results of a survey conducted by Deloitte clearly show that for Polish Gen Zers, a sense of purpose in their work, work-life balance, and mental health are key aspects of their professional lives (Deloitte, 2026).

There are certain characteristics that define Generation Z which may influence their experiences and behaviors in the workplace, and a proper understanding of these can help foster healthy and productive relationships (Conderacci, 2026). Well-being at work, regardless of where it is performed, is also currently a significant value for Generation Z (Coworking.cafe, 2026). What particularly influences job satisfaction is flexible working hours and a flexible work location (Putri, 2026). Just a few years ago, well-being was associated exclusively with additional employee benefits (Rogozińska-Pawelczyk, Cewińska, Lubrańska, Oleksiak, Stricker, 2019). Today, employee well-being is one of the key components included in business strategies, becoming a decisive factor in an organization's competitiveness (Hh24, 2026). Well-being, which is the foundation of a healthy organization, can be fostered within a company by establishing well-being standards, identifying employees' actual needs, and strengthening managers' competencies. When working to improve employee well-being, we must not overlook the factors that undermine it. While remote or hybrid work models offer many advantages, they are not without drawbacks, including weakened social bonds, a diminished sense of belonging to the team, and reduced mental health.

The subject of employee well-being in the context of remote work is an area that continues to evolve. Employee well-being in the context of remote work among Generation Z employees is a complex and multifaceted issue. According to the definition presented by A. Bodak, well-being at work is a state subjectively perceived by an employee in which the employee feels content and derives satisfaction from the work performed under specific physical and social conditions (Bodak, 2017). Well-being refers to the aspects of a person's situation that are beneficial to them (Strykowska, 2009). Another definition of well-being is offered by D.L. Oishi, who emphasizes that well-being refers to a person's subjective assessment of their life, including its cognitive and emotional aspects (Oishi, 2018). Efforts to improve employee well-being have attracted widespread interest from both economic and humanistic perspectives (Angelis, Giusino, 2020).

Employees' well-being can be examined across four dimensions (Białas, Molek-Winiarska, Pelc, 2023). Psychological—relating to subjective mental well-being (job satisfaction, self-esteem, agency, and capabilities):

- Physical relating to physical health (physical safety, healthcare).
- Social relating to the quality of relationships with others (trust, social support, and cooperation).
- Financial relating to finances (income, raise) (Budd, Spencer, 2015).

Caring for employee well-being involves identifying employees' needs and implementing appropriate management practices within the company (Czerniawska, Szydło, 2021).

This topic has been explored by many researchers. Interesting studies have been conducted to compile a list of factors that positively and negatively influence the three dimensions of employee well-being in a hybrid work environment (Tabor-Błażewicz, 2022). In his study, E. Robak highlights the positive and negative aspects of remote work for Generation Z, providing a better understanding of the needs of Generation Z in terms of well-being (Robak, 2023). E. Bielińska-Dusza and M. Hamerska offer a different perspective on intergenerational differences in the perception of remote work. The results of their study indicate that employees' age influences their assessment of remote work in terms of perceived work efficiency, preferences regarding work arrangements, and task completion times (Bielińska, Hamerska, 2023). Interesting insights into the well-being of remote work emerge from research conducted by Gallup (Gallup Report). The findings indicate that employees working in a hybrid model exhibit the highest levels of engagement and well-being. On the other hand, the study shows that, globally, employee engagement is declining. Meanwhile, a study conducted by K. Lutyńska and A. Wasiluk indicates that Generation Z emphasizes the importance of continuous learning and professional development. In this study, this generation demonstrates not only a strong interest in remote work but also a desire for greater flexibility at work and a commitment to achieving a work-life balance (Lutyńska, Wasiluk, 2023).

However, current research has not addressed the issue of Generation Z's sense of exclusion when working remotely. Exclusion from the workplace can lead to a feeling of being "invisible" in the work environment. Exclusion from communication not only deepens isolation and a lack of integration among employees but also contributes to the phenomenon of the dehumanization of work. The dehumanization of work refers to a reduction in autonomy combined with a lack of recognition from supervisors, which can contribute to a deepening sense of exclusion and lower job satisfaction. Therefore, employers should be aware that an employee's age should be a key factor in determining human resource management policies (Muster, 2023). In addition, the growing number of young people entering the workforce requires the use of modern approaches and tools to retain them within the company (Radzajewska, Kobylińska, 2025).

3. Research methodology

The study was conducted on a sample of 66 respondents who are employed and work remotely or in a hybrid model across various organizations and positions. The sample was selected using purposive sampling. When developing the criteria for selecting the research sample, several factors were taken into account, such as age, type of work performed, length of service in the organization, frequency of remote work, and gender. During the study, respondents answered research questions related to their sense of well-being in the organization where they currently work. Particular emphasis was placed on aspects such as productivity, feelings of isolation, and communication in remote/hybrid work. The study was conducted using a standard questionnaire.

The study posed the following four research questions:

1. Does remote work affect employee productivity?
2. Does remote work reduce the amount of information received regarding important team or company matters?
3. Does remote work reduce the ability to build professional relationships and communication within the team?
4. Does remote work affect promotion opportunities?

Attempts to answer the research questions outlined above are discussed later in this article. The study participants exhibited a variety of characteristics. The study took into account parameters such as gender, age, type of work performed, and length of service with the organization. The characteristics of the participants are presented in Table 1.

Table 1.
Characteristics of respondents in the study sample

Criterion		**Percentage of responses**
gender	female	54,55
	male	45,45
age	up to 25 years old	75,76
	aged 25 to 31	24,24
type of work performed	remote work	24,24
	hybrid work	75,76
frequency of remote work	every day	7,58
	several times a week	59,09
	several times a month	6,06
	occasionally	4,55
length of service with the organization	<1	36,36
	1-3 years	49,99
	3-5 years	10,61
	5-10 years	1,52
	>10 years	1,52

Source: Compiled by the author based on the survey results.

The survey questionnaire included questions using a 5-point Likert scale as well as open-ended questions.

4. Findings

The study examined the following aspects: assessment of remote work conditions, perceptions and effectiveness of remote work, preferences regarding remote work models, performance of duties while working remotely, feelings of exclusion related to remote work, and the impact of remote work on communication and career advancement opportunities.

In the first part of the survey, respondents assessed the conditions for remote work at home and the organization of their work schedule while working remotely. Over 84.0% of respondents believe they have very good or good conditions for remote work. 12.12% reported average or poor working conditions, while only 3.88% reported very poor conditions for remote work. Respondents rated the ease of managing their time while working remotely in a similar manner.

As many as 31.82% of respondents emphasized that they find it very easy to organize their work while working remotely, and just under 47.00% indicated that they find it somewhat easy to organize their work time remotely. 21.18% of respondents indicated that it is difficult or very difficult. In this part of the survey, respondents also assessed whether they had the appropriate equipment for remote work. In this case, as many as 83.33% of respondents indicated that they had the appropriate equipment for remote work, while 13.63% of respondents indicated that they partially had the appropriate equipment for remote work. Only 1.5% of respondents answered that they do not have the appropriate equipment for remote work. In the second part of the survey, respondents assessed their productivity while working remotely. Just under 29.00% of respondents believe that their productivity while working remotely is higher than if they were working in-office, and 46.00% of respondents assessed that their productivity is at a similar level to when working in-office. As many as 25.00% of respondents indicated lower productivity compared to working in the office. Working remotely affects motivation to perform the work.

For 37.88% of respondents, working remotely increases motivation, while for 33.33%, working remotely does not affect motivation. Slightly fewer, 28.79% of respondents, indicated that remote work reduces their motivation to work. In the same section, respondents assessed the impact of remote work on their well-being. For 69.69% of respondents, remote work has a very or somewhat positive impact. For 12.12%, remote work has a negative or very negative impact on well-being, while 18.19% of respondents indicated that remote work has a neutral impact on well-being. An interesting question, which will be explored further in the subsequent analysis of the results, was the assessment of contact and collaboration with the team while working remotely. In this case, the majority of respondents—46.96%—rated contact and collaboration with the team as good, while 25.75% rated it as average. Very good contact and cooperation were indicated by 16.66%, while very poor or poor were indicated by 10.63%.

Next, respondents were asked to identify the work model they found most comfortable. In this case, the most comfortable work model is hybrid work, as indicated by 74.24% of respondents. Fully remote work was chosen by 12.12% of respondents, while 13.64% had no clear preference regarding their preferred work model. Respondents were also asked whether they would like to work remotely in the future. Over 81.00% of respondents prefer the option of hybrid work in the future, while 19.00% of respondents indicated that they would rather not work remotely in the future.

In the following section, respondents evaluated the performance of their duties while working remotely. These results are presented in Figure 1.

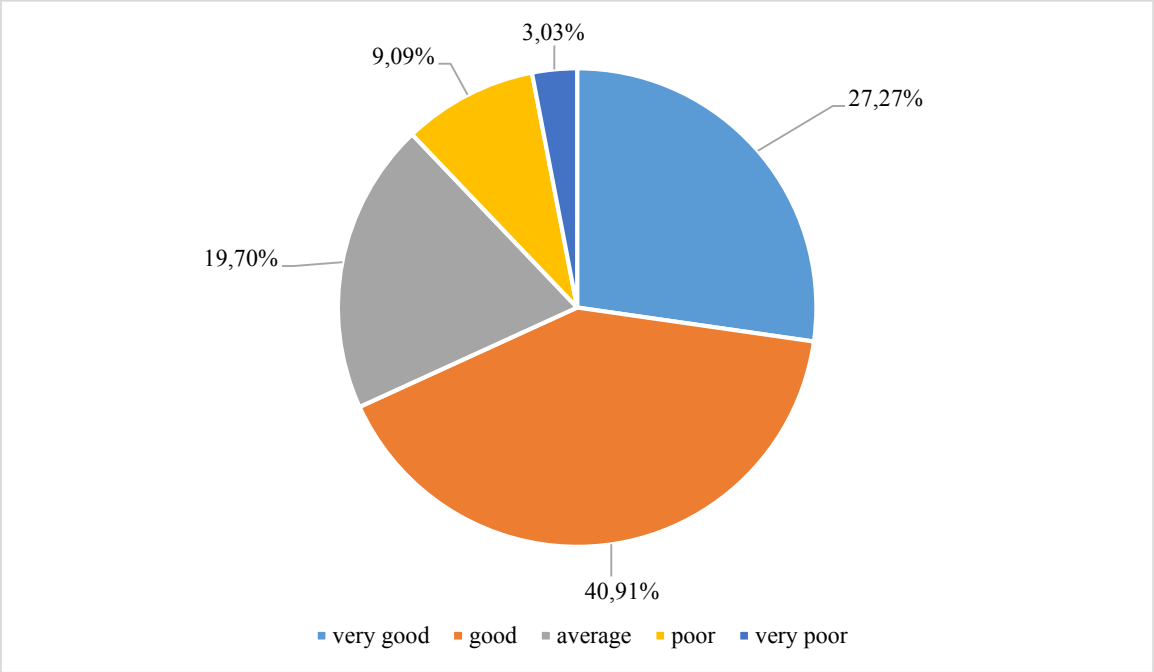

Figure 1. Ability to focus on work duties while working remotely.

Source: Author's own work based on original research, n = 66.

For 68.18% of respondents, working remotely has a positive or very positive impact on their ability to perform their duties, while 12.12% of respondents emphasized that their concentration on their duties while working remotely is poor or very poor. These results suggest the importance of maintaining an appropriate level of concentration when working from home.

The survey questionnaire also included 3 open-ended questions. The first two questions concerned the respondents' own opinions. In this section, respondents indicated the reasons why they like or dislike remote work. A summary of the most frequently cited responses is presented in Table 2.

Table 2.
Advantages and disadvantages of remote work

	Advantages of remote work	**Disadvantages of remote work**
1	No time wasted commuting to work	lack of access to complete documentation and longer communication channels with others
2	The ability to take care of household chores (doing laundry, picking up a package from the courier, preparing dinner) or going to the doctor	poor time management
3	No distractions from people in the office	monotony and lack of motivation to leave the house
4	Freedom of dress and comfort	lack of human contact
5	No feeling of being monitored by a supervisor	lack of direct contact with coworkers
6	Greater sense of privacy, no interference from coworkers in performing work	inability to resolve issues immediately in the employee's presence
7	Greater focus	feeling of isolation
8	Getting up later	difficulty working standard 9-to-5 hours, leading to longer workdays
9	Safety, avoiding exposure to illness	deterioration of team communication
10	More peace of mind	internet connection issues

Source: Author's own work based on original research, n = 66.

Among the advantages of remote work, respondents most frequently highlighted that the main benefit of this work arrangement is the time saved—both on the commute itself and the convenience of being able to sleep in or wear whatever they like at home. Another positive aspect of remote work is a greater sense of privacy and peace of mind. Remote work also has its drawbacks, and the lack of direct contact with coworkers is the main barrier to remote work, especially long-term remote work, which leads to a sense of isolation. Respondents also pointed to another problem: the lack of access to complete information or documentation, which makes communication with coworkers more difficult.

In the next section of the survey, respondents were asked about their work pace while working remotely. In this section, 24.24% of respondents indicated that their work pace while working remotely is faster than it would be if they were performing the same work in the office, while for over 53.00%, the work pace while working remotely is similar to the amount of tasks completed while working in the office. The remaining respondents indicated that they work more slowly from home compared to performing the same work from the office. An interesting area that was examined concerned the separation of work time from free time when working remotely. For 70.00% of respondents, separating work time from free time is easy. For 30.00%, it is difficult to separate work time from free time.

Respondents also assessed the difficulty of performing tasks while communicating online with colleagues. For 60.00% of respondents, remote communication hinders task completion due to delays in receiving responses or technical issues. In contrast, 40.00% have no problems completing assigned tasks, and communicating exclusively online does not hinder this task. While working remotely, 72.00% of respondents have clearly defined tasks to complete. Only 30.00% of respondents also noted that when working remotely, they sometimes do more work than their job description requires. As many as 75.00% of respondents indicated that they have technical and substantive support while working remotely. In turn, for 42.42% of

respondents, working remotely has a positive impact on the quality of their work. For 47.00%, remote work does not affect the quality of their work.

This research places particular emphasis on the area of remote work in the context of feeling overlooked by colleagues regarding important matters or employee events, the impact on team belonging, and equal access to the resources and information necessary to perform the job. In this section, respondents also indicated how they feel excluded from professional life due to working remotely.

According to the responses, as many as 72.71% of respondents believe that while working remotely, they feel less engaged in team life. Only 27.29% of respondents admit that they do not feel less engaged in team life. Over 54.54% of respondents indicated that they feel they are informed less frequently about important team or company matters than those working on-site. Over 22% of respondents indicated that they feel left out of team decision-making. Remote work reduces the ability to build professional relationships while working remotely. This result is presented in Figure 2.

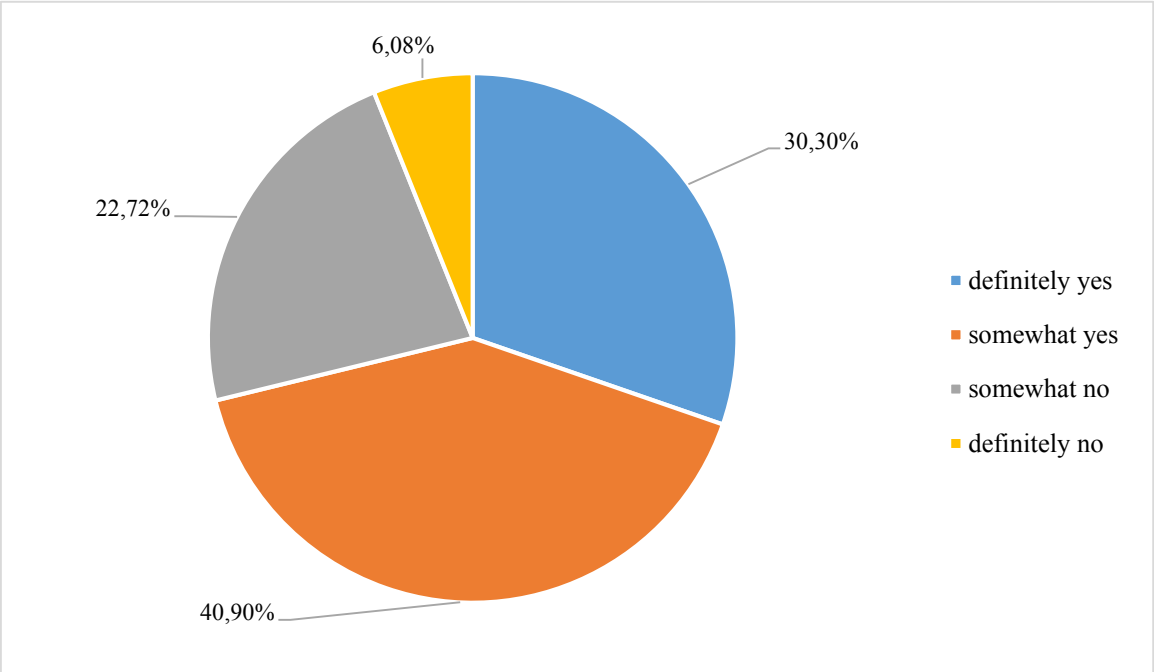

Figure 2. The impact of remote work on the ability to build professional relationships while working remotely.

Source: Author's own work based on original research, n = 66.

Over 71.20% of respondents admit that working remotely reduces their ability to build professional relationships, while 28.80% disagree. Just under 30.00% of respondents feel that their work is less visible or appreciated when they work remotely. Over 32.00% of respondents believe that remote work causes a sense of social isolation among respondents. Just under 22.31% of respondents feel they do not always have equal access to the resources and information necessary for work, such as documents or materials, while 77.63% of respondents believe they have access to resources and information despite working remotely. Respondents

also provided answers to the third open-ended question regarding feelings of exclusion related to remote work. The most frequently cited responses are shown in Figure 3.

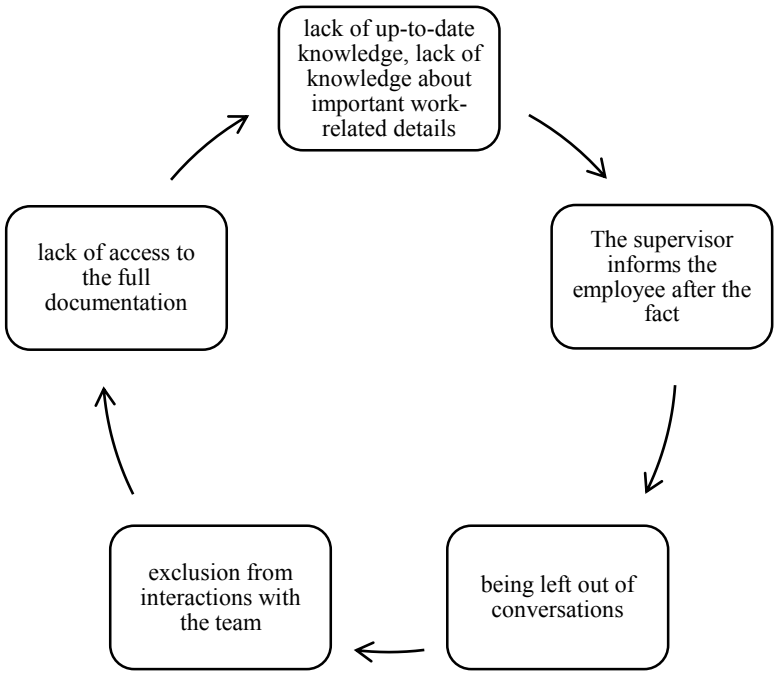

Figure 3. Perceived forms of exclusion associated with remote work.
Source: Author's own work based on original research, n = 66.

The forms of exclusion shown in Figure 2 represent the most frequently described situations respondents encountered while working remotely. Among these forms of exclusion, respondents most often cited a lack of timely communication with employees, being left out of discussions, or being informed after the fact. Another type of exclusion identified by respondents was the lack of access to complete documentation. For 72.00% of respondents, working remotely does not affect their chances of promotion, while for 28.00%, working remotely significantly reduces their chances of being promoted.

5. Conclusions

Based on the analysis of our own research results, several key aspects can be highlighted. First, remote work is a widely used form of performing professional duties among respondents. Second, the research results indicate that remote work does not reduce productivity. Many cases indicate that Generation Z employees working remotely maintain their current productivity at the same level or report higher productivity compared to in-office work. Respondents also indicated that the pace of task completion does not decline when working remotely. Remote work may hinder access to information. Furthermore, remote work can make it more difficult to build professional relationships.

Another key finding from the analysis is respondents' preference for a hybrid work model. Respondents described this model as the most optimal because it combines the advantages of remote and in-office work, thereby mitigating the negative aspects of remote work. For some respondents, remote work may carry the risk of limited career advancement due to reduced employee visibility.

Although flexibility, autonomy, and time savings can be benefits of remote work, on the other hand, remote work is also associated with negative aspects. Working remotely or in a hybrid model carries a number of psychosocial consequences, ranging from negative feelings to decreased motivation, exclusion from workplace life, and being overlooked in important company matters.

This type of work positively impacts the ability to focus while working remotely, and tasks are completed on time. A good solution would be to create a catalog of best practices that support the well-being of Generation Z by ensuring effective team communication, offering psychological support, and providing mentoring programs that foster employee development, so that feelings of exclusion are reduced and access to information within the team is improved.

References

1. Angelis, M., de, Giusino, D., Nielsen, K., Aboagye, E., Christensen, M., Innstrand, S.T., Mazzetti, G., van den Heuvel, M., Sijbom, R.B.L., Pelzer, V., Chiesa, R., Pietrantoni, L. (2020). H-WORK Project: Multilevel Interventions to Promote Mental Health in SMEs and Public Workplaces. *International Journal of Environmental Research and Public Health*., *17*(21), 8035, https://doi.org/10.3390/ijerph17218035
2. Antczak, B. (2022). *Formy pracy w czasach pandemii*. Wydawnictwo Akademii Nauk Stosowanych WSGE im. A. De Gasperi w Józefowie, https://doi.org/10.13166/jms/149202
3. Białas, S., Molek-Winiarska D., Pelc A. (2023). Kultura organizacyjna sprzyjająca poprawie dobrostan pracowników, *Zarządzanie Zasobami Ludzkimi*, *150*, 73-93. http://dx.doi.org/10.5604/01.3001.0016.2926
4. Bielińska-Dusza, E., Hamerska, M. (2023). Remote Work in the Perspective of Intergeneration Differences, Research Papers of Wroclaw University of Economics and Business, *67*(5), 22-36, https://doi.org/10.15611/pn.2023.5.03
5. Bodak, A. (2017). Bezpieczne środowisko pracy w kształtowaniu dobrostanu pracowników, *Zeszyty Naukowe. Organizacja i Zarządzanie*, *108*, 45-54, https://doi.org/10.29119/1641-3466.2017.108.4
6. Budd, J.W., Spencer, D.A. (2015). Worker well-being and the importance of work: bridging the gap. *European Journal of Industrial Relations*, *21*(2).

7. Conderacci, L. (2026). *Gender, care and Gen Z Work Culture. Handbook of the Philosophical Foundations of Business Ethics, Living Edition.* Springer Nature Reference, Springer 2026, 1-19. https://doi.org/10.1007/978-94-007-6176-6_138-1
8. CoworkingCafe. Retrieved from: https://www.coworkingcafe.com/blog/remote-work-well-being-survey-2026/.10.02.2026.
9. Czerkawska, A. (2018). Wykorzystanie elementów psychologii pozytywnej do budowania well- beingu pracowników. In: K. Kulig-Moskwa, *Wellbeing w organizacji. Co? Jak? Dlaczego?* (pp. 23-44). Warszawa: Infor.pl.
10. Czerniawska, M., Szydło, J. (2021). Do Values Relate to Personality Traits and if so, in What Way? – Analysis of Relationships. *Psychology Research and Behavior Management, 14*, https://doi.org/10.2147/PRBM.S299720
11. *Deloitte Data Portal* (2026). Retrieved from: https://www.deloitte.com/pl/pl/about/press-room/wedlug-91-proc-polskich-zetek-i-millenialsow-praca-bez-poczucia-sensu-nie-daje-satysfakcji.html. 10.02.2026.
12. Dolot, A. (2020). Wpływ pandemii COVID-19 na pracę zdalną – perspektywa pracownika. *E-mentor*, *1*(83), https://doi.org/10.15219/em83.1456
13. *Gov.pl Data Portal* (2026). Retrieved from: https://www.gov.pl/web/rodzina/praca-zdalna.10.02.2026.
14. Hauk, M., Zwardoń-Kuchciak, O. (2025). Cechy pracy a dobrostan zawodowy. *Human Resource Management [Zarzadzanie Zasobami Ludzkimi]*, *161*(2), 32-49, https://doi.org/10.5604/01.3001.0055.1977
15. *Hh24 Data Portal* (2026). Retrieved from: https://hh24.pl/dobrostan-pracownika-w-2026-roku-7-trendow-ktore-uksztaltuja-przyszlosc-pracy-i-zdrowia-psychicznego. 10.02.2026.
16. Kołodziej, J., Jaworek, M. (2024). Praca zdalna i jej subiektywny wpływ na dobrostan pracownika. *HUMANITAS Zarządzanie*, *2*. https://doi.org/10.5604/01.3001.0054.6941
17. Kozioł, L., Wójtowicz, A. (2016). Wybrane praktyki zarządcze a dobrostan pracowniczy, *Zeszyty Naukowe Politechniki Poznańskiej. Organizacja i Zarządzanie*, *71*, 165-171, https://doi.org/10.21008/j.0239-9415.2016.071.15
18. Lutyńska, K., Wasiluk A. (2023). Co motywuje do pracy pracowników różnych pokoleń? *Academy of Management*, *7*(1), 51-69.
19. Męcina, J. (2023). Praca zdalna jako forma świadczenia pracy w kontekście nowych uwarunkowań gospodarczych i społecznych. Zabezpieczenie społeczne. *Teoria, prawo, praktyka*, *18*. https://doi.org/10.31971/2299-2332.2023.18.2
20. Mierzejewska, K., Chomicki, M. (2020). Psychospołeczne aspekty pracy zdalnej. Wyniki badań przeprowadzonych w trakcie trwania pandemii COVID-19. *Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie*, *3*(987). https://doi.org/10.15678/ZNUEK.2020.0987.0302
21. Moras-Olaś, K. (2022). Okazjonalna praca zdalna – problemy z liczeniem okresu okazjonalnej pracy zdalnej pracowników zatrudnionych w niepełnym wymiarze i w trakcie

roku kalendarzowego na tle projektu nowelizacji kodeksu pracy. *Praca i Zabezpieczenie Społeczne*, *8*(1). https://doi.org/10.33226/0032-6186.2022.8.5

22. Muster, R. (2023). Pokolenie "Z" na współczesnym rynku pracy w opiniach pracodawców. Humanizacja Pracy. *Zeszyty Naukowe Politechniki Poznańskiej. Organizacja i Zarządzanie*, *1*(299), 31-146.
23. Nordenmark, M., Vinberg, S. (2023). *Working from home, work/life conflict and mental wellbeing in Europe during the COVID-19 pandemic.* Work – Volume Pre-press, Ostersund: Department of Health Sciences, https://doi.org/10.3233/WOR-230271
24. Oishi, D.L. (2018). Advances and Open Questions in the Science of Subjective Well-Being. *Collabra Psychology*, *4*(1). https://doi.org/10.1525/collabra.115
25. Putri, S. (2026). The role of flexible Work Arrangement on Generation Z Employee. *Journal Research of Social Science Economics and Management*, *5*(5), 9634-9638, https://doi.org/10.59141/jrssem.v5i5.1276
26. Radzajewska, P., Kobylińska, U. (2025). Oczekiwania młodych pracowników wobec praktyk zarządzania zasobami ludzkimi stosowanych przez współczesnych pracodawców. *Academy of Management*, *9*(4), 32-48.
27. *Randstad.pl. Data Portal* (2026). Retrieved from: https://www.randstad.pl/strefa-pracownika/praca-na-co dzien/praca-hybrydowa-na-czym-polega-kto-moze-pracowac hybrydowo/. 10.02.2026.
28. *Raport Gallup Data Portal* (2026). Retrieved from: https://www.gallup.com/workplace/349484/state-of-the-global workplace.aspx,15.03.2026.
29. Robak, E. (2023). The Well-being of Employees and Working Relations in Remote Working-Opinion of Generation Z. *Organization and Management Series*, *180*, 552-563, https://doi.org/10.29119/1641-3466.2023.180.28.
30. Rogozińska -Pawelczyk, A., Cewińska, J., Lubrańska, A, Oleksiak, P., Stricker, M. (2019). *Pokolenia wobec wartości i zagrożeń współczesnych organizacji*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego. https://doi.org/10.18778/8142-762-3.
31. Strykowska, M. (2009). Dobrostan pracowników a zarządzanie współczesnymi organizacjami. *Ruch Prawniczy, Ekonomiczny i Socjologiczny*, *71*(1)*,* 187-194.
32. Tabor-Błażewicz, J. (2022). Wpływ pracy zdalnej i hybrydowej na dobrostan pracowników. In: J. Tabor-Błażewicz, *Wyzwania kierowania ludźmi w systemie hybrydowej organizacji pracy* (pp. 50-53). Warszawa: SGH.
33. Trzebińska, E. (2008). *Psychologia pozytywna*. Warszawa: Wydawnictwa Akademickie i Profesjonalne.
34. Wróbel, P., Stefaniuk, T. (2022). *Wdrażanie pracy zdalnej w organizacjach. Ludzie, procesy, technologie, bezpieczeństwo.* Gdańsk: Wyd. Uniwersytetu Gdańskiego.
35. *Zielonalinia Data Portal* (2026). Retrieved from: https://zielonalinia.gov.pl/pokolenie-z-na-rynku-pra-1/, 10.02.2026.

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EMPLOYEE BEHAVIOUR'S DURING LAYOFFS

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Purpose: The purpose of this article is to discuss various issues related to employee behaviour in the context of layoffs in an organization**.** A synthetic review of the literature indicates a gap in articles providing information on employee behaviour in the event of layoffs.
Design/methodology/approach: A systematic review of the literature based on the SCOPUS scientific text database was used. The PRISMA methodology was used to reduce the literature in a way consistent with the subject of the review and the words in the title of the article.
Findings: A systematic review of the literature enabled the creation of a conceptual and bibliographic database related to the topic of employee behaviour in the event of layoffs. Knowledge about employee behaviours not only allows us to build initial hypotheses for further exploration of the research topic but also provides practical potential for practitioners involved in implementing the layoff process in an organisation to plan their actions.
Research limitations/implications: The scarcity of Polish studies and articles on the cultural context of Polish enterprises among the scientific articles analyses in the Scopus database limits the references and practical conclusions to domestic entrepreneurship. The presence of a topic of employee behaviour in publications without citations was excluded from the analysis.
Practical implications: The area of workplace redundancies is identified in the literature as a crisis situation in an organization. The context of a company that implements staff reductions has a negative impact on the perception of the organisation.
Social implications: Important and relevant given the widespread implementation of layoffs and job cuts in an era of technological advances in work processes and the reduction of the human factor in many jobs.
Originality/value: The results of a systematic review of the literature confirm the low level of research interest in the topic of employee behaviour in the context of layoffs. This is confirmed by the limited number of scientific articles on this topic in the Scopus database.
Keywords: management, layoffs, behaviours, employee, review.
Category of the article: Review of the literature.

1. Introduction

The purpose of this article is to explore the topic of employee behaviour in the context of layoffs using a systematic review of the scientific literature in this area. The psychological perspective in management and quality sciences refers to the diverse mental resources of employees in the face of layoffs, understood as a reduction in employment as a process within an organisation. Human adaptation to a change in the threat of jo b loss refers to the concepts of adaptation, mental resilience, and agency in situations of threat (Marlar, 2025). According to resource conservation theory, employees with high adaptability use psychological resilience as a psychological resource and respond positively to change (Luan, Huang, Wen, 2025). Empirical interest in the issue requires a systematic review of the literature in this area. The aspect of differences in employee behaviour towards layoffs is a topical issue, especially in an era when the technologization of work processes is affecting employment. The author points to the importance of employee behaviour towards job cuts, linking the paradigm of individual human resources with the process of change in the organisation, which is job cuts. The results of the article indicate behaviours that are helpful in creating innovative models of adaptation to downsizing. The variables that differentiate employees in their behaviour towards layoffs are a response to tendencies towards certain behaviours in situations of uncertainty.

In order to answer the question of what employee behaviours in the event of layoffs appear in the current perspective of management using the achievements of psychology in social sciences, a systematic review of the literature was used using the SCOPUS database. The article is dedicated to business management professionals who employ people, including human resources specialists and managers involved in offboarding processes, for whom in-depth information about the complexity of employee behaviour towards layoffs in the workplace will allow them to prepare for the demands of this process in their organisation (Wilczyński, 2023).

2. Methods

The following research questions were posed: What behaviours of employees in the event of layoffs in a company are mentioned in the current literature in the field of management and psychology? What publications are available on this topic in the field of management and quality sciences using psychology in the common area of social sciences? The answer to this question is currently available in scientific articles from the Scopus database on research on differences in employee adaptation to layoffs and downsizing. At the same time, this analysis provides recommendations for human resource management practices in organisations that address the issue of individual differences in human adaptation to change, such as layoffs.

In order to answer the research questions, in addition to a critical analysis of specialist texts, elements of a systematic literature review were used. Empirical interest in the area of psychological differences in the adaptation of employees in an organisation in the event of layoffs has become a topical and important topic for the AI technological revolution, which is seen as the cause of job losses and reductions in employment in positions where technological processes are replacing humans. A systematic review of the literature was conducted from 14 to 16 December 2025. Starting with the selection of the area of publications sought from the entire Scopus database to scientific journals from the Scopus list in English, with the selection of the following scientific areas: Business, Management and Accounting, Psychology, Social Sciences, the search area was narrowed down to 12,000 articles in these disciplines. The first stage of the research identified the following keywords: downsizing, employee, behaviour. After searching for this collection of articles using keywords, 143 results were obtained. Using the method of narrowing down the scope of current examples from the literature exclusively in English-language scientific journals from the Scopus list, with the selection of the following fields of science: Business, Management and Accounting, Psychology, Social Sciences, the search area was narrowed down to the field of science, yielding 77 results. In the next step, using the Scopus search engine, the area was narrowed down to the years temporarily valid from 2021 to 2025 in the fields of Business, Management and Accounting, Psychology, and Social Sciences, yielding 14 results. After critical analysis, taking into account the highest citation indices according to SCOPUS, the full texts of the articles with the three highest scores were selected for the next step. The next stage of the research, carried out in accordance with the PRISMA procedure (Hensel, 2020, pp. 73-77), enabled a problem-orientated view of the analysed content from a historical perspective. They became the basis for updating concepts that link the issue of employee behaviour in redundancy situations, present in scientific articles from 2021 to 2025. This criterion is important for current research reports on human behaviour in organizations. Changes in human behaviour in organisations, including the conditions of dismissal, can vary over time and across national contexts. Therefore, in order to ensure the accuracy and relevance of conclusions about behaviour in the dynamics of human behaviour, a time limit was applied to currently relevant behaviour's in organisations.

As a result, the main thematic areas of the publications linking the concepts of employee behavior's in redundancy situations were identified in a network of concepts that includes such terms as knowledge concealment, competition, cyberloafing, withdrawal, cynicism, job insecurity, work control, competition, servant leadership, coping mechanisms, low performance, role stress, anger, and boredom. Translating this set of concepts present in the articles covered by the review into English, the set of concepts collected is hiding knowledge, competition, cyberloafing, withdrawal, behaviours, cynicism, job insecurity, job control, servant leadership, coping mechanism, team performance, role stress, boredom, and anger. A synthetic review using the Scopus database did not identify any Polish authors or

Polish texts on the subject of employee behaviour in the context of layoffs. It was precisely this gap that prompted us to take up this topic. Even if studies on employee behaviour in the context of layoffs in the Polish organisational context were published, they did not appear in the Scopus database and were not cited. Ultimately, the small number of articles confirms the thesis that the topic of employee behaviour in the event of layoffs is largely unexplored, warranting further investigation in national research.

The following is a collection of terms that recur in articles related to employee behavior in the event of layoffs.

Figure 1 illustrates a set of disciplines with a breakdown of the share of articles in each of the disciplines in which topics of employee behaviour appeared in redundancy situations.



Figure 1. Map of terms in English appearing in articles on employee behaviour in layoff situations.

Source: own work.

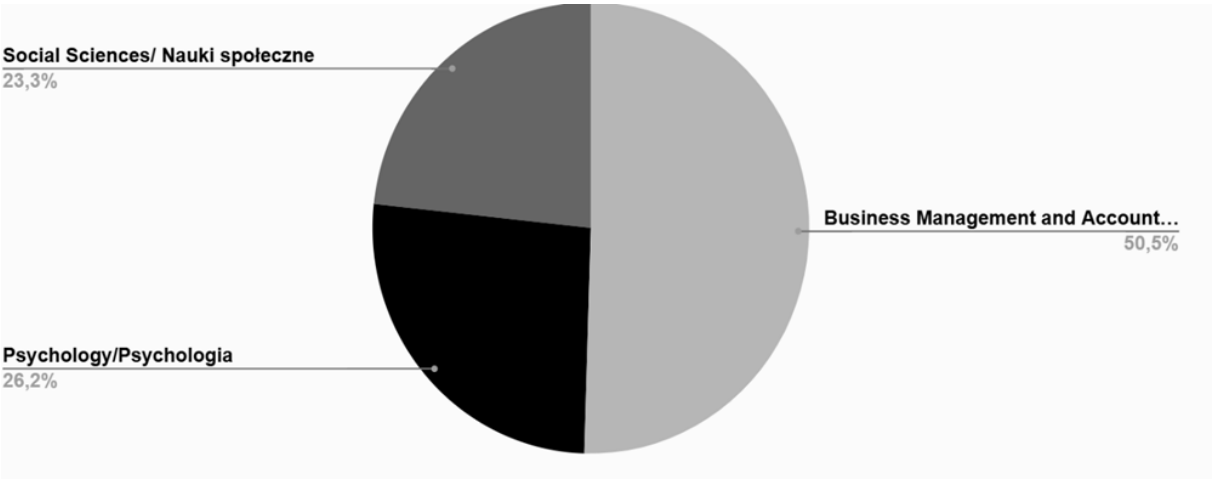

Figure 2. *Percentage breakdown of publications related to employee behaviours in redundancy situations. No time frame N = 77.*

Source: own study based on results from the Scopus database.

Table 1 summarises the key behaviours present in the scientific literature articles analysed in this synthetic review.

Table 1.
Texts selected for full analysis from the Scopus database, considering the highest citation index

Article		Year	Citation	Employee Behaviour	Related words
1	Nguyen, Tuyet-Mai, Malik Ashish, Budhwar, Pawan Knowledge hiding in organisational crisis: The moderating role of leadership, *Journal of Business Research*	2022	158	Low job engagement Unwillingness to share knowledge with others; Knowledge hiding	Role conflict Job insecurity Job control Cynicism Competition
2	Khawaja, K.F., Sarfraz, M., Rashid, M., Rashid, M. How is COVID-19 pandemic causing employee withdrawal behavior in the hospitality industry? An empirical investigation, *Journal of Hospitality and Tourism Insights*	2022	72	Cyberloafing Withdrawal behaviours	Job stress Increased levels of boredom and anger
3	Tian, Z., Tang, C., Akram, F., Khan, M.L., Chuadhry, M.A. Negative Work Attitudes and Task Performance: Mediating Role of Knowledge Hiding and Moderating Role of Servant Leadership, *Frontiers in Psychology*	2021	21	Knowledge hiding behaviours Servant leadership	Knowledge Hiding behaviour Role stress Job Insecurity Employees Cynicism Team performance
4	Salman, A., Ahmed, I., Jahangir, S., Job insecurity and employees' safety voice behaviour – a managerial dilemma caused by COVID-19, Asia-Pacific Journal of Business Administration	2022	8	Context of the situation in the organization of layoffs COVID-19	Job insecurity and Employees' safety voice behaviour – a managerial dilemma caused by COVID-19
5	Baù, M., Karlsson, J., Haag, K., Pittino, D., Chirico, F. Employee layoffs in times of crisis: do family firms differ? *Entrepreneurship and Regional Development*	2024	5	Context of the situation in the organization	Trust in the organization Family business Control in a crisis situation
6	Bellmann,L., Bellmann, L., Hübler, O. Labour mobility, short-time work and working from home: establishments' behaviour during the COVID-19 crisis, *International Journal of Manpower*	2024	3	Context of COVID-19, layoffs	short-time work (STW) working from home (WFH) Reducing fluctuation workers
7	Chenxin, X., Dezhu, Y., Xian, Y. Corporate competition and culture stock price crash risk, *Journal of Industrial Engineering and Engineering Management*	2022	4		Corporate competition culture and stock price crash risk

Source: own work.

Table 2.
Articles presented in the results of the synthetic literature review are excluded from the analysis due to low citation counts

No	Author	Title	Year	Source	Citation
1	Ferrary, M.	The salient stakeholders of industrial downsizing: the contribution of boundary object and systemic shock	2024	Strategy and Leadership, 53(2), pp. 105-131	0
2	Sharieff, Mohamed Habibulla Rawat, Garima Tak, Trapti	Understanding Adaptability and Psychological Well-Being as Protective Factors for Job Retention during the Covid-19 Crisis	2023	Journal for ReAttach Therapy and Developmental Diversities, 6(7), pp. 150-160	0
3	Pai, Chih-Hung; Wang, Yu-Lan Shang, Yunfeng Hsu, Ta-Kuang	A Study on Multimedia Integrated Pre-service Education to Learning Behavior and Competitiveness in Workplace of Employees in Hospitality	2022	Frontiers in Psychology, 13, 817960	0

Source: own work based on Scopus.

3. Conclusions

A systematic review of the literature allowed us to explore the topic of employee behaviour in the context of redundancies. Knowledge retention and cynical avoidance of knowledge sharing for fear of other employees' competitiveness are indicators of withdrawal from work in favour of reducing work efficiency (Tian, 2021). Furthermore, cyber slacking, in which boredom and anger manifest themselves in phone browsing and private online activity, is also an indicator of withdrawal from work (Khawaja, 2022). The set of concepts and recurring behaviours allow for the development of diverse adaptive resources for employees in the event of redundancies. Employee behaviours include both those that negatively affect work performance and good practices that indicate helpful behaviours on the part of managers in situations involving employee redundancies (Salman, 2022). In the area of positive behaviours, the literature refers to the importance of servant leadership (Tian, 2021). This is a management style that supports employees in crisis situations, such as workplace redundancies. Servant leadership behaviour is understood as reducing the culture of knowledge concealment in an organisation, motivating towards common goals, and developing and promoting knowledge-sharing behaviours. Servant leadership behaviour reduces the culture of knowledge concealment in an organisation by promoting stability (Bilal et al., 2020). Servant leadership motivates employees to achieve common goals, rewards them for their contribution to the organisation, and promotes a positive attitude towards knowledge-based behaviours to reduce stress, cynicism, and job insecurity in the workplace (Franco, Antunes, 2020).

A crisis in an organization, as a context, also becomes an element of trust and responsibility in the relationship between employees and the employer. In situations of uncertainty and layoffs, trust becomes a factor for jointly seeking solutions (Baù, 2024). Where the security needs of both the employee and the employer meet with concessions from each side to build alternative solutions to layoffs: shared positions, divided roles, reduced working hours (Bellmann, 2024).

4. Results

The cited literature indicates that the current research output in the Scopus database leaves a gap to be filled in the topic of employee behavior in layoff situations. Although the cited literature points to a set of recurring behaviours, the clear deficiency does not allow for broad differentiation based on the type of organization, industry, or occupational groups of employees. Using differences in employee behavior between sectors, it is worth citing British research**.** When looking for psychological reactions of employees during restructuring and downsizing, one can refer to research in the public sector, conducted by a British public sector organisation (Edwards, Clinton, 2023). In this sector, the general behaviour of employees in the paradigm of individual employee resources was divided into flourishing individuals, individuals regaining balance, and ambivalent individuals. The study was conducted shortly before the restructuring and downsizing, during these processes, and after their completion. The surveys were collected from employees in three longitudinal waves (time 1 N = 253; time 2 N = 107; time 3 N = 93, at intervals of 12 months). Based on the level and changes in anxiety, commitment to the organisation, and commitment to work, three classes of responses were identified: a positive profile of developing individuals and two relatively negative response profiles, defined as individuals regaining balance and ambivalent individuals. A higher level of control over work determined membership in the more positive response profile, while a higher level of structural uncertainty predicted membership in the group with the most negative responses. (Edwards, Clinton, 2023). Using a person-centred approach, the authors point to different types of employee responses to redundancy. Furthermore, the findings help explain why groups of employees may exhibit specific patterns of psychological responses to redundancies. This approach therefore provides researchers and managers with a better understanding of the diverse impact of redundancies, restructuring, and downsizing on employees within the paradigm of individualised adaptation to change. In terms of factors related to the situation in which the organization found itself, it is important to point out crisis situations, such as the COVID-19 pandemic, the course of which implied processes requiring job cuts (Bellmann, 2024). The situational context of layoffs in the available literature has clearly increased its share in the description of the issue of layoffs in relation to

the global COVID-19 pandemic from years 2020-2022, which dominated the context of the publication in terms of layoffs.

5. Discussion

A systematic review of the literature as a method for formulating research questions is a supportive activity for researchers seeking answers to questions that initiate work on employee behaviour in redundancy situations. One may ask to what extent the presented picture of employee behaviour in the event of layoffs is limited to selected analysis criteria. The source itself, which is the Scopus database, is not the only collection of publications from the total scientific output, but it does contain a citation index. In addition, the variables selected for the analysis of articles on employee behaviour in the event of layoffs are only a snapshot of the topic of employee behaviour in the event of layoffs. Furthermore, the variables selected for the analysis of articles on employee behaviour in the event of layoffs represent a snapshot of the topic of employee behaviour in the event of layoffs. However, the citation index of these articles indicates their scientific and research usefulness in understanding this phenomenon. Therefore, the literature review organizes knowledge about employee behaviour in redundancy situations, which is current and useful in business practice, where redundancies are a change that requires decisions to be made about how to manage this process. The decidedly low participation of Polish scientific articles in the Scopus database thematically related to employee behavior in the situation of workplace layoffs indicates that the research gap in this area constitutes a significant justification for conducting studies in this field. Moreover, the specificity of the organization, the industry, and the characteristics of employees are certainly a range of variables that constitute a key area for deepening exploratory research in terms of internationally comparative conclusions regarding the behavior of contemporary employees in the situation of layoffs.

6. Summary

The PRISMA methodology allows for an overview of published resources and the categorisation of concepts related to the topic. The answer to the question of what employee behaviour in the event of redundancies in a company is evoked by the current literature in the field of management and psychology is presented in the collected names of behaviours in Table 1. In the further part of the work, a graphic is presented with related concepts from the field of research in the publication resources of the Scopus database. A review of the subject of

employee behaviour in the event of redundancies in the field of management and quality sciences, using psychology in the common area of social sciences, has allowed us to build behavioural profiles based on the withdrawal of employees from work processes in which uncertainty, stress, anger, and boredom manifest themselves in behaviours such as knowledge concealment and cyber slacking. The most important empirical indicators of employee behaviour in redundancy situations confirm that the dominant behaviour is withdrawal, which manifests itself in the concealment and retention of knowledge. Employees are uncertain about their job security, so they retain knowledge to maintain a competitive advantage (Tian et al., 2022). The area of uncertainty with respect to the situation in the organization becomes an important organisational context (Salman, 2022). Hiding knowledge in such contexts can be seen as selfish and cynical behaviour on the part of employees to avoid the negative effects of sharing resources, especially in times of crisis, as employees tend to withhold resources that are at risk. Poor organisational performance leading to layoffs is a major cause of employee cynicism, stress, and job insecurity (Nguyen et al., 2022). Cyberloafing, also known as cyberslacking, refers to employees performing non-work-related activities, which is a behaviour that emphasises withdrawal from engagement in work processes. Organisational crises related to job cuts can cause long-term employee role conflicts, job insecurity, and cynicism in behaviours such as knowledge hoarding (Nguyen et al., 2022). Job insecurity slows down creativity and organisational development, leading to a loss of opportunities, a lack of cooperation between employees, and non-compliance with work standards (Tian et al., 2022).

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References

1. Baù, M., Karlsson, J., Haag, K., Pittino, D., Chirico, F. (2024). Employee layoffs in times of crisis: do family firms differ? *Entrepreneurship and Regional Development*, *36*(5-6), 722-744. https://doi.org/1080/08985626.2024.2309160
2. Bellmann, L., Bellmann, L., Hübler, O. (2024). Labour mobility, short-time work, and working from home: establishments' behaviour during the COVID-19 crisis. *International Journal of Manpower*, *45*(6), 1262-1278. https://doi.org/10.1108/IJM-05-2023-0256.
3. Bilal, A., Sididiquel A., Assadulah M., Awan, H., Asmi, F. (2020). Servant leadership: a new perspective to explore project leadership and team effectiveness. *International Journal of Organisational Analysis*, *29*(3), 699-715. https://doi.org/10.1108/IJOA-12-2019-1975
4. Chenxin, X., Dezhu, Y., Xian, Y. (2022). Corporate competition culture and stock price crash risk. *Journal of Industrial Engineering and Engineering Management*, *36*(1), 111-123. https://doi.org/10.13587/j.cnki.jieem.2022.01.010
5. Edwards, M.R., Clinton, M. (2023). Profiling employee psychological responses during restructuring and downsizing in the public sector: Flourishers, Recoverers, and Ambivalents. *Personnel Review*, *52*(7), 1916-1935. https://doi.org/do10.1108/PR-12-2020-0879.
6. Franco, M., Antunes, A. (2020). Understanding Servant Leadership Dimensions. *Nankai Business Review International*, *11*(3), 345-369. https://doi.org/10.1108/NBRI-08-2019-0038.
7. Hensel, P. (2020). *A systematic review of the literature in management and quality sciences.* Warsaw: Scientific Publishing House of the Faculty of Management, University of Warsaw, 73-77.
8. Khawaja, K.F., Sarfraz, M., Rashid, M., Rashid, M. (2021). How is COVID-19 pandemic causing employee withdrawal behaviour in the hospitality industry? An empirical investigation. *Journal of Hospitality and Tourism Insights*, *5*(3), 687-706. https://doi.org/10.1108/JHTI-01-2021-0002
9. Luan, Z., Huang, S., Wen, J. (2025). Employee emotions, employee resilience, and cross-border mergers and acquisitions performance. *International Review of Economics & Finance*, *104*, 104631. https://doi.org/10.1016/j.iref.2025.104631
10. Marlar, W. (2025). Leadership, Organizational Behavior, and Resilience in Sustainable Business: Understanding the Role of Leadership, Employee Engagement, and Organizational Culture in Fostering Resilience. In: M. Suhrab, S.K. Sherazi (eds.), *Value Creation and Circular Business Models for Resource Scarcity* (pp. 479-500). *IGI Global Scientific Publishing*. https://doi.org/10.4018/979-8-3373-1117-3.ch011

11. Nguyen, T.M., Malik, A., Budhwar, P. (2022). Knowledge hiding in organizational crisis: The moderating role of leadership. *Journal of Business Research*, *139*, 161-172. https://doi.org/10.1016/j.jbusres.2021.09.026
12. Salman, A., Ahmed, I., Jahangir, S. (2022). Job insecurity and employees' safety voice behavior – a managerial dilemma caused by COVID-19. *Asia Pacific Journal of Business Administration*, *14*(3), 362-379. https://doi.org/10.1108/APJBA-08-2020-0289
13. Tian, Z., Tang, C., Akram, F., Khan, M., Chuadhry, M. (2022). Negative Work Attitudes and Task Performance: Mediating Role of Knowledge Hiding and Moderating Role of Servant Leadership. *Frontiers in Psychology*, *13*, 963696. https://doi.org/10.3389/fpsyg.2022.963696.
14. Wilczyński, A. (2023). The role of offboarding and exit interviews in an employee's journey to leaving the organization. *Studies and Works of the College of Management and Finance*, *189*, 75-91. https://doi.org/10.33119/SIP.2023.189.5

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HUMANISM, HOLISM, HARMONIZATION – CLASSICS OF HUMAN CAPITAL MANAGEMENT (HCM) IN THE FACE OF ENVIRONMENTAL CHANGES

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Purpose: presenting the results of considerations on the importance of the ideas of humanism, holism and harmonization in the contemporary theory and practice of HCM.
Design/methodology/approach: the literature research covers the period 2010-2025. Empirical research was conducted by content analysis of 179 abstracts submitted to the 13th Congress of HRM Departments, which took place in 2025.
Findings: the following opposing/alternative trends to those preferred in HCM were identified: 1/ humanism – dehumanization, posthumanism, and transhumanism; 2/ holism – specialization and fragmentation; 3/ harmonization – chaos, improvisation, and coercion. The formulated conclusions are intended to open up new perspectives for the development of HCM theory and practice. However, they do not constitute a basis for changing HCM paradigms. However, they point to the need to verify the research methodology used in diagnosing and analyzing HCM-related phenomena.
Research limitations/implications: Limitations primarily concern the specificity of the source materials; the analyzed abstracts are not representative of the global knowledge base. However, due to the conference's prestige and national scope, they are representative of Polish scholarship. An additional limitation is the lack of research conducted in business practice on similar topics. Supplementing the presented considerations with the perspective of existing organizations would highlight the gap between HCM theory and practice in perceiving the evolution of holistic, humanistic, and harmonized approaches.
Practical implications: The considerations described here are of crucial practical importance, especially in the field of education for HR specialists. They also highlight the ethical and social threats to the development of alternative diving, and consequently, the need to create and implement control mechanisms and prevent/limit unacceptable practices.
Social implications: The issue of humanization of work and the existing or emerging threats to it is a key topic related to society, both in the macro context (the labor market) and micro context (the mechanisms of human functioning in the work environment). The trends presented in this article concern ongoing activities related to dehumanization, fragmentation, and lack of cohesion in human work, which can pose a significant threat, especially in the context of technological and cultural changes.
Originality/value: a new look at the evolution of HCM.
Keywords: humanizm, holizm, harmonizacja, dehumanizacja, transhumanizm.
Category of the paper: research paper.

1. Introduction

Amid the countless scientific papers presenting research results on narrowly defined research problems, one cannot help but reflect on the holistic approach to human management in the context of evolutionary changes in social and economic life. Perhaps the time has come to review and organize the knowledge presented in previous years, identifying new trends, and even propose a name for the next stage in the history of management science. If managing people in organizations has been referred to as "human resources" or "human capital" management, is it time to recognize a different contribution of humans to the functioning of organizations, and thus a different role played within these entities? Assuming that the ideas of humanism, holism, and harmonization have thus far driven the evolution of human management science, the following research questions were formulated: 1) What views and approaches in contemporary human management constitute the opposite or alternative to humanism, holism, and harmonization? 2) Do the identified views and approaches contribute to a shift in the human management paradigms? The literature research that forms the basis for the considerations covers the period 2010-2025. Additionally, in order to deepen the analysis of the evolution of HRM phenomena, a review of 179 abstracts submitted to the 13th Congress of HRM Departments, which took place in 2025, was conducted. As a result of the research, the following trends were identified, which are opposite/alternative to the preferred ones in HRM, namely:

a) humanism – dehumanization, posthumanism, and transhumanism,

b) holism – specialization and fragmentation,

c) harmonization – chaos, improvisation, and coercion.

In accordance with the idealistic approach, it is postulated to maintain the current HCM paradigms, taking into account new technologies as an element of human support in work processes, and not humans as passive executors of commands generated by the products of new technology.

2. Humanism, holism, harmonization in HCM

B. Kożuch, using the term "contemporary organizational humanism" in her study, stated that interest in the aforementioned subject dates back to the 1930s and arose from disappointment with the methods of scientific work organization and classical organizational theory (Kożuch, 2016). However, it cannot be assumed that the founders of scientific management downplayed the aspect of human dignity and the value of human work (Mikuła, 2000). A. Borowski, a researcher of the historical evolution of the concept of "humanism",

noted that proponents of this term were guided by the idea of a "rebirth of humanity". In a very simplified approach, humanism emphasized the value of each person and creating conditions for the development of their abilities (competencies) and potential. This term was interpreted ambiguously, closely linked to the historical, religious, geopolitical, and cultural context. However, a common element could be identified, namely a focus on individual and collective identity, i.e., the humanity of a specific person, but also of a social group; Moreover, the relationship between individual humanity and a given reality, especially social reality (Borowski, 2009). For several years, attempts have been made to redefine these fundamental categories, namely "humanity" and "human dignity," and consequently, behavioral patterns and social norms. Posthumanism analyzes humans in a new biotechnological reality and places them in a surprising position. As Zawojski notes (Zawojski, 2017), in the "new world", the limitations of the natural "human form" will be overcome, and the boundaries of humanity will be transcended. Transhumanism, on the other hand, promotes the vision of a "posthuman" who, through neurotechnological, biotechnological, and nanotechnological tools (implants, vaccines, prostheses, etc.), strives to overcome human limitations.

S. Lem described an interesting picture of this reality in one of his short stories, presenting the story of the fictional character Harry Johns, against whom Cybernetics Comp. filed a lawsuit seeking the seizure of property owed to it due to unpaid debt. The defendant participated in numerous car races, resulting in accidents. After each accident, he contacted the company, which manufactures prosthetic arms, legs, artificial kidneys, hearts, and other replacement organs. Johns purchased a prosthetic left leg, two prosthetic arms, a chest, a neck, and other body parts on installment plans, including a deluxe version of a Geniak electronic brain replacing a cerebral hemisphere. When the defendant's debt reached $29,863, Cybernetics Comp. filed a claim for the repayment of all purchased prosthetics. The money was never recovered. However, the company agreed to completely "genialize" Johns, meaning to replace his last, natural part of the brain with a second Geniak device. As debts mounted, the parties met in court. However, a procedural issue arose: was Johns still a human being or a "self-proclaimed prosthetic device" that should become the property of Cybernetics Comp. (Lem, 2017). Another example illustrating the issue of social change is the statement of the protagonist of another novel, Sirim Keeton, who, remembering his friend, lamented that his parents never "optimized" him because "they were among the handful of twentieth-century fossils who still believed in God and believed that His work should not be improved" (Watt, 2011). The stories of "geniusization" and "optimization" cited above are examples taken from fantasy literature. However, is this a "song of the distant future", or a state possible today, held back only by the prevailing social norms of these "twentieth-century fossils"?

In the era of Reality 5.0, which by definition declares the homocentrism of technology, we may be surprised by an important fact: the diminishing of the role of the human as a human (an individual, valuable entity). Humans are far from the ideal (an infallible, perfect, and fast "working subject"). The products of modern technology, especially digital technology,

are decidedly more perfect than humans. The gradual shift away from the idea of humanism can be observed not only in management sciences. Generally, posthumanism and transhumanism are developing, called by some authors the "non-human turn" (Zawojski, 2017), as well as the period of the "end of humanity" (Fukuyama, 2004), or the "post-human period" (Braidotti, 2014). The mental groundwork is being prepared so that the stories mentioned at the beginning can function without causing moral dilemmas.

However, there is still a group of scientists who recognize the need to spark a scientific discussion about the serious issue of dehumanization of work, that is, the level of dehumanization characterized by the loss of humanistic or even humanitarian values (Mączyńska, 2025; Kopka, 2017; Janowska, 2021). We should ask ourselves a fundamental question: what is more beneficial to us as living beings functioning in our current form: supporting and developing the ideas of transhumanism, or directing scientific potential towards creating "tools" that support the functioning of "imperfect" humans (e.g., digital equipment, applications, devices, etc.)? The question, of course, belongs to the catalog of interdisciplinary and far-reaching issues.

The above observation consequently justifies the use of a holistic approach to problems occurring in human capital management. This is also justified from a methodological perspective, because in explaining social phenomena, and phenomena related to human capital undoubtedly include such phenomena, attention should be paid to examining the whole, not just individual elements, because in relation to the whole, detached parts can be misunderstood or interpreted incorrectly. As Rybicki (2022) noted, in organization and management theory, the concepts of holistic, systemic, and network approaches are used, which have many common elements and are sometimes perceived as synonyms. It is assumed that their essence lies primarily in treating reality in a comprehensive, holistic manner. The need for a holistic approach to the analysis of human capital management phenomena is also justified by macro- and microeconomic premises, including the high degree of interconnectedness, globalization and virtualization of markets with their simultaneous instability, changing social values of employees, and demographic changes (Hecklau et al., 2016).

A complementary idea to holism is harmonization. Social and economic phenomena occurring in organizations should not only be observed but also organized holistically. Karol Adamiecki introduced harmonization as a practice in management, thus attempting to legitimize it as a scientific discipline. Based on many years of research (conducted since 1895) and industrial practice, he demonstrated that organizing work is not only an "art" but also a "science", as it "is based on three laws of nature: 1) division (analysis), 2) concentration (synthesis), and 3) harmony (rhythm)" (Geisler, 1924). In a series of three articles, Adamiecki (1924a, 1924b, 1924c) presented the essence of harmony among "organs" (devices, machines, etc.), time (synchronization of individual activities), and people (selection of team members). The author's reason for undertaking this research is interesting. Adamiecki wrote that he was tasked with increasing production in a small division of an ironworks. Foreign advisors

concluded that the reason for the low results was the sluggishness of Polish workers, so, driven by national pride, he decided to verify this (Adamiecki, 1924a). However, leaving aside the author's motivation, it should be noted that, faced with the problem of efficiency, he applied scientific methods of analysis to solve the problem. In this way, he formulated the foundations for work harmonization, which in subsequent years became the basis for the creation of numerous management methods, techniques, and tools. The language used by the author sounds somewhat naive and general in modern times, but the essence of the idea is universal. According to Adamiecki, time losses in the work process result from two reasons: a) the poor selection of organs, and b) the lack of timely harmonization of their operation. Therefore, "every work should be performed according to a plan prepared in advance and based on a rigorous examination (analysis) of all work elements" (Adamiecki, 1924b). One cannot ignore another aspect of the work that interested Adamiecki, namely the selection of people in the team, which he called spiritual harmony. "Although the laws of spiritual harmony cannot be expressed in mathematical terms, the principles on which it is based can be precisely formulated, and the science of work organization accepts for granted that the highest economic efficiency cannot be achieved unless the principles of spiritual harmony are also fully applied. (...) If the principles of spiritual harmony are observed in organizing human work for the highest good of the working man and all of humanity, if, striving for the highest ideals, we apply sound judgment of a higher order, introduce discipline stemming from higher moral motives, and are guided by justice, in a word, if we apply all the principles of spiritual harmony (...) then there is no doubt that the science of work organization will become one of the most powerful cultural factors in the coming era and will contribute to man finding in work a source of the highest riches, not only material but also moral" (Adamiecki, 1924c). Unfortunately, reality on a global scale has proven brutal. Nevertheless, currently an idea similar to Adamiecki's vision is reflected, among others, in the UN Sustainable Development Strategy (UN, 2015).

3. Paradygmaty w zarządzaniu kapitałem ludzkim

Ł. Sułkowski (2014), adopting the author's classification of paradigms in HRM (Fig. 1), noted that the functionalist paradigm dominates in Polish science; works based on the assumptions of radical structuralism and postmodernism are rare.

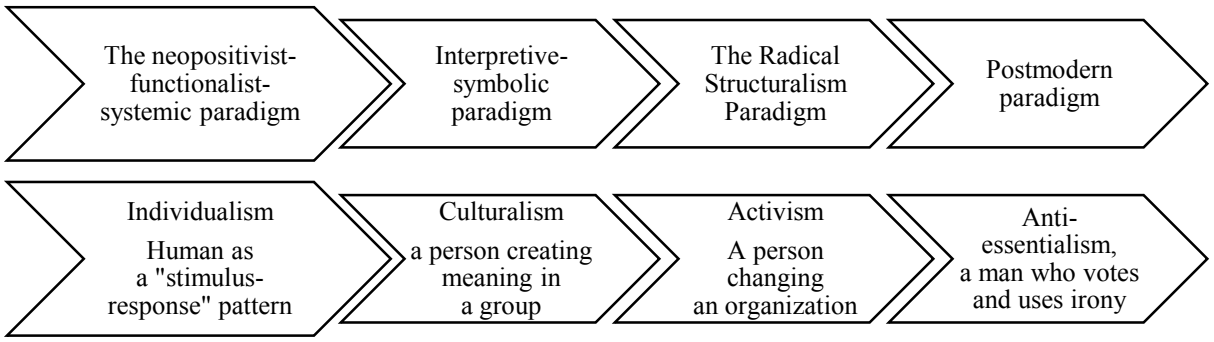

Figure 1. Paradigms in Human Resource Management.

Source: prepared based on Sułkowski, 2014, pp. 79-90.

Assuming the evolutionary transition from HRM to HCM (Fig. 2) following M. Juchnowicz, HCM can be considered "a specific way of managing in the human sphere, the aim of which is to create added value for all stakeholder groups" (Juchnowicz, 2014). Therefore, the HCM concept emphasizes a subjective approach to employees as internal customers and partners. Furthermore, the literature emphasizes that in the current, innovation-driven, knowledge-based economy, intellectual capital possessed and generated by the human factor should be perceived as a key driving force for innovation and organizational development (the concept of humanization of intellectual capital) (Konno, 2025).

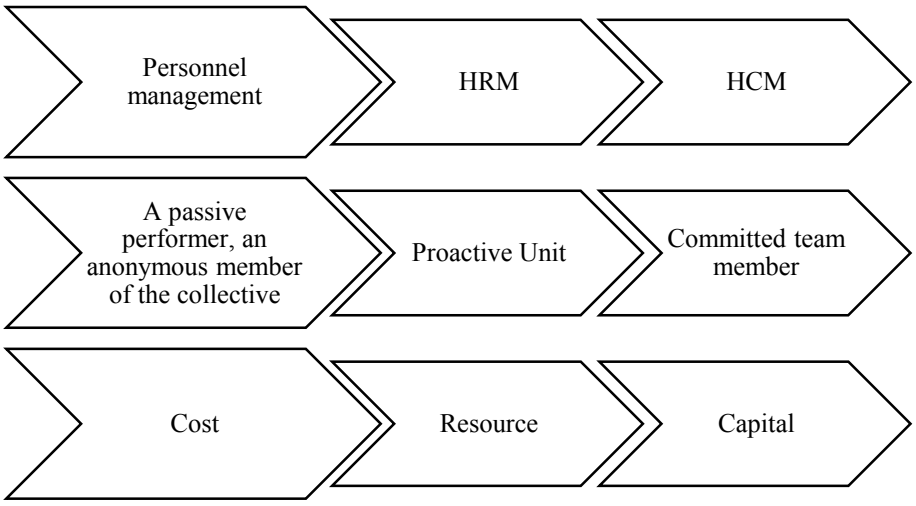

Figure 2. Employee perception in three generations of management in the human sphere.

Source: prepared based on Juchnowicz (ed.), 2014, p. 132.

In connection with the above, following Moczydłowska, the following ZKL paradigms can be indicated:

a) human capital is the most important asset in an organization, and people management is the most important element of management,
b) a fundamental attribute of human capital is variability (development); this property also applies to the employee-employer relationship; from an organizational perspective, human capital is a demanding, collective partner and a co-responsible stakeholder,
c) the effectiveness of HCM depends on age management skills,

d) HCM must be based on universal values that recognize the agency of employees at all levels of the organizational structure,
e) the "enterprise of tomorrow" requires a new model of manager-leadership (Moczydłowska, 2015).

It should be added to the above list that in difficult economic conditions, a rational direction for improving motivation systems is the use of solutions based on the paradigm of caring for the level of employee satisfaction (Juchnowicz, 2013).

4. Methodology

Before commencing the study, the following questions were formulated: 1) what views and approaches in contemporary HCM constitute the opposite/alternative to humanism, holism, and harmonization; 2) do the identified views and approaches contribute to a shift in HCM paradigms? The first stage of the study was a literature review; the publications that formed the basis for the considerations cover the period 2010-2025.

Additionally, to deepen the analysis of the evolution of HRM and verify the conclusions from the theoretical and predictive considerations described in the first part of the article, a review of 179 abstracts submitted to the 13th Congress of HRM Departments (HRM, 2025), held in 2025, was conducted. Text mining and coding of keywords identified by the authors were employed. Because the conference in question was not focused on a specific theoretical issue, the sources examined were considered objective and cross-sectional in nature.

Content coding was performed according to the following procedure:

a) coding abstract titles and keywords into thematic groups without using a predefined key,
b) coding abstract titles and keywords into thematic groups using the ZKL subclassification (Rostkowski, 2014, p. 149).

5. Results

The first conclusion drawn from the analysis of the thematic distribution (Table 1) is the significant divergence of the issues discussed, both in terms of the level of detail and the strategic level to which each topic pertains. However, five leading themes can be identified: competencies, leadership, diversity, generations, and artificial intelligence. These subjects were studied in conjunction with specific issues, such as digital competencies, generational and cultural diversity, etc.

Table 1.
Results of coding abstract titles and keywords into thematic groups without using a preliminary key

Issue	Number of abstracts in which the issue was indicated	Issue	Number of abstracts in which the issue was indicated
Competencies	31	CSR	3
Leadership	29	Virtual Teams	3
Diversity	28	Burnout	3
Generations	24	Communication	3
Artificial Intelligence	22	Remuneration Transparency	3
Sustainable Human Resources	16	Onboarding	3
Employee Development	16	Green HR	2
Technological Development	15	HR BP	2
Organizational Culture	15	Human-Artificial Intelligence	2
Well-Being	14	Participation	2
Inclusivity	14	ESG	2
Engagement	13	Pathologies	2
Ethics and Values	13	Sustainable Leadership	2
HRM Processes	10	Circular Economy	2
Remote Work	10	Enterprise	2
Sustainability	9	Professional Activation	2
Technostress	9	Remuneration Fairness	2
Knowledge Management	8	Organizational Behavior	2
Satisfaction	8	Organizational Climate	2
Age Management	8	Job Crafting	2
Multiculturalism	8	Working Time	2
Labor Market	8	Work Organization	2
Social Capital	7	Flexible HRM	2
Discrimination	7	Entrepreneurship	2
Productivity, Efficiency	7	Anomie	2
Digitalization	6	Change Management	2
Remuneration	6	Organizational Identity	2
Recruitment	6	Psychological Safety	2
Network Capital	5	Networking	1
Humanization	5	Empowerment	1
Motivation	5	Smart	1
Meaning of Work	5	Continuous Learning	1
Work Life Balance	5	Family Policy	1
Resilience	5	Employee Loyalty	1
Trust	5	Multi-Team Work	1
Employer Branding	5	Talent Management	1
Employee Experience (Candidate Experience)	5	Occupational Health and Safety	1
Organizational Fit	5	Feedback	1
Innovation	4	Departures	1
Selection	4	Training	1
Quiet Departures	4		

Source: own study.

WordCloud was used to visualize the content analysis contained in the titles and keywords (Figures 3 and 4). In both cases, the word "work" dominates; the detailed scope of the topics covered can be deciphered by analyzing the keywords, which indicate preferences for "management" and "competencies". This confirms the conclusions from the content analysis of

the abstracts, according to which the authors attempt to formulate recommendations for "managing" specific aspects of HCM in their papers, despite their research focusing on a narrow subject matter.



Figure 3. Results of coding abstract content by title.

Source: own study.



Figure 4. Results of coding the content of abstracts according to keywords.

Source: own study.

The conclusions from the above analyses became a contribution to the coding of content using the strategic and tactical (functional) levels of ZKL; at the tactical (functional) level, the classification proposed by Rostkowski (2014, p. 149) was adopted, which lists the following ZKL sub-elements:

1. determining (planning) staffing needs,
2. recruitment, enrollment, networking,
3. selection, selection,
4. socio-professional adaptation, onboarding,
5. professional development, employee training,
6. employee (performance) evaluation, performance assessment,
7. motivation, remuneration, and benefits system,
8. career development and succession planning,
9. promotions, transfers, sanctions (demotation), employee transfers,

10. departures, layoffs,
11. occupational health and safety,
12. organizational culture and interpersonal relations,
13. labor costs and personnel controlling, HR information system,
14. labor and employee relations,
15. shaping HCM policy.

Based on the results of the analysis, two extreme tendencies can be observed: 1) discussing issues at a high level of generality and with an undefined subject scope; 2) narrowly defined research problem without reference to the context embedded in a specific sub-field of HCM.

Table 2.
Results of coding abstract titles and keywords into thematic groups using the initial strategic level key

Strategic level of HCM		**Number of abstracts in which an issue from a given level was indicated**
	General Theoretical Issues	42
	Labor Market	29
	Strategic Level of HR Management	41
Tactical (functional) level	Determining (planning) staffing needs,	0
	Recruitment, recruitment, networking,	3
	Selection, selection,	1
	Social and professional adaptation, induction,	4
	Professional development, employee development and training,	16
	Employee (performance) assessment, performance evaluation,	0
	Motivation system, remuneration and benefits,	28
	Career development and succession planning,	0
	Promotions, transfers, sanctions (demotation), employee transfers,	1
	Departures, layoffs,	4
	Occupational health and safety,	11
	Organizational culture and interpersonal relations,	43
	Labor costs and personnel controlling, HR information system,	4
	Labor and employee relations,	17
	Development of HR management policy.	20

Source: own study.

Cross-analysis of the abstract content allowed us to identify thematic groups and thematic gaps that were not addressed by researchers in the analyzed works (Table 3). For example, in the "Trends and Challenges" group, the "Artificial Intelligence" subgroup includes works on the recruitment and onboarding process, but lacks studies related to development, derecruitment, healthcare, etc.

Table 3.
Thematic directions of research undertaken within the framework of HCM

Thematic group	Thematic subgroup	Detailed subject
Trends and Challenges	Artificial Intelligence	Process Automation Recruitment Onboarding
	Generations	Gen Z Generational Diversity
	Sustainability	ESG Circular Economy
	Technologies and Digitization	Technostress Digital Wellbeing
	Transparency	Remuneration HCM
Competencies and Development	Digital Competencies	Digital Transformation
	Leadership Competencies	Inclusive Leadership
	Eco-Competencies	Green Transformation
	Continuous Learning	Upskilling, Professional Development
Well-Being	Engagement	Job Satisfaction
	Work-Life Balance	Remote Work HRM Flexibility
	Psychological Safety	Trust Relationships Knowledge Management
	Neurodiversity	Inclusivity Support
Diversity and Inclusion	Diversity Management	Age Culture Religion
	Inclusive Leadership	Support Empowerment
	Diversity and Equity	Remuneration Opportunities
Management Models and Styles	Situational Leadership	Flexibility, Adaptability
	Inclusive Leadership	Support Diversity
	Crisis Management	Organizational Resilience
Emplyee Experience	Building Engagement	New Technologies
	Organizational Culture	Healthy Culture
	Talent Management	Acquisition Development

Source: own study.

Analysis of the issues raised highlights a broad spectrum of topics related to HCM in the context of the changing work environment, including the impact of technology, generational and cultural diversity, and the pursuit of sustainable development. Key areas include:

- Technology and Artificial Intelligence (AI) – including the impact of AI on recruitment, onboarding, competency development, and process automation, as well as related challenges such as technostress, algorithmic discrimination, and technology ethics.
- Diversity and Inclusion – including managing generational diversity (Generation Z, people aged 50+), cultural diversity (organizational multiculturalism, employees from Ukraine), neurodiversity, as well as academic and workplace inclusivity.

- Sustainability – including the concept of sustainable HRM, the circular economy, sustainable work, ecological competencies, ESG (Environmental, Social, and Governance), family-friendly policies, and employee well-being.
- Engagement and Employee Experience – including building engagement, job satisfaction, ensuring employee well-being, work-life balance, and analyzing phenomena such as quiet quitting and burnout.
- Competencies and development – including competency development (including digital, psychosocial, and leadership competencies), upskilling, continuous learning, competency modeling, and talent management.
- Leadership – including leadership styles (inclusive, digital, and authentic), and the leader's role in building trust, engagement, and mental resilience.
- Compensation and transparency – including issues of pay transparency, equal pay, and fairness in pay distribution.
- Organizational culture – including the impact of organizational culture on engagement, well-being, innovation, and work performance.
- Trust – including the importance of trust in one's manager, organizational trust, and trust in technology.
- Remote and hybrid work – including the challenges and opportunities associated with remote and hybrid work, including the impact on well-being, productivity, and engagement.
- Humanization of work – including the concept of humanization of work in the context of automation and digitization, and the importance of the dignity of work and human empowerment.

Summary

The results of the theoretical and empirical studies allow us to formulate preliminary answers to the research questions. In terms of identifying alternative trends to humanization, holism, and harmonization, we should point to dehumanization, posthumanism, transhumanism, specialization, fragmentation, chaos, improvisation, and coercion.

To maintain a true homocentrism in Economy 5.0, based on the fundamental approaches to HCM (humanism – holism – harmonization), research into phenomena occurring in social organizations should be conducted with particular sensitivity to identifying practices of dehumanization of work and transhumanism, while simultaneously identifying solutions that mitigate the associated threats. Research and management processes should promote a holistic approach, expressed at least through an appropriate description of the context (background,

environment) of a given detailed problem, while also referencing specific HCM sub-themes. In terms of harmonization, the functioning of the "human-technology" system in various spheres of HCM should be analyzed, rather than simply seeking technological solutions to replace human labor. At the same time, research should be intensified to identify pathologies related to maximizing work efficiency at the expense of human integrity and dignity.

Therefore, it is recommended that the identified views and approaches not constitute a basis for changing the HCM paradigms. HCM practices should be verified, especially the level of their deviation from ethical solutions and those consistent with the sustainable development strategy.

Limitations in the research process primarily concern the specificity of the source materials that form the basis of the analysis; the abstracts submitted for the indicated conference are not representative of the global knowledge base. However, they are (due to the conference's prestige and national scope) representative of Polish science. An additional limitation is the lack of research conducted in business practice within a similar scope; supplementing the presented considerations with the perspective of operating organizations would indicate a gap between the theory and practice of HCM in the perception of the evolution of the holistic, humanistic, and harmonization approaches.

References

1. Adamiecki, K. (1924a). Harmonizacja jako jedna z głównych podstaw organizacji naukowej. *Przegląd Techniczny*, *Nr. 49, Tom. LXII,* pp. 551-554. Retrieved from: https://www.wz.pw.edu.pl/Wydzial/Tradycja/Historia/100-lecie/Karol-Adamiecki/Harmonizacja-jako-jedna-z-glownych-podstaw-organizacji-naukowej-1924, 06.03.2026.
2. Adamiecki, K. (1924b). Harmonizacja jako jedna z głównych podstaw organizacji naukowej. *Przegląd Techniczny, Nr. 52, Tom. LXII,* pp. 579-583. Retrieved from: https://www.wz.pw.edu.pl/Wydzial/Tradycja/Historia/100-lecie/Karol-Adamiecki/Harmonizacja-jako-jedna-z-glownych-podstaw-organizacji-naukowej-1924, 06.03.2026.
3. Adamiecki, K. (1924c). Harmonizacja jako jedna z głównych podstaw organizacji naukowej. *Przegląd Techniczny, Nr. 53, Tom. LXII,* pp. 594-595. Retrieved from: https://www.wz.pw.edu.pl/Wydzial/Tradycja/Historia/100-lecie/Karol-Adamiecki/Harmonizacja-jako-jedna-z-glownych-podstaw-organizacji-naukowej-1924, 06.03.2026.
4. Borowski, A. (2009). Humanizm jako przedmiot współczesnej humanistyki. In: A. Borowski (Ed.), *Humanizm: historie pojęcia* (pp. 101-148). Warszawa: Neriton.
5. Braidotti, R. (2014). *Po człowieku*. Warszawa: PWN, pp. 1-380.
6. Fukuyama, F. (2004). *Koniec człowieka. Konsekwencje rewolucji biotechnologicznej*. Kraków: Znak, pp. 1-312.

7. Geisler, E.T. (1924). Pierwszy międzynarodowy kongres naukowej organizacji pracy w Pradze 20-24 lipca 1924 r. *Przegląd Techniczny, Nr. 49, Tom. LXII,* pp. 549-551. Retrieved from: https://bcpw.bg.pw.edu.pl/Content/4069/PDF/PT24_49.pdf, 06.03.2026.
8. Hecklau, F., Galeitzke, M., Flachs, S., Kohl, H. (2016). Holistic Approach for Human Resource Management in Industry 4.0. *Procedia CIRP, Vol. 54,* pp. 1-6. doi:10.1016/j.procir.2016.05.102
9. Janowska, Z. (2021). Humanizacja zarządzania zasobami ludzkimi w Polsce. Stare problemy i nowe wyzwania. *Zarządzanie Zasobami Ludzkimi, vol. 141, iss. 4,* p. 11. doi:10.5604/01.3001.0015.2758
10. Juchnowicz, M. (2013). Troska o satysfakcję pracowników – nowy paradygmat czy nowy pragmatyzm? *Zarządzanie Zasobami Ludzkimi, Nr 3-4,* pp. 51-60. GICID: 01.3001.0015.1960
11. Juchnowicz, M. (Ed.) (2014). *Zarządzanie kapitałem ludzkim. Procesy – narzędzia – aplikacje*. Warszawa: PWE, pp. 1-540.
12. Konno, N. (2025). Unleashing Intellectual Capital: Toward Dynamic Theory Through the Humanization of Intellectual Capital. In: A. Kianto, S. Čabrilo, L. Užienė (Eds.), *Futurizing Intellectual Capital. Insights on Navigating Knowledge-Based Value Creation* (pp. 29-50). Cham: Springer.
13. Kopka, J. (2017). Czy praca w przyszłości może ulec dehumanizacji? *Władza Sądzenia, 13(1)*. Retrieved from: http://hdl.handle.net/11089/25811, 06.03.2026.
14. Kożuch, B. (2016). Współczesny humanizm organizacyjny. Zarys problematyki. In: B. Kożuch, Ł. Sułkowski (Eds.), *Refleksyjnie o współczesnym zarządzaniu* (pp. 15-24). Kraków: Instytut Spraw Publicznych Uniwersytetu Jagiellońskiego.
15. Lem, S. (2017). Czy Pan istnieje, Mr. Johns? *Przekrój, Nr 3558,* pp. 61-64.
16. Mączyńska, E. (2025). Dehumanizacja – nowa epidemia XXI w. Konieczność i możliwości przeciwdziałania. *Gazeta SGH*. Retrieved from: https://gazeta.sgh.waw.pl/meritum/dehumanizacja-nowa-epidemia-xxi-w-koniecznosc-i-mozliwosci-przeciwdzialania, 07.02.2026.
17. Mikuła, B. (2000). *Człowiek a organizacja. Humanizm w koncepcjach i metodach organizacji i zarządzania XX wieku.* Kraków: Antykwa, pp. 1-348.
18. Moczydłowska, J.M. (2015). Koncepcja „przedsiębiorstwa przyszłości" jako źródło nowych paradygmatów w obszarze zarządzania kapitałem ludzkim. *Zeszyty Naukowe Wyższej Szkoły Humanitas. Zarządzanie, 2*, pp. 27-36. doi:10.5604/18998658.1154702
19. ONZ (2015). *Rezolucja Zgromadzenia Narodowego Organizacji Narodów Zjednoczonych nr 70/1, „Przekształcamy nasz świat: Agenda na rzecz zrównoważonego rozwoju 2030".* Retrieved from: https://www.gov.pl/documents/910151/911704/Agenda_2030_na_rzecz_zrownowazonego_rozwoju.pdf/d56cd332-4ba5-2035-9439-5a8a5212cbed, 09.02.2026.

20. Rostkowski, T. (2014), .Strategie zarządzania kapitałem ludzkim. In: M. Juchnowicz (Ed.), *Zarządzanie kapitałem ludzkim. Procesy – narzędzia – aplikacje* (pp. 141-155). Warszawa, PWE.
21. Rybicki, J. (2022). Holizm w myśleniu strategicznym. *Przegląd Organizacji, Nr 1(984)*, pp. 10-18, doi:10.33141/po.2022.01.02.
22. Sułkowski, Ł. (2014). W poszukiwaniu paradygmatu zarządzania zasobami ludzkimi. *Zarządzanie Zasobami Ludzkimi, 3-4(98),* pp. 79-90, GICID: 01.3001.0015.2008
23. Watts, P. (2011). *Ślepowidzenie*. Warszawa: MAG, pp. 1-384.
24. Zawojski, P. (2017). Posthumanizm, czyli humanizm naszych czasów. *Kultura i Historia, nr 32,* 68-76.
25. ZZL (2025). *XIII Zjazd Katedr ZZL. Ludzie, technologia, ekologia. Inkluzywne ZZL*. Zbiór abstraktów.

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JOB SATISFACTION IN THE STAKEHOLDER RELATIONSHIP BETWEEN THE ORGANISATION AND THE EMPLOYEE AS AN ELEMENT OF HUMAN CAPITAL MANAGEMENT

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Purpose: The aim of this article is to present a relational approach to job satisfaction as a key dimension of the stakeholder relationship between an organisation and its employees, and to situate it within the framework of human capital management.
Design/methodology/approach: The article is conceptual and empirical in nature and combines a literature review with an analysis of secondary data. The theoretical section presents existing approaches to job satisfaction and the authors' model of the organisation–employee stakeholder relationship. The empirical section utilises aggregated statistical data (including from Eurostat, the OECD and Gallup) to analyse the co-occurrence of job satisfaction with engagement, staff turnover and labour productivity using Pearson's correlation coefficient.
Findings: The results indicate positive relationships between job satisfaction and productivity as well as employee engagement, and negative relationships between job satisfaction and staff turnover. The findings are illustrative in nature but are consistent with the findings of international research on the links between job satisfaction and organisational performance.
Practical implications: The proposed relational approach to job satisfaction provides organisations with an interpretative framework for designing HR policies aimed at strengthening the quality of relationships with employees.
Social implications: The relational approach to job satisfaction highlights its importance for employees' quality of life and for shaping more sustainable and socially responsible organisational models.
Originality/value: The originality of the article lies in combining the stakeholder theory perspective with research on human capital and proposing a relational model of job satisfaction as a dimension of the organisation–employee relationship.
Keywords: job satisfaction, human capital, stakeholders, employee engagement, turnover.
Category of the paper: Research paper.

1. Introduction

Contemporary organisations operate in an environment of increasing competition and dynamic change, making human capital a key resource for competitive advantage. Employees are not merely task performers but also stakeholders who co-create value and influence the organisation's effectiveness.

In this context, job satisfaction takes on particular significance as a complex category encompassing subjective assessments of work and attitudes towards the organisation. Until now, it has been approached mainly from a psychological perspective, relating to well-being, motivation and working conditions (Sypniewska, 2017). However, its links to human resource management practices, organisational culture and the quality of intra-organisational relationships are increasingly highlighted, which justifies the need for a relational approach to this phenomenon (Sypniewska et al., 2023).

The development of stakeholder theory promotes the perception of employees as key internal stakeholders, and job satisfaction as an indicator of the quality of the organisation–employee relationship and an element of human capital management (Borowska-Pietrzak, 2013).

The aim of this article is to present job satisfaction as a significant dimension of the stakeholder relationship between the organisation and its employees, and to present a conceptual model integrating organisational factors, the level of satisfaction, and relational outcomes that constitute human capital. The article is conceptual and empirical in nature and is based on a review of the literature in the fields of management, labour economics and human capital research. It is assumed that job satisfaction constitutes a key indicator of the quality of the stakeholder relationship and the outcome of human resource management practices.

An exploratory analysis of aggregated secondary data from national and international sources is illustrative in nature and serves to identify relationships between job satisfaction and engagement, turnover and productivity. Pearson's correlation coefficient was used, whilst acknowledging the limitations regarding causal inference.

The structure of the article includes a literature review, a methodological section with data analysis, a presentation of the authors' model of the organisation–employee relationship, and a discussion of the results and directions for further research.

2. Employees as the main internal stakeholders of organisations in the 21st century

The concept of stakeholders is one of the key theoretical frameworks used in the analysis of how contemporary organisations function. It assumes that organisations are embedded in a network of relationships with numerous entities that influence their activities and, at the same time, are subject to the consequences of the decisions they make. In this framework, an organisation is not viewed solely as an economic structure focused on maximising value for owners, but as a relational system in which the expectations, interests and actions of various stakeholder groups are of significant importance.

The concept of stakeholders was developed in the 1980s in research on strategic management. The classical definition states that stakeholders are entities capable of influencing the functioning of an organisation or being influenced by its actions (Freeman, 1984; Donaldson, Preston, 1995).

The literature on the subject indicates that the development of stakeholder theory was a response to the limitations of earlier concepts of organisational effectiveness, which focused primarily on financial results and the interests of owners. The stakeholder approach, however, assumes the need to take into account a broader spectrum of social, economic and organisational relationships that determine the functioning of enterprises and other economic entities (Austen, Czakon, 2012).

Stakeholder theory distinguishes between descriptive, instrumental and normative approaches, focusing on different aspects of an organisation's relationship with its environment (Donaldson, Preston, 1995; Obłój, 2007; Hill, Jones, 1994; Laszlo, 2005).

However, in relation to the aim of this study, identifying key stakeholders and defining their role in management processes is of particular importance. Contemporary approaches indicate that membership of a stakeholder group is determined primarily by: the degree of influence on the organisation, the level of involvement in its operations, the nature of the relationship, and the importance for the achievement of strategic objectives (Frączkiewicz-Wronka, 2022). After all, it is well known that employees not only help shape the organisation through their work, but also influence its organisational culture, ability to adapt to change, and level of innovation. At the same time, they are directly affected by organisational decisions that determine working conditions, opportunities for professional development, and job security. As a result, the organisation–employee relationship is reciprocal and dynamic, and its quality influences both the organisation's effectiveness and the well-being of employees.

Therefore, in this context, job satisfaction can be interpreted as one of the key indicators of the quality of the stakeholder relationship between the organisation and its employees. Its level reflects the degree of alignment between employees' expectations and organisational practices and constitutes an important element of human capital management. For this reason,

the analysis of job satisfaction from a stakeholder perspective represents a significant area of research into organisation–employee relations and the mechanisms shaping organisational effectiveness.

3. Expected job satisfaction of employees as stakeholders

The relationship between the organisation and its employees is complex and dynamic, and a key element of this is the mutual expectations of the parties and how these are realised in organisational practice. From a stakeholder perspective, employees are not merely performers of assigned tasks, but individuals who formulate their own goals, needs and preferences, which influence their attitudes towards work and the organisation. These expectations are shaped both by individual factors and by the organisational and social conditions in which the employee operates.

In the literature, employee expectations are defined as a set of beliefs, aspirations and preferences regarding working conditions, opportunities for professional development, interpersonal relationships, and remuneration and job security. They serve as a benchmark for evaluating work and the organisation and influence the level of job satisfaction and employee engagement (Bodak, Gableta, 2015; Warr, 2010).

In the context of stakeholder theory, the alignment between employees' expectations and the organisation's offer is of key importance, as it fosters positive attitudes, identification and long-term relationships. A mismatch between expectations and working conditions reduces satisfaction and commitment and increases the likelihood of changing jobs (Bodak, Gableta, 2015). On the other hand, it is emphasised that employees' expectations are not static but change with professional experience, career stage, life situation and labour market conditions. This means that organisations must maintain an ongoing dialogue with employees and take their needs into account in human resource management processes (Wachowiak, 2014).

Job satisfaction is therefore one of the key outcomes of the relationship between employees' expectations and the conditions offered by the organisation and can be understood as a set of feelings and attitudes an employee holds towards their duties, interpersonal relationships, development opportunities and working conditions (Schultz, Schultz, 2011; Wexley, Yukl, 1984). From a management perspective, job satisfaction is also treated as an element of human capital and one of the factors influencing the organisation's operational effectiveness. Its importance is emphasised in shaping employees' attitudes, their level of commitment, identification with the organisation, and their propensity to undertake additional actions to achieve organisational goals (Lewicka, 2010; Armstrong, 2012).

All this leads to the possibility of identifying various determinants of job satisfaction, encompassing both individual and organisational factors. The complexity of these factors (described in detail by the authors in Table 1) means that job satisfaction is subjective and varied, which makes it difficult to measure unambiguously and to design universal management strategies

Table 1.
Categories of factors influencing employee satisfaction

Factor	Category
Classification by category of needs	
Compliance with health and safety regulations	Safety
Clarity of information received	
Job security	
Salary	
Relationships with colleagues	Affiliation
Relationships with superiors	
Employer's understanding	
Fairness of the supervisor	
Access to information	Authority and recognition
Opportunities for promotion	
Workplace facilities	
Remuneration	
Opportunities for development	Development
Type of tasks performed	
Independence	
Flexibility of working hours	
Breakdown by social and personal categories	
Type of tasks performed, pay	Organisational
Pay	
Prospects for promotion	
Job security	
Company development policy.	
Organisational operating policy	
Organisational atmosphere	Social
Respect at work	
Relationships with superiors and colleagues	
Relationships with customers	
Age	Personal
Gender	
Race	
Cognitive abilities	
Work experience	
Personality traits	
Employment status	
Breakdown by 'work and private life'	
Factors from the 'organisational' category	Professional
Opportunities for personal development	
Level of control whilst carrying out tasks	
Level of autonomy	
Achievements	
Recognition	
Independence	
Nature of work	
Stress	

Cont. table 1.

Factors in the 'personal' category	Non-work-related
Form of employment	
Length of service and opportunities	

Source: own compilation based on the literature: Springer (2011); Skowron, Gąsior (2017); Bartkowiak (2011); Gros (2012); Sak-Skowron, Skowron, 2017.

In summary, contemporary approaches to human resource management emphasise that fostering job satisfaction requires a systematic approach encompassing both the design of working conditions and the development of employees' competencies, as well as the building of relationships based on trust and communication. At the same time, it is pointed out that a high level of satisfaction fosters increased commitment, identification with the organisation and employment stability, which is significant both from the employees' perspective and for the organisation's effectiveness. This relationship is multidirectional and depends on the approach to human resource management, organisational culture and the conditions under which the organisation operates in the labour market (Zając, Przystarz, 2022).

In this context, job satisfaction can be interpreted as one of the key elements of the stakeholder relationship between the organisation and its employees. It results from the alignment of the expectations and experiences of the parties involved in this relationship and reflects the quality of organisational practices in the area of human capital management. Analysing job satisfaction from a stakeholder perspective therefore enables a better understanding of the mechanisms shaping the organisation–employee relationship and their impact on the organisation's functioning.

This approach serves as a starting point for further consideration of the role of job satisfaction as a dimension of the stakeholder relationship and as an element of human capital management, which will be explored in the next section of the article.

4. Job satisfaction as a dimension of stakeholder relations

The development of research on human resource management has led to a broader understanding of job satisfaction. It is viewed not only as an individual assessment of work, but as the result of interaction between the employee and the organisation, and as an indicator of the quality of intra-organisational relationships and the alignment of employees' expectations with organisational practices (Juchnowicz, 2012).

Empirical research in the field of human resource management confirms that job satisfaction remains linked to many aspects of an organisation's functioning, including the level of employee engagement, loyalty to the organisation, the propensity to remain in employment, and work efficiency. This suggests that satisfaction may act as a mediator between organisational practices and relational outcomes that are significant for human capital

(Sypniewska et al., 2023; Longo, Mura, 2011). The literature also emphasises that job satisfaction can serve as an important indicator of the quality of organisational relationships, reflecting how the organisation functions and the effectiveness of the management practices employed. A high level of satisfaction fosters greater employee identification with the organisation, increases their commitment, and their willingness to undertake actions beyond their formal job duties. At the same time, a low level of satisfaction can lead to a decline in motivation, increased staff turnover, and a deterioration in internal organisational relations.

From a stakeholder perspective, job satisfaction is therefore not only the result of organisational factors but also a measure of the quality of the relationship between the organisation and the employee. It may reflect the level of mutual trust, the extent to which expectations are met, and the quality of the exchange of value between the parties to the relationship. Thus, job satisfaction can be treated as one of the key relational indicators in the analysis of organisational functioning and in research on human capital. This approach allows for the integration of stakeholder theory with research on human resource management and human capital. In this framework, job satisfaction becomes a category linking the psychological, organisational and relational dimensions, and its analysis enables a better understanding of the mechanisms shaping the organisation–employee relationship and their consequences for the organisation's operational effectiveness. Consequently, job satisfaction can be treated as a dimension of the stakeholder relationship, reflecting the degree of balance between the organisation's interests and employees' expectations, and constituting the result of human capital management practices.

This approach forms the basis for constructing a conceptual model of the organisation–employee relationship, in which job satisfaction acts as a central relational element, linking organisational factors with outcomes in the area of human capital, as will be presented later in this article.

5. Materials and methods

The study is conceptual and empirical in nature and is based on a quantitative, exploratory analysis of secondary data from national and international statistical sources, as well as reports on the labour market and human capital. The aim of the analysis was to identify the co-occurrence and direction of the relationship between the level of job satisfaction and selected indicators of the quality of the organisation-employee stakeholder relationship.

The empirical section is illustrative in nature and serves to assess the strength and direction of the interdependence at an aggregate level. The unit of analysis comprises selected European countries, and the indicators used are of a macroeconomic nature, which precludes direct inferences at the level of organisations and individuals. The explanatory variable was job

satisfaction, operationalised as the average reported level of satisfaction or the percentage of employees reporting high job satisfaction. The dependent variables comprised three groups of indicators of the quality of the organisation-employee relationship:

- level of employee engagement,
- staff retention or turnover,
- labour productivity (e.g. GDP per hour worked or gross value added per employee).

The selection of variables was based on a review of the literature in the fields of human resource management, labour economics and stakeholder theory, which highlights the links between job satisfaction and engagement, employment stability and work efficiency.

A main hypothesis was formulated regarding the existence of significant relationships between the level of job satisfaction and employee engagement, turnover and productivity.

The hypothesis was tested using Pearson's correlation, which allowed for an assessment of the strength and direction of the relationship between the analysed variables. The use of secondary and aggregated data, together with the correlational method, means that the results are exploratory in nature and do not provide a basis for causal inferences.

6. Results and discussion

In the empirical section of the article, an analysis was conducted of the relationship between the level of job satisfaction and selected indicators which, in the literature, are associated with the quality of stakeholder relations between the organisation and its employees. This analysis serves as an empirical complement to theoretical considerations and verifies the formulated research hypotheses in a correlational framework, whilst making the reservation that its aim is not to identify cause-and-effect relationships.

The study was based on an analysis of aggregated secondary data from international and national statistical databases and research reports on the labour market and human capital. In particular, indicators relating to job satisfaction (operationalised as the average declared level of satisfaction with one's work or the percentage of employees declaring high job satisfaction), employee engagement, staff turnover and labour productivity (gross domestic product per hour worked or gross value added per employee) were used. The selection of variables was based on a review of the literature and the theoretical assumptions adopted, according to which the aforementioned categories constitute significant elements of the organisation–employee relationship and reflect the quality of human capital.

The first area of analysis concerned the relationship between the level of job satisfaction and labour productivity. The correlation coefficients obtained indicate a moderate positive relationship between the variables analysed (Figure 1).

Pearson's correlation: job satisfaction ↔ work productivity

Variable X	Variable Y	Pearson's r	Direction of relationship
Job satisfaction	GDP per hour worked	0.30-0.45	Positive

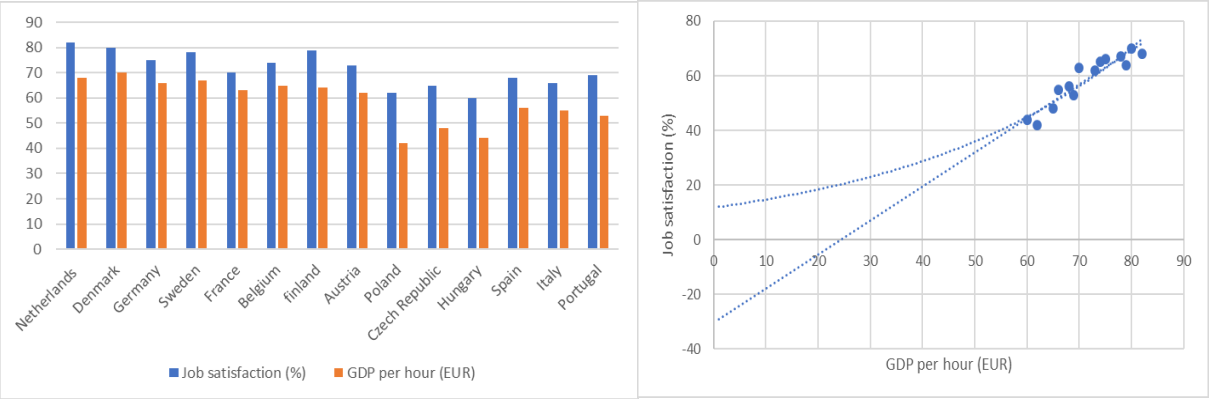

Figure 1. Productivity index by satisfaction level, broken down by country.

Source: own analysis based on Gallup data.

This means that in countries characterised by higher levels of reported employee satisfaction, higher labour productivity indicators are also observed. This relationship is consistent with the findings of the literature and reports on the labour market and human capital management, which emphasise the importance of job quality and employee well-being for the effective functioning of organisations and economies.

These results provide grounds for concluding that the hypothesis regarding a positive relationship between job satisfaction and labour productivity is confirmed at the level of statistical correlations.

The next area of analysis concerned the relationship between the level of job satisfaction and employee engagement. The aggregated data used indicate a strong positive correlation between the variables analysed.

Pearson's correlation: job satisfaction ↔ employee engagement

Variable X	Variable Y	Pearson's r	Direction of relationship
Job satisfaction	Employee engagement	0.55-0.75	Positive

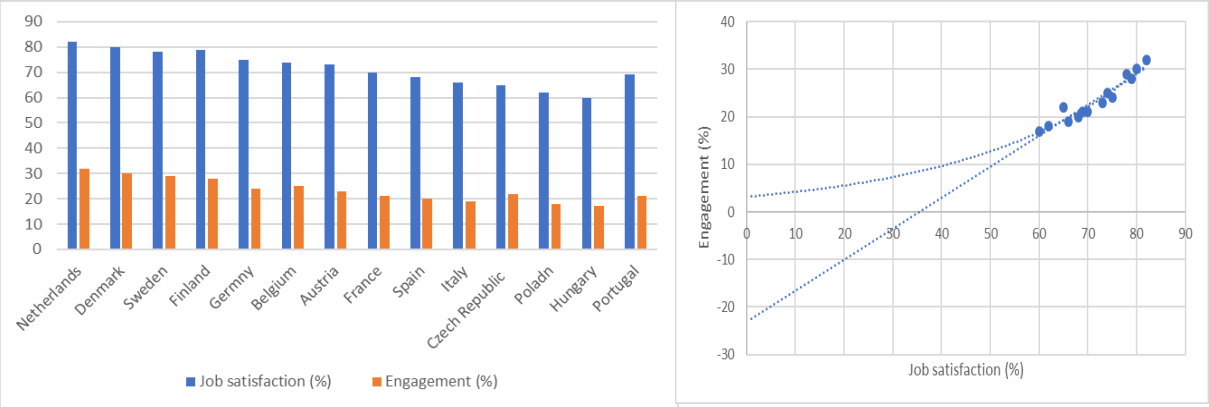

Figure 2. Engagement index as a function of job satisfaction, broken down by country.

Source: own analysis based on Gallup data.

In countries where the proportion of employees reporting job satisfaction was higher, a higher proportion of employees were also observed to identify with their work and be committed to fulfilling their professional duties. The results obtained are consistent with findings from human resource management research, in which job satisfaction is identified as one of the key factors associated with employee engagement.

On this basis, it can be concluded that the hypothesis positing a positive relationship between job satisfaction and the level of employee engagement is confirmed by the correlation analysis.

The third area of analysis concerned the relationship between the level of job satisfaction and staff turnover. Analysis of secondary data indicates the presence of a significant negative correlation between the variables under analysis.

Pearson's correlation: job satisfaction ↔ staff turnover

Variable X	Variable Y	Pearson's r	Direction of relationship
Job satisfaction	Staff turnover	-0.40 - -0.65	Negative

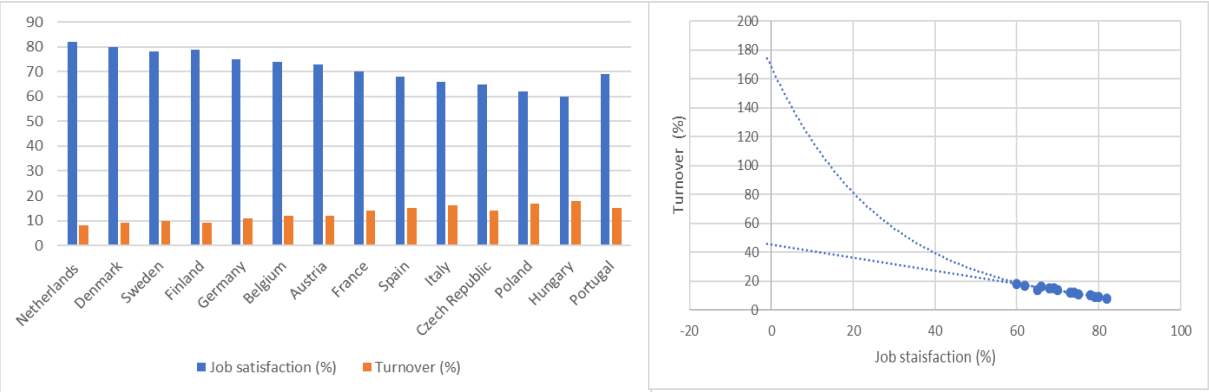

Figure 3. Turnover rate by job satisfaction, broken down by country.

Source: own analysis based on Gallup data.

In countries with higher levels of reported employee satisfaction, lower staff turnover rates or a lower propensity for employees to change jobs were observed. This finding is consistent with the literature, which identifies job satisfaction as a factor promoting employment stability and long-term relationships between employees and organisations.

The results obtained allow us to conclude that the hypothesis positing a negative relationship between job satisfaction and employee turnover is confirmed by the statistical analysis.

In summary, the analysis of secondary data indicates the existence of statistical relationships between the level of job satisfaction and selected indicators of the quality of the organisation–employee relationship, in particular employee engagement, employment stability and labour productivity. The direction and strength of the observed relationships are consistent with the assumptions derived from stakeholder theory and research on human capital, which allows us to conclude that the main hypothesis is confirmed within the adopted analytical framework.

It should be emphasised, however, that the results obtained refer to an aggregate level and do not provide a basis for drawing causal conclusions. The correlation analysis used allows for the identification of the co-occurrence of phenomena and the directions of relationships between variables but does not enable the determination of the mechanisms of interaction or their unambiguous direction. Consequently, the results should be treated as empirical support for the proposed conceptual framework and as a basis for further empirical research conducted at the organisational and individual levels, in which it will be possible to apply more advanced methods of data analysis.

7. An original model of the organisation–employee stakeholder relationship

Based on the literature review and the analysis of secondary data, an original model of the stakeholder relationship between the organisation and employees has been proposed, in which job satisfaction serves as the central relational dimension and as a mediating factor between the organisation's actions and the outcomes in the area of human capital.

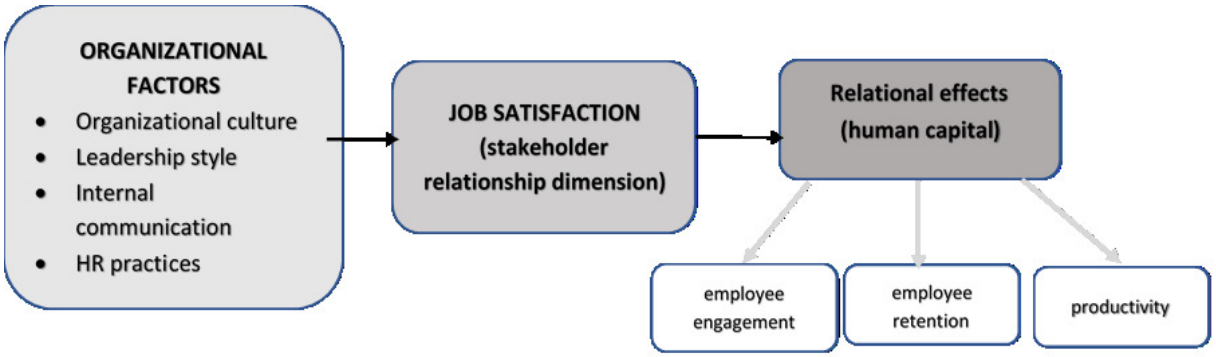

Figure 4. A proposed model of the stakeholder relationship between an organisation and its employees in the context of human capital development.

Source: own work.

The proposed model is conceptual in nature and represents an attempt to organise the relationships between the key categories analysed in the article, encompassing organisational factors, job satisfaction, and relational outcomes in the form of employee engagement, staff retention and labour productivity. The model integrates the body of stakeholder theory with the approach specific to human capital management, highlighting the relational nature of an organisation's functioning and the importance of the quality of relations with employees for organisational outcomes.

The starting point of the model is organisational factors, which shape the conditions under which employees operate within the organisation and influence how they perceive their relationship with the employer. These include, in particular, organisational culture, leadership style, the quality of internal communication, and human resource management practices such as the remuneration system, opportunities for professional development, forms of motivation, and solutions supporting work-life balance.

These factors influence the level of job satisfaction, which in the proposed model is treated not only as a subjective state of the employee, but as a relational indicator of the quality of the exchange of value between the organisation and its key internal stakeholder. Job satisfaction reflects the degree of alignment between employees' expectations and organisational practices, as well as the level of balance of interests between the parties in the relationship.

The model assumes that job satisfaction acts as an intermediary link between the organisation's actions and relational outcomes. This means that the influence of organisational factors on the functioning of employees and the organisation manifests itself through the level of satisfaction, which in turn affects their attitudes and professional behaviour.

The key relational outcomes included in the model are employee engagement, job stability and work productivity. Engagement is understood as the level of employees' identification with the organisation and their willingness to take action to achieve its goals. Retention refers to employees' propensity to remain in employment and build long-term relationships with the organisation. Labour productivity, on the other hand, is treated as the result of utilising the potential of human capital and the quality of cooperation between employees and the organisation.

These outcomes are simultaneously key elements of an organisation's human capital and indicators of the quality of the organisation–employee stakeholder relationship. A high level of job satisfaction fosters increased engagement, employment stability and work efficiency, which translates into the organisation's ability to achieve strategic goals and build a competitive advantage.

In practical terms, the model highlights the importance of consciously managing relationships with employees as key stakeholders of the organisation. Taking their expectations into account in decision-making processes and designing an environment conducive to job satisfaction fosters long-term cooperation and the development of human capital.

Conclusions

The literature review and exploratory analysis of secondary data suggest that job satisfaction can be interpreted as a significant dimension of the stakeholder relationship between the organisation and its employees, and as an important element of human capital management.

The literature review highlights the links between job satisfaction and human resource management practices, organisational culture, and the shaping of intra-organisational relationships. At the same time, it emphasises its importance for the level of employee engagement, employment stability and work efficiency, which justifies treating it as a key component of human capital.

The results of the empirical analysis confirmed the existence of statistically significant relationships between the level of job satisfaction and indicators of commitment, staff turnover and work productivity. The positive verification of the three specific hypotheses allowed for the unequivocal confirmation of the main hypothesis, according to which job satisfaction constitutes a significant dimension of the stakeholder relationship between the organisation and its employees.

A key outcome of the article is the development of an original model of the organisation–employee stakeholder relationship, in which job satisfaction serves as the central relational dimension and as a mediating link between the organisation's actions and outcomes in the area of human capital. This model integrates the stakeholder theory perspective with the approach characteristic of human capital management and serves as a starting point for further empirical research.

In future research, it is advisable to utilise primary data and methods enabling the analysis of relationships at both the organisational and individual levels. From a theoretical perspective, the article contributes by integrating the body of work on stakeholder theory and human capital research, and by identifying job satisfaction as a key indicator of the quality of the organisation–employee relationship. From a practical perspective, it highlights the importance of consciously shaping relationships with employees as a factor conducive to building long-term organisational effectiveness.

References

1. Armstrong, M. (2012). *Armstrong's handbook of human resource management practice*. London: Kogan Page.
2. Austen, A., Czakon, W. (2012). The importance of stakeholders for the management of public organisations. In: A. Frączkiewicz-Wronka (ed.), *The use of stakeholder analysis in the management of healthcare organisations*. Katowice: Wydawnictwo Naukowe Śląsk.
3. B2BReviews (2025). *The state of employee engagement. Global and U.S. trends, key drivers, and how to build a thriving workplace in 2025*. Retrieved from: https://www.b2breviews.com/the-state-of-employee-engagement/.
4. Bartkowiak, M. (2011). *Managerial competencies and employee relations in a learning organisation.* Poznań: Wydawnictwo Naukowe UAM.
5. Bodak, A., Gableta, M. (2015). Employees' expectations regarding safety in the workplace. *Scientific Journals of the Silesian University of Technology. Series: Organisation and Management*, *83*, 45-54.
6. Borowska-Pietrzak, A. (2023). Attributes of employee satisfaction as components of human capital measurement. *Education of Economists and Managers*, *29*(3), 113-126. https://doi.org/10.5604/01.3001.0009.6310
7. Donaldson, T., Preston, L.E. (1995). The stakeholder theory of the corporation: Concepts, evidence and implications. *Academy of Management Review*, *20*(1), 65-91.
8. Eurostat (2021). *Job autonomy and pressure at work – statistics.* Retrieved from: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Job_autonomy_and_pressure_at_work_-_statistics.

9. Eurostat (2021). *Employed persons by job satisfaction, citizenship and occupation*, https://ec.europa.eu/eurostat/databrowser/view/lfso_21jsat03/default/table?lang=en
10. Frączkiewicz-Wronka, A. (2022). *The use of stakeholder analysis in the management of a healthcare organisation.* Katowice: Wydawnictwo Naukowe Śląsk.
11. Freeman, R.E. (1984). *Strategic management: a stakeholder approach*. Boston: Pitman.
12. Gallup (2024). *3 key insights into the global workplace*. Retrieved from: https://www.gallup.com/workplace/645416/key-insights-global-workplace.aspx
13. Gallup (2025). *Employee engagement*. Retrieved from: https://www.gallup.com/394373/indicator-employee-engagement.aspx
14. Gallup (2025). *Global data summary - State of the global workplace 2025.* Retrieved from: https://www.gallup.com/workplace/697904/state-of-the-global-workplace-global-data.aspx
15. Gallup (2025). *Global engagement falls for the second time since 2009.* Retrieved from: https://www.gallup.com/workplace/659279/global-engagement-falls-second-time-2009.aspx
16. Gallup (2025). *State of the global workplace 2025.* Retrieved from: https://www.gallup.com/workplace/349484/state-of-the-global-workplace-2022-report.aspx
17. Hill, Ch.W.L., Jones, G.R. (1994). *Strategic management theory: an integrated approach.* Boston: Houghton Mifflin.
18. Juchnowicz, M. (2012). Job satisfaction in the service sector in the context of the Polish economy. *Education of Economists and Managers*, *24*(2), 61-78. https://doi.org/10.5604/01.3001.0009.5799
19. Laszlo, C. (2005). *The Sustainable Company: How to Create Lasting Value through Social and Environmental Performance*. Washington: Island Press.
20. Lewicka, D. (2010). *Human capital management in Polish enterprises. Methods, tools, metrics*. Warsaw: PWN.
21. Longo, M., Mura, M. (2011). The effect of intellectual capital on employees' satisfaction and retention. *Information & Management*, *48*(7), 278-287.
22. Obłój, K. (2007). *Organisational strategy*. Warsaw: PWE.
23. OECD (2024). *Workforce insights from central governments*, https://www.oecd.org/en/publications/workforce-insights-from-central-governments_2f9080b1-en/full-report/employee-engagement-and-well-being_8779fa57.html
24. OECD (2025). *Government at a glance 2025.* Retrieved from: https://www.oecd.org/en/publications/government-at-a-glance-2025_0efd0bcd-en/full-report/employee-engagement-in-central-administrations_591fdc1c.html
25. Randstad (2022). *Randstad survey: lower satisfaction with pay despite last year's pay rises*. Retrieved from: https://www.randstad.pl/o-randstad/dla-mediow/press/badanie-randstad-mniejsza-satysfakcja-z-plac-i-to-pomimo-zeszlorocznych/

26. Schultz, D.P., Schultz, S.E. (2011). *Psychology and the challenges of today's workplace.* Warsaw: PWN.
27. Skowron, Ł., Gąsior, M. (2017). *Employee motivation and customer satisfaction and loyalty*. Warsaw: Difin.
28. Springer, A. (2011). Selected factors influencing employee satisfaction. *Management Issues*, *9*(4/1), 162-180.
29. Sypniewska, B. (2017). The role of job satisfaction in shaping relationships with internal stakeholders. *Economic Sciences*, *26*, 389-403. https://doi.org/10.19251/ne/2017.26
30. Sypniewska, B., Baran, M., Kłos, M. (2023). Work engagement and employee satisfaction in the practice of sustainable human resource management – based on the study of Polish employees. *International Entrepreneurship and Management Journal, 19*, 1069-1100. https://doi.org/10.1007/s11365-023-00834-9
31. Wachowiak, P. (2014). The employee – a key stakeholder in the enterprise. *Foreign Trade*, *4*(351), 289-298.
32. Warr, P. (2010). Work values: Some demographic and cultural correlates. *Journal of Occupational and Organizational Psychology*, *81*(4), 751-775.
33. Wexley, K.N., Yukl, G.A. (1984). *Organisational Behaviour and Personnel Psychology.* Homewood: R.D. Irwin.
34. Wikipedia (2024). *List of countries by labour productivity*. Retrieved from: https://en.wikipedia.org/wiki/List_of_countries_by_labour_productivity
35. Zając, C., Przystarz, G. (2022). Flexibility of employment in terms of different employment models. *Przegląd Organizacji*, *9*(992), 19-24. https://doi.org/10.33141/po.2022.09.03

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THE IMPACT OF ERGONOMIC ACTIVITIES ON SHAPING SAFETY CULTURE IN MANUFACTURING COMPANIES

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Purpose: The aim of this article is to examine the perception of taking actions in the field of ergonomics in Polish manufacturing companies in the context of the perceived level of safety culture in the organization.
Design/methodology/approach: As part of this article, research was conducted among 106 employees of Polish occupational health and safety services, who assessed statements regarding the implementation of ergonomics in various aspects of activities aimed at shaping a higher level of safety culture.
Findings: Based on the data obtained in the study, the level of ergonomic activities undertaken in companies was determined in relation to the assessed level of safety culture. Conclusions were drawn about the existence of strong and very strong correlations between the statements assessed by respondents and the assessed level of activities undertaken to shape the safety culture. The research results allowed for conclusions on the shaping of safety culture through ergonomics and appropriate activities in this area, as well as for the development of recommendations regarding their implementation in the company's everyday functioning.
Research limitations/implications: The limitation in the conducted study results from the inability to identify the number of occupational health and safety specialists working in Poland, hence the selection of the research sample was purposeful. Another limitation is that safety culture was considered only from the point of view of occupational health and safety specialists and not all employees of the surveyed organizations.
Practical implications: The research results and practical recommendations presented in the article can be used to implement ergonomic activities in enterprises to obtain additional benefits, e.g., shaping a higher level of safety culture.
Originality/value: The article presents the problem of linking ergonomic activities with the development of safety culture, which allowed for filling the identified, significant research gap in this area.
Keywords: safety culture, ergonomics in OHS, social responsibility.
Category of the paper: Research paper.

1. Introduction

Achieving a high level of safety culture acceptable to the company is currently the goal of most enterprises, especially those that take into account the importance of sustainable organizational development and corporate social responsibility. Ensuring safe working conditions therefore becomes a long-term goal, the achievement of which depends, among others, on ensuring the well-being of employees and the feeling that the organization is making every effort to minimize threats to their health and life (Wijesinghe et al., 2023). One can notice a developing trend of looking at occupational safety not only from the point of view of eliminating physical threats, but also from the point of view of shaping optimal conditions from a psychological point of view (e.g. by implementing the assumptions of the ISO 45003 standard) (Chirico et al., 2023). Taking these aspects into account, there is a potential for combining these areas of shaping safety in taking actions to increase the level of safety culture (Van Nunen et al., 2018). On the other hand, however, Schulman (2020) points out that when shaping a safety culture, companies should also take into account aspects that influence it contextually, e.g. organizational structure or multi-threaded inter-employee relations at various organizational levels. One of the elements that unites broadly understood safety and building employee unity in this area may be ergonomics due to its potential to optimize the human workload in work processes and build employee awareness (and thus motivate to participate in ensuring safety) (Butlewski, Czernecka, 2024; Bisbey et al., 2021). Kaleth, Salesi and Mokarami (2022) point to the relationship between the motivation to conduct work safely and take appropriate actions to respond to threats (also in terms of shaping ergonomics) and Tappura, Jääskeläinen and Pirhonen (2022) emphasize the importance of employee and management involvement in increasing the safety culture level. An attempt to integrate all these characteristics is presenting the concept of Safety Ergonomics (SE), which analyzes the factors of work organization, work environment and technical aspects (machines) that influence humans at work. It notes the importance of safety culture, while pointing to a research gap in the field of practical guidance on how to manage ergonomics in order to increase the level of safety culture (Dong, Wang, 2023).

2. Literature review - safety culture in the context of ergonomic activities

Safety culture (perceived as an element of organizational culture) is the result of individual and group values, perceptions, attitudes, competences and behavioral patterns. It is also related to the style and quality of safety management in the organization. A (high) safety culture is characterized by the perception of high value of safety, communication based on mutual trust

and trust in the adequacy and effectiveness of preventive measures (Deepak, Gangadhar, 2023; Glendon, Stanton, 2000). Safety culture may be characterized by a systemic approach (by taking into account human, organizational and material factors in the process of achieving and maintaining the desired level of safety culture). On the other hand, however, in some cases it is perceived as a phenomenon achieved by the appropriate behavior of organization members or a return to the perceived state of safety after its loss, e.g. after an accident, inappropriate behavior or a gap in security systems (Fig. 1).

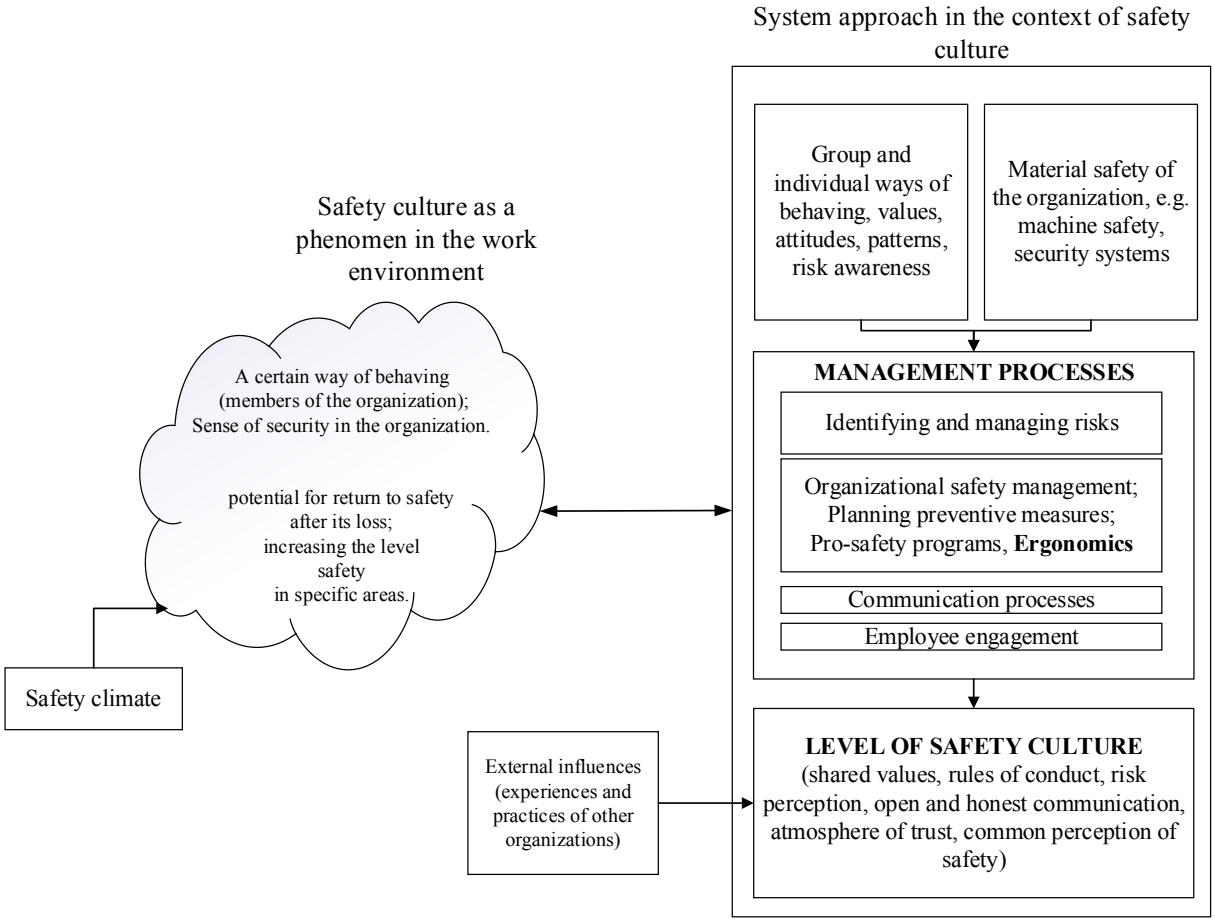

Figure 1. A multi-criteria look at the dimensions of safety culture in an organization.
Source: own elaboration based on: Wolniak, Olkiewicz, 2019; Amirah et al., 2024.

Undoubtedly, one of the factors that should be taken into account in safety management is ergonomics. When considering ergonomic activities, they should be looked at more broadly than just through the prism of shaping the workplace. It is important to take into account the interaction in the human-machine-environment system (Dul, Neumann, 2009). In addition to achieving the optimal functioning of this system, the scope of ergonomic implementation also includes shaping employees' attitudes (e.g. in the context of requiring specific behavior during work), increasing their risk awareness, as well as issues related to ensuring broadly understood safety (Zink, 2014; Robertson et al., 2015). More and more often, additional benefits are noticed from the implementation of ergonomic activities, which include shaping a (high) level of safety culture (Bentley, Tappin, 2010; Gabryelewicz et al., 2015). Hasanain (2024) even points out

that ergonomic design of work, products, interpersonal interactions and services may become the basis for the company to achieve the desired level of safety culture and sustainable development, which is also confirmed in other scientific studies and reports (IAEA, 2024).

Measuring safety culture is used to examine the level of safety in an enterprise and to determine the direction of changes in this area. Mainly qualitative features are assessed (also in the aspect of ergonomics - work organization and work environment factors), which are difficult to determine due to the lack of their clear identification and description. Research most often uses direct and indirect observations, interviews, questionnaires and surveys (which are quick to conduct and allow for learning the opinions of the main recipients of pro-safety activities), whose respondents are employees of a given enterprise. Table 1 presents selected tools for measuring safety culture.

Table 1.
Examples of tools for measuring safety culture, taking into account the context of ergonomics

no.	Method of safety culture assessment	Scope of taking into account ergonomics in the safety culture research tool
1.	Score Your Safety Culture Checklist	Assessment of safety culture using 20 statements relating to, among others: compliance with legal regulations in the field of safety, awareness of threats, financial outlays related to safety. Referring to taking actions to prevent employee injuries and auditing workplaces in terms of safety and ergonomics (Score Your Safety Culture, 2024).
2.	Hearts&Minds, Understanding Your Culture online survey	Multiple checklists used to assess the level of safety culture in the organization - it is possible to assess many aspects with the participation of a large number of respondents. Possibility to assess threats to employees also in terms of material (ergonomic) factors of the work environment (Understanding Your Culture, 2024).
3.	Safety Climate Assessment Toolkit and User Guide	A tool consisting of possible questions aimed at assessing the safety climate in an enterprise. It is assessed in the following categories: commitment of top management, communication, safety prioritization, safety procedures and rules, support for safety-related activities, employee involvement, self-awareness of the importance of safety, risk awareness, work environment (where ergonomic aspects of work are taken into account) (Safety Climate Measurement, 2024).
4.	Safety Health of Maintenance Engineering (SHoMe) Tool	Safety culture assessment tool consisting of three surveys. Creates opportunities to assess safety in the aviation industry, respondents are maintenance workers (industry measurement tool). It allows to take into account organizational factors in relation to safety (including ergonomic ones) (SHoMe Tool, 2024).
5.	Nordic Occupational Safety Climate Questionnaire (NOSACQ-50)	A tool for examining the safety climate, consisting of 50 questions. Initiated in the Nordic countries, but availability in 23 languages makes it possible to assess the level of safety climate also in enterprises from other countries. Ergonomics is included in the section on prioritizing safety (NOSACQ-50, 2024).

Source: own elaboration.

Measuring the level of safety culture can provide companies with a basis for taking actions to increase its level. However, even without a structured approach to this measurement, it is possible to implement such activities (e.g. in the area of ergonomics), based on e.g. data obtained from employees or identified current safety problems.

3. Materials and method of research

In order to complement the identified research area and gap, surveys were carried out among employees of occupational health and safety services performing professional duties in Polish manufacturing enterprises. The study consisted of assessing ergonomic activities undertaken in the company in terms of shaping the safety culture through their implementation. The study involved employees of occupational health and safety services (in the positions of: technician, specialist, inspector, coordinator, occupational health and safety manager) operating in manufacturing enterprises of various sizes (due to employment status - up to 10 employees, 10-49 employees, 50-249 employees, over 249 employees). The criterion of work experience in the occupational health and safety service was not adopted, but in the survey the employees taking part in the study indicated their work experience in full years. The respondents were selected deliberately (one employee represented one company). 106 correctly completed surveys were obtained, the return rate was 26.7%. In the first part of the study, respondents assessed statements regarding activities undertaken in the organization in the context of safety culture. The following rating scale was adopted: 1. I disagree; 2. I tend to disagree; 3. I have no opinion; 4. I tend to agree; 5. I agree (Ponto, 2015). The assessed statements are presented in Table 2.

Table 2.
Statements assessed in the survey research

no.	Statement
1	Ergonomics is an important factor in shaping the safety culture in the company where I work.
2	We monitor and strive to continuously improve employee satisfaction with working conditions in terms of ergonomics.
3	We establish and monitor the implementation of ergonomic goals in projects implemented in the company.
4	We have developed and adhere to an ergonomic policy in the company.
5	We familiarize all employees with the ergonomic goals adopted in the company.
6	We provide employees with the opportunity to report ergonomic problems to the unit designated for this purpose.
7	We encourage employees to report ergonomic problems by providing them with reliable information about this possibility.
8	We provide communication channels for ergonomic problems that are easily accessible to employees (e.g. a dedicated system or e-mail).
9	We solve problems reported by employees on an ongoing basis through ergonomic implementations.
10	We periodically audit workplaces for ergonomics.
11	We propose solutions to ergonomic problems noticed in periodic reviews of workstations, indicating the date of implementation and the person responsible.
12	We classify workplaces according to ergonomic risk determined by selected assessment methods in order to plan corrective actions.
13	The hierarchy of changes undertaken at workplaces results from the value of ergonomic risk.
14	We engage employees in the issues of ergonomics and occupational safety, e.g. by participating in ergonomic analyses.
15	We provide employees with the opportunity to participate in ergonomic analyzes (e.g. by designating time for it in their work schedule).
16	We inform all employees about the results of ergonomic activities.

Cont. table 2.

17	We implement the principles of training employees in the use of new ergonomic solutions and follow them.
18	The company's management provides support for activities aimed at improving the safety and ergonomics of workplaces (including organizational and financial).
19	We include ergonomics in the occupational health and safety instructions available to employees.
20	We include the topic of ergonomics in periodic occupational health and safety training for employees and during meetings with superiors.
21	We organize additional training for employees (apart from periodic occupational health and safety) on ergonomics at work stations.
22	We organize information campaigns on occupational safety and ergonomics of workplaces.
23	We take into account the issues of ergonomics in the analysis of the causes of accidents at work and dangerous incidents.
24	We take ergonomic problems into account when assessing occupational risk.
25	In the company, we promote cooperation between all employees of the company in order to ensure safe and ergonomic working conditions, e.g. through dedicated meetings and discussions on proposed solutions.
26	There is a friendly atmosphere in the company and there is openness to employees' ideas regarding improving the safety and ergonomics of work stations.

Source: own elaboration.

In the subsequent parts of the research sheet, respondents were asked questions about various aspects related to the perceived safety culture and work in a given organization. Five questions were asked: (1) How do you evaluate the actions taken to shape the safety culture in the company where you work? (2) How do you assess the management's involvement in occupational health and safety in the company where you work? (3) How do you assess the level of occupational health and safety management in the company where you work? (4) Please indicate the size of the company you work for. (5) How many years of experience do you have working in the occupational health and safety field (total experience in all companies in full years)?

The research sheet was supplemented with the adopted definition of safety culture, indicating its dimensions in the following aspects: employee awareness of the importance of shaping safe working conditions, the vision and goals of the company regarding the development of safety, the value assigned to safety in the organization, the importance of employee participation in activities aimed at shaping safety, training and education in the development of safe working conditions, analysis of the causes of accidents at work and unsafe behavior of employees.

4. Results

The study involved 4 employees of small companies (employing less than 10 people), 15 employees of companies employing from 10 to 49 people, 41 employees of companies employing up to 50 to 249 people and 46 employees of companies employing more than 250 people. The respondents' work experience is presented in Table 3.

Table 3.
The respondents' work experience in OHS department

Seniority (years)	Less then 1	1	2	3	4	5	6	7	8	9	10	More than 10
No. of respondents	9	17	9	16	12	11	7	7	3	1	5	9

Source: own elaboration.

With regard to questions related to the assessment of the level of occupational health and safety management and activities aimed at shaping a safety culture, the results are presented in Figures 2 and 3.

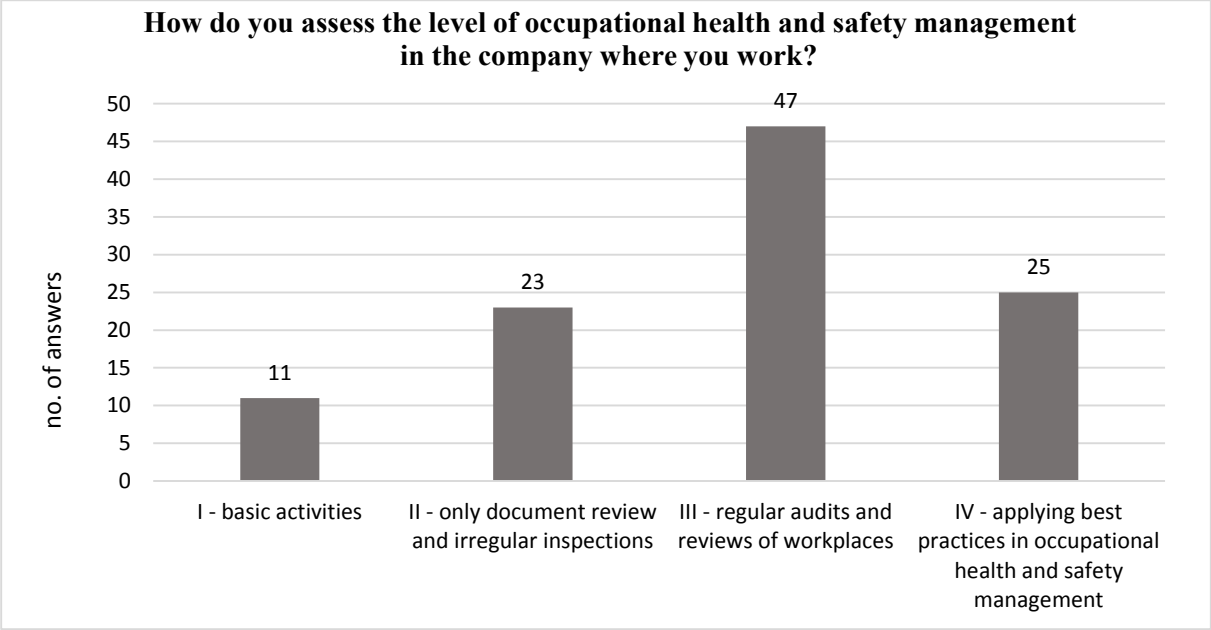

Figure 2. Respondents' assessment of the level of occupational health and safety management in the organization.

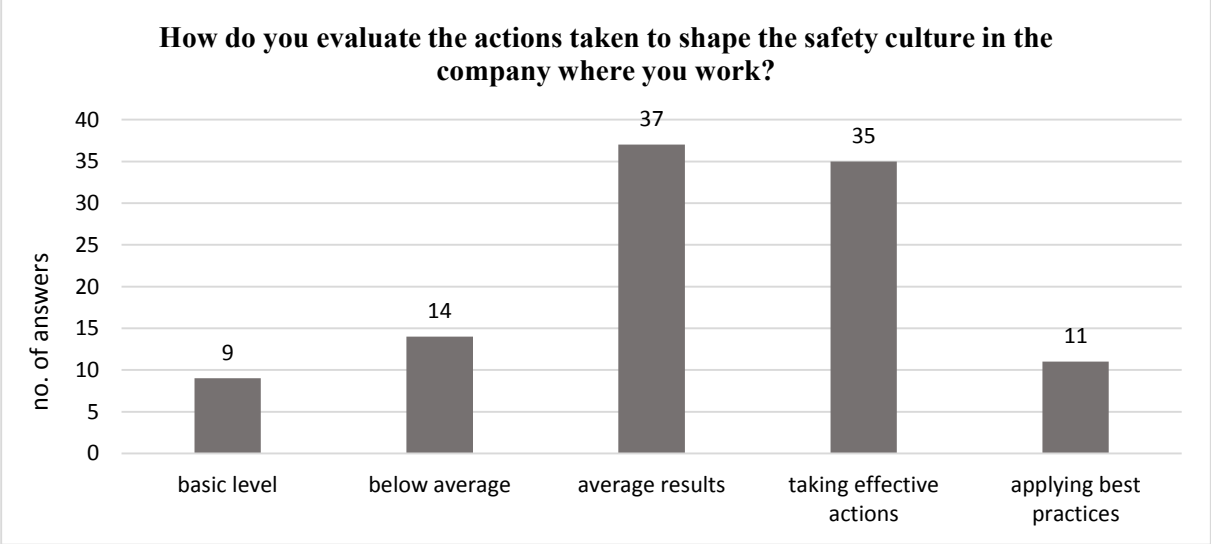

Figure 3. Respondents' assessment of the actions taken to shape safety culture within organization.

As part of the analysis of the data obtained in the survey, descriptive statistics were presented (mean, minimum and maximum value, SD) regarding each statement assessed by the respondents (Table 4).

Table 4.
Descriptive statistics of the carried out surveys and compared data

no. of statement	Mean	Min	Max	SD
1	3,81	1	5	0,98
2	3,76	1	5	1,08
3	3,46	1	5	1,15
4	3,18	1	5	1,21
5	3,50	1	5	1,18
6	3,93	1	5	1,14
7	3,65	1	5	1,18
8	3,58	1	5	1,29
9	3,64	1	5	1,07
10	3,42	1	5	1,19
11	3,41	1	5	1,05
12	3,24	1	5	1,23
13	3,08	1	5	1,17
14	3,49	1	5	1,14
15	3,06	1	5	1,20
16	2,98	1	5	1,27
17	3,54	1	5	1,11
18	3,70	1	5	1,08
19	3,78	1	5	1,18
20	3,87	1	5	1,19
21	2,63	1	5	1,26
22	3,37	1	5	1,31
23	3,70	1	5	1,09
24	4,00	1	5	1,07
25	3,55	1	5	1,07
26	3,78	1	5	1,01

Source: own elaboration.

Due to the purpose of undertaking the research (including examining the correlation between taking actions in the field of ergonomics and the perceived level of safety culture) the data was analyzed using Spearman's rank correlation coefficient (Spearman's rho) to check for the relationships between variables. The section below devoted to the discussion of the obtained research results focuses mainly on the analysis of the correlations that are most important according to the author.

5. Discussion and conclusions

The first statement assessed by the respondents was the importance of ergonomics in shaping the safety culture in the company. Analyzing the obtained research results, it is possible to notice a strong correlation between recognizing this statement and taking specific actions in this area (monitoring and striving to improve employee satisfaction with ergonomic conditions, setting ergonomic goals in projects implemented in the company, developing an ergonomic policy, familiarizing employees with the adopted ergonomic goals, encouraging employees to report ergonomic problems at workplaces, periodic audits of workplaces, proposing ergonomic solutions based on periodic audits of workplaces and taking ergonomic problems into account in the analysis of occupational risk). It can therefore be concluded that the above-mentioned activities will, according to the results obtained, be the most important from the point of view of shaping a safety culture through ergonomics.

An interesting conclusion is also the observation of the connection between setting and monitoring ergonomic goals in projects undertaken in the company and: familiarizing employees with these goals (emphasizing the importance of informing and participating employees in activities aimed at ergonomics), current solving ergonomic problems, auditing workstations, proposing ergonomic solutions based on audit results, classification of workplaces based on the results of ergonomic analyzes and the hierarchy of taking actions based on this classification, involving employees in ergonomic analyses, organizing ergonomics training for employees and organizing inform**ation campaigns on ergonomics.**

In the case of auditing workplaces, the key finding is the connection between this activity and solving ergonomic problems on this basis, in accordance with the classification of workplaces in relation to the ergonomic risk involved. It is also important to involve workplace employees in audits and provide them with the opportunity to take part in ergonomic analyzes (by providing adequate time for this purpose) and to conduct training in the use of new ergonomic solutions. There is also a strong correlation between auditing workplaces and organizing information campaigns on ergonomics (their results are often presented in this way) and using the conclusions from their conduct in the analysis of accidents at work and **occupational risk assessment.**

An important conclusion from the analysis of the research results is also the observation of the relationship between involving employees in ergonomic analyzes with: providing them with time to participate in analyses, informing employees about the results of analyses, organizing information campaigns on ergonomics and promoting cooperation of all employees in ensuring ergonomics and safety (which seems to be justified). In relation to providing employees with the opportunity to participate in ergonomic analyses, strong correlations are noted with the implementation of principles of training employees in the use of new ergonomic solutions and promoting cooperation in the field of ergonomics.

It should also be noted how important is management's involvement in health and safety issues. Respondents linked their involvement with following statements: ergonomics as an important factor in shaping the safety culture, monitoring and striving to improve employee satisfaction with ergonomic conditions and a friendly atmosphere in the organization. It can therefore be concluded that this factor will be important from the point of view not only of the implementation of ergonomic activities, but also of supervising their implementation and meeting the assumed goals, as well as building relationships in the organization based on the cooperation of all employees and openness to their ideas.

There is also a strong correlation between the overall assessment of the level of activities undertaken to shape the safety culture and the commitment of management and the level of occupational health and safety management that the company represents. Management involvement correlates strongly with the level of occupational health and safety management in the organization. An interesting conclusion that can be drawn from the presented correlation analysis is a slight connection between the perception of activities undertaken to shape safety culture through ergonomics and the size of the enterprise and the respondents' work experience. This may indicate that the great importance of ergonomics in an enterprise depends on internal policy and awareness in this area and is noticed by occupational health and safety employees regardless of the time spent in the organization.

General guidelines for actions that can be taken in a manufacturing companies to help shaping the level of safety culture based on the analysis of the obtained research results are presented in Fig. 4.

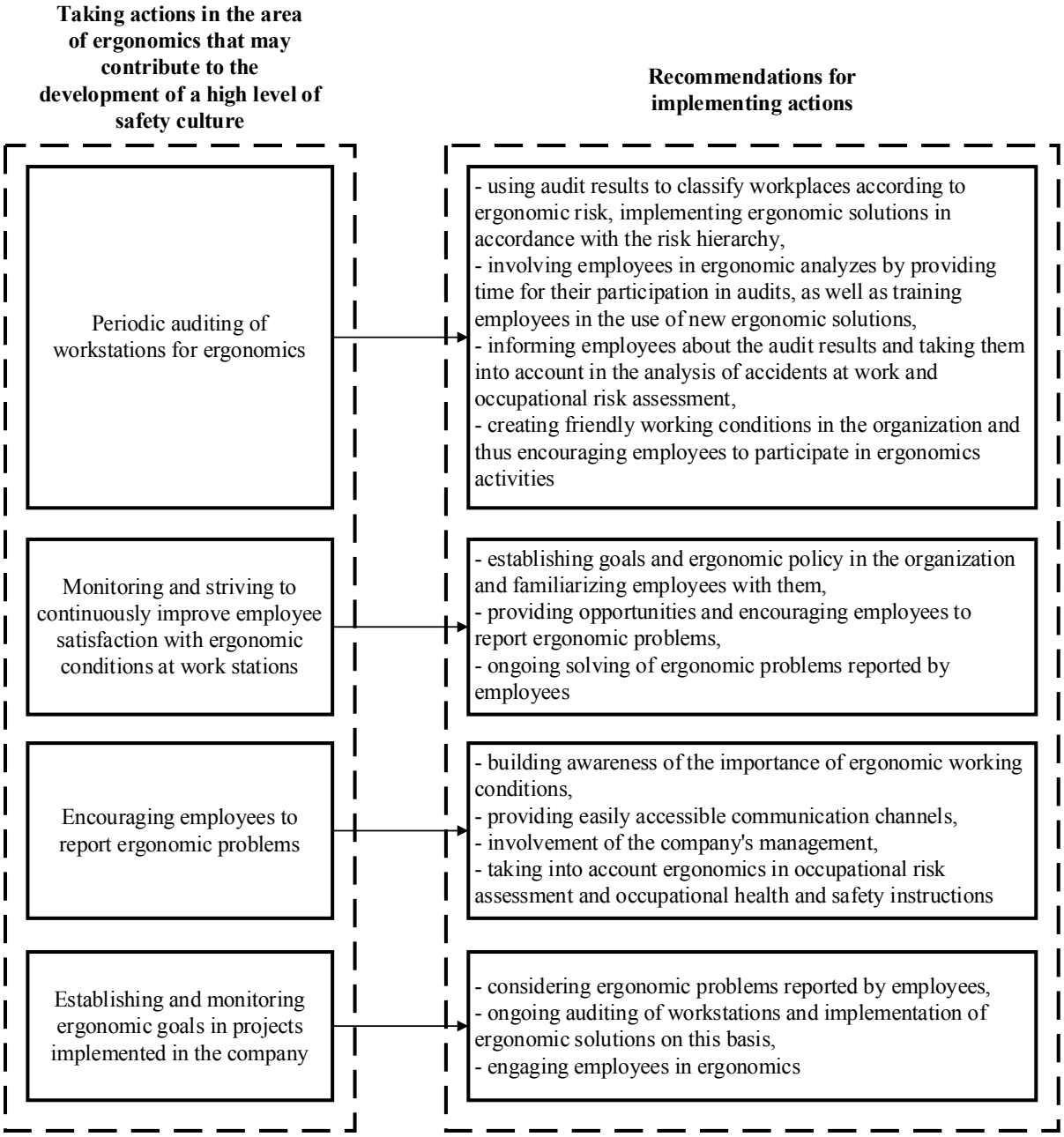

Figure 4. Activities shaping the safety culture in a production company through ergonomics.

Summarizing the research undertaken and the results obtained, it can be concluded that ergonomics can be an important factor supporting the development of a safety culture in an organization. Even if a company does not see the need to formally assess its level using the selected measurement method, it can implement activities that will support its improvement (both in operational terms and taking it into account in long-term planning). However, it can be pointed out that a limitation of the conducted research is that it examined the perception of safety culture only from the perspective of occupational health and safety specialists, not all employees within the organization. This may be the next step in the development of this research.

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References

1. Amirah, N.A., Nik Him, N.F., Rashid, A., Rasheed, R., Zaliha, T.N., Afthanorhan, A. (2024). Fostering a safety culture in manufacturing through safety behavior: A structural equation modelling approach. *Journal of Safety and Sustainability*. DOI: https://doi.org/10.1016/j.jsasus.2024.03.001
2. Bentley, T., Tappin, D. (2010). Incorporating organisational safety culture within ergonomics practice. *Ergonomics*, *53(10),* pp. 1167-1174. DOI: 10.1080/00140139.2010.512981
3. Bisbey, T.M., Kilcullen, M.P., Thomas, E.J., Ottosen, M.J., Tsao, K., Salas, E. (2021). Safety Culture: An Integration of Existing Models and a Framework for Understanding Its Development. *Human Factors*, *63(1),* pp. 88-110. DOI: 10.1177/0018720819868878
4. Butlewski, M., Czernecka, W. (2024). Social Sustainability in Practice: Bridging the Gap from Declarations to Real-World Scenarios on Sustainability Driven by Ergonomics. *Sustainability*, *16(14),* 6019.
5. Chirico, F., Giorgi, G., Magnavita, N. (2023). Addressing all the psychosocial risk factors in the workplace requires a comprehensive and interdisciplinary strategy and specific tools. *Journal of Health and Social Sciences*, *8(3),* pp. 170-174. DOI: 10.19204/2023/DDRS1
6. Deepak, M.D., Gangadhar, M. (2023). Demystifying the Recent Trends and Advances in Safety Culture Research: A Systematic Review. In: Li, R.Y.M. (ed.), *Construction Safety: Economics and Informatics Perspectives*. Singapore: Springer. DOI: https://doi.org/10.1007/978-981-19-3234-2_9
7. Dong, L., Wang, J. (2023). Intelligent Safety Ergonomics: A Cleaner Research Direction for Ergonomics in the Era of Big Data. *International Journal of Environmental Research and Public Health*, *19*, 813. DOI: https://doi.org/10.3390/ijerph19020813
8. Dul, J., Neumann, W.P. (2009). Ergonomics contributions to company strategies. *Applied Ergonomics*, *40(4),* pp. 745-752. DOI: https://doi.org/10.1016/j.apergo.2008.07.002
9. Gabryelewicz, I., Krupa, P., Sadłowska-Wrzesińska, J. (2015). IT Tool for Aiding Assessment of Safety Culture Level in an Organization. *Applied Mechanics and Materials*, *795*, pp. 77-83. DOI: https://doi.org/10.4028/www.scientific.net/AMM.795.77

10. Glendon, A., Stanton, N. (2000). Perspectives on safety culture. *Safety Science*, *34*, pp. 193-214. DOI: 10.1016/S0925-7535(00)00013-8
11. Hasanain, B. (2024). The Role of Ergonomic and Human Factors in Sustainable Manufacturing: A Review. *Machines*, *12(3),* 159. DOI: https://doi.org/10.3390/machines12030159
12. Kalteh, H.O., Salesi, M., Mokarami, H. (2022). The mediator role of safety motivation and knowledge between safety culture and safety performance: The results of a sociotechnical and macroergonomics approach. *Work*, *72(2),* pp. 707-717. DOI: 10.3233/WOR-205085
13. Podgórski, D. (2000). Systemowe zarządzanie bezpieczeństwem i higieną pracy – normalizacja i promocja. *Bezpieczeństwo Pracy*, *12*, pp. 1-5 [in Polish].
14. Ponto, J. (2015). Understanding and Evaluating Survey Research. *Journal of the Advanced Practitioner in Oncology*, *6(2),* pp. 168-171.
15. Robertson, M.M., Ciriello, V.M., Garabet, A.M. (2015). Office ergonomics training and a sit-stand workstation: Effects on musculoskeletal and visual symptoms and performance of office workers. *Applied Ergonomics*, *36(5),* pp. 511-519. DOI: https://doi.org/10.1016/j.apergo.2014.12.008
16. *Safety Climate Measurement User Guide and Toolkit.* Available at: http://plataforma.responsable.net/sites/default/files/safety-climate-assessment-toolkit_1.pdf, 17.07.2024.
17. *Safety Climate Questionnaire – NOSACQ-50.* Available at: https://nfa.dk/vaerktoejer/spoergeskemaer/safety-climate-questionnaire-nosacq-50/, 17.07.2024.
18. *Safety Culture in Nuclear Installations. Guidance for Use in the Enhancement of Safety Culture*. Available at: https://www-pub.iaea.org/MTCD/Publications/PDF/te_1329_web.pdf, 17.07.2024.
19. *Safety Health of Aviation Maintenance Engineering (SHoMe) Tool: User Guide*. Available at: https://www.caa.co.uk/publication/download/12622, 17.07.2024.
20. Schulman, P.R. (2020). Organizational structure and safety culture: Conceptual and practical challenges. *Safety Science*, *126*, 104669. DOI: https://doi.org/10.1016/j.ssci.2020.104669
21. *Score Your Safety Culture – TP 13844*. Available at: https://tc.canada.ca/en/aviation/publications/score-your-safety-culture-tp-13844, 16.07.2024.
22. Tappura, S., Jääskeläinen, A., Pirhonen, J. (2022). Creation of satisfactory safety culture by developing its key dimensions. *Safety Science*, *154*, 105849. DOI: https://doi.org/10.1016/j.ssci.2022.105849.
23. *Understanding Your Culture Online Survey*. Available at: https://heartsandminds.energyinst.org/toolkit/UYC-online, 16.07.2024.
24. Van Nunen, K., Li, J., Reniers, G., Ponnet, K. (2018). Bibliometric analysis of safety culture research. *Safety Science*, *108*, pp. 248-258. DOI: https://doi.org/10.1016/j.ssci.2017.08.011

25. Wijesinghe, D., Jayakumar, V., Gunarathne, N., Samudrage, D. (2023). Implementing health and safety strategies for business sustainability: The use of management control systems. *Safety Science*, *164*, 106183. DOI: https://doi.org/10.1016/j.ssci.2023.106183
26. Wolniak, R., Olkiewicz, M. (2019). The relations between safety culture and quality culture. *System Safety: Human – Technical Facility – Environment*, *1(1),* pp. 10-17. DOI: 10.2478/czoto-2019-0002
27. Zink, K.J. (2014). Designing sustainable work systems: The need for a systems approach. *Applied Ergonomics*, *45(1),* pp. 126-132. DOI: https://doi.org/10.1016/j.apergo. 2013.01.003

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MEDICAL STAFF EMPATHY AND CREDIBILITY OF MEDICAL INFORMATION AS COMPONENTS OF HUMAN CAPITAL IN PUBLIC HEALTHCARE: A COMPARATIVE ANALYSIS BY GENDER AND AGE

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Purpose: This article highlights the importance of medical staff empathy and the credibility of medical information as essential components of human capital in public healthcare, with particular emphasis on differences in patient assessments by gender and age. The analysis contributes to the discussion of the role of soft factors in the management of healthcare organisations, particularly given the growing importance of communication, trust, and interpersonal relations between patients and staff.
Design/methodology/approach: The study is based on the results of a CAWI survey conducted among 247 respondents who used public medical facilities. The questionnaire included an assessment of the credibility of sources and forms of medical information, as well as the level of empathy exhibited by staff. The data were analysed quantitatively using synthetic variables and intergroup comparisons (Mann-Whitney U test, Kruskal-Wallis test).
Findings: The study found that respondents' gender did not influence their assessments of empathy or the credibility of medical information. However, significant differences emerged in empathy ratings across age groups – the youngest patients (18-29 years old) rated it lower than middle-aged patients (50-59 years old). Assessments of the credibility of sources and forms of medical information were relatively homogeneous across the entire sample. The findings, therefore, indicate that the empirical contribution of the study lies in identifying intergroup differences in the assessment of these dimensions, rather than in testing direct correlational relationships between the analysed constructs.
Research limitations/implications: The study included a non-random sample of young respondents, limiting the generalisability of the results to the entire patient population. In the future, it would be worthwhile to include the perspective of medical staff and international comparisons.
Practical implications: Managers of public healthcare entities can use the results to improve their staff's communication skills and standardise the communication of medical information, thereby helping build patient trust.
Social implications: Emphasising the importance of empathy and the credibility of information improves patients' quality of life and strengthens social capital in healthcare. It can also be a reference point for health policy and ethical standards in patient–staff relations.
Originality/value: The article combines perspectives on human capital management with the issue of medical communication, highlighting the interdisciplinary links among health economics, occupational psychology, and human resource management. Its value also lies in

adopting a comparative perspective focused on differences in patient assessments across demographic groups in public healthcare.
Keywords: empathy of medical staff, credibility of medical information, human capital, public healthcare, patient trust.
Category of the paper: Research paper.

1. Introduction

Contemporary public healthcare is based not only on the availability of specialist medical knowledge and technical resources, but also on the quality of human capital, which largely determines the level of patient trust in the system. Two elements are particularly important: the empathy of medical staff and the credibility of the information provided to patients. Both factors influence interpersonal relationships and shape how patients perceive the healthcare system and its ability to meet their information needs.

This article examines how patients evaluate the empathy of medical staff and the credibility of medical information in public healthcare, and whether these assessments vary based on demographic characteristics such as gender and age. The empirical analysis adopts a comparative perspective and focuses on differences between respondent groups rather than on direct correlational relationships between the analysed variables. The analysis provides a better understanding of which elements of human capital are particularly important for building trust and improving communication quality in healthcare organisations. To achieve this objective, two research questions were formulated:

1. How is the empathy of medical staff assessed by patients in public healthcare, and what differences exist in these assessments between demographic groups (based on gender and age)?
2. To what extent do patients differ in assessing the credibility of sources and forms of medical information depending on demographic characteristics?

The CAWI survey of 247 respondents found no significant differences in empathy or in the credibility of information between women and men. The only statistically significant difference concerned empathy assessment: the youngest patients (aged 18-29) scored lower than those aged 50-59. Regarding the credibility of sources and forms of medical information, the differences between age groups were not statistically significant.

2. Research methodology

This study employed a quantitative approach using the CAWI online survey technique. The research tool was developed in-house and included closed-ended, scaled, and cafeteria questions. The questionnaire covered a wide range of issues related to the functioning of the medical information system in public healthcare. However, the analysis focused on three key areas: the credibility of medical information sources, the credibility of forms of medical information, and the empathy of medical staff. Respondents rated individual aspects on a five-point Likert scale (from "very low" to "very high"), with the option of selecting "no opinion".

The survey was conducted in February and March 2025 among 247 adult respondents who used public healthcare services in Poland. Non-random selection was used: (1) purposive – including students and employees of the Wrocław University of Economics and Business, (2) convenient – based on the author's personal network of contacts, and (3) voluntary – by sharing a link to the survey on social media (Facebook, LinkedIn). The sample structure showed a predominance of women (68.4%) and young people, with the 18-29 age group accounting for 81% of respondents.

For the analysis, three synthetic variables were developed, created as the arithmetic means of the points assigned to the response categories in a given question: very low (1), low (2), average (3), high (4), very high (5), and no opinion (0). The following synthetic variables were distinguished:

- "Credibility of medical information sources" – assessment of the credibility of sources such as attending physicians, nurses, pharmacists, websites of the National Health Fund and medical facilities, e-registration and patient portals, social media, health forums, mobile applications, brochures and leaflets, educational programmes, scientific articles, WHO recommendations, and patient organisations.
- "Credibility of forms of medical information" – assessment of forms including oral and written recommendations, websites, patient portals, SMS reminders about appointments, telephone and video consultations, educational brochures and mobile applications.
- "Empathy of medical staff" – assessment of the ability to listen to patients, show understanding and support, devote appropriate attention, patience, courtesy and respect, and provide clear and understandable explanations.

Comparative analyses were used to examine differences in the perception of medical staff empathy and the credibility of medical information. In the first stage, the Mann-Whitney U test was used to assess differences between two groups of respondents (women and men). Next, the Kruskal-Wallis test was used to compare average ratings across age groups. The measurement scale and the non-normality of the variable distributions justified the use of non-parametric tests. For significant results, post hoc tests (Mann-Whitney with Bonferroni correction) were also performed, enabling the precise identification of pairs of groups that differed.

This research approach enabled the empirical verification of how patients assess the empathy of medical staff and the credibility of the information provided as dimensions of human capital in public healthcare, with particular emphasis on differences across gender- and age-defined respondent groups. It did not aim to test direct correlational relationships between the analysed constructs.

3. Literature review

The functioning of public healthcare depends not only on the availability of appropriate material, infrastructural, and technological resources, but also on the quality of human capital, which comprises medical and administrative staff (Drucker, 1999; Armstrong, Taylor, 2020). It is the competences, attitudes and behaviours of staff that are a significant factor determining patients' experiences and their assessment of the healthcare system (Becker, Huselid, 2006; Leggat, 2007). In this context, intangible elements related to interpersonal relationships and the communication and sharing of medical information are becoming increasingly important (Parasuraman, Zeithaml, Berry, 1988; Mazur-Wierzbicka et al., 2025).

One of the key dimensions of human capital in healthcare is the empathy of medical staff (Mercer, Reynolds, 2002; Hojat, 2007). The ability to understand patients' emotions, sensitivity to their needs, and the ability to communicate in an understandable and supportive manner play a fundamental role in the treatment process (Derksen, Bensing, Lagro-Janssen, 2013). Patients who experience empathetic attitudes from doctors and nurses are more likely to trust them and rate the quality of care more highly (Stepien, Baernstein, 2006). A lack of empathy, on the other hand, deepens the sense of distance, fosters uncertainty and exacerbates information asymmetry, in which knowledge and competence are intensely concentrated on the part of the staff (Halpern, 2001).

The second important element shaping the patient–healthcare system relationship is the credibility of medical information (Mayer, Davis, Schoorman, 1995; Hoffman, Podgurski, 2013). In the age of digitalisation, patients have access to numerous sources – from consultations with doctors, through hospital websites and educational brochures, to telephone helplines and electronic patient accounts (Tapuria et al., 2021; Papadopoulos, von Wyl & Gille, 2024). However, the diversity of these sources does not always go hand in hand with their consistency and transparency (Metzger, Flanagin, 2007). Patients often have to verify the data themselves, which can lead to confusion and, consequently, to a decrease in trust in the healthcare system (Diviani et al., 2015; Yin, Law, Neyens, 2021). The credibility and comprehensibility of the message thus become key factors influencing the assessment of the quality of medical information and the decisions patients make (Sillence et al., 2007; Savitz et al., 2020).

The combination of staff empathy and information credibility forms the foundation of a modern approach to human capital management in the healthcare sector (Halpern, 2001; Hojat, 2007). Both of these elements not only support the treatment process, but also build social capital within the organisation, strengthening relationships between patients and staff and reducing the risk of conflicts arising from misunderstandings or insufficient communication (Putnam, 2001; Stepien, Baernstein, 2006). Their importance is growing, especially amid rising social expectations of the healthcare system and the dynamic organisational and technological changes that have occurred in recent years (Catapan et al., 2025; Wamala Andersson, Gonzalez, 2025).

Recent studies emphasise the development of digital competences among healthcare professionals, which are becoming as important an element of human capital as clinical or interpersonal competences. Ferreira et al. (2025) indicate that strengthening skills related to using digital tools, such as electronic medical records and telemedicine platforms, significantly improves the quality of care and the efficiency of staff work. In turn, Luetke Lanfer et al. (2024) show that empathy can also be effectively communicated in digital environments, e.g., during online chat consultations. However, this poses new challenges in communication and the reception of emotional signals. Although these aspects were not directly analysed in this study, they provide important context for further research on communication quality in healthcare.

At the same time, studies focus on the use of advanced digital technologies to develop empathy and emotional competence among medical professionals. Pira et al. (2025) argue in a literature review that immersive technologies, such as virtual reality, can be effective for empathy training, especially in medical education. Litendahl et al. (2025), on the other hand, highlight the growing importance of emotional intelligence in remote counselling, which medical staff perceive as a key factor in ensuring effective communication and quality relationships with patients. As with digital competence, these issues are addressed here within a broader theoretical framework rather than as the direct subject of empirical research.

In recent years, a growing number of studies have focused on the factors that influence how patients evaluate the credibility of online medical information, both in terms of content and source. Lim et al. (2025) indicate that accuracy, clarity of language, references to scientific research, and transparency regarding authorship and sources significantly increase trust in online health information. Zhao et al. (2024) identify source reputation, audience educational level, and social media's interactive features as key determinants of the credibility of online medical information in a meta-analysis.

New challenges related to the perception of content credibility are also emerging in the context of artificial intelligence and generative tools. Chen, Kuo and Chang (2024) analyse the reception of ChatGPT in health education, highlighting concerns among patients and medical professionals about the risk of errors and the lack of transparency in algorithmic operations. In turn, Nong and Ji (2025) emphasise that regulatory issues and privacy protections strongly influence expectations of AI systems in healthcare. The lack of clear standards and transparent policies can undermine trust, even if the technology offers high analytical capabilities.

In summary, the literature review indicates that medical staff empathy and the credibility of medical information are key components of human capital in healthcare. These two elements complement each other – empathy strengthens interpersonal relationships and builds trust, while credible and transparent information reduces knowledge asymmetry and supports patient decision-making. This study focused on staff empathy and information credibility as empirically verified dimensions of human capital. In the face of dynamic technological changes, the digitisation of medical processes and growing social expectations, the importance of these factors is becoming even more apparent. Current research also highlights the growing importance of digital skills and artificial intelligence, which present new opportunities and challenges for human capital management in public healthcare.

4. Results

Comparative analyses allowed for the assessment of differences in perceptions of medical staff empathy and the credibility of medical information by gender and age.

Differences based on gender

The Mann-Whitney U test was used to examine differences between women and men. The results did not show statistically significant differences in terms of:

- the credibility of medical information sources ($U = 6876$, $p = 0.475$),
- the credibility of forms of medical information ($U = 7050$, $p = 0.294$),
- empathy of medical staff ($U = 6303$, $p = 0.694$).

This means that women and men assessed staff empathy and medical information credibility similarly, indicating the homogeneity of perception of these components of human capital in the sample studied. Figure 1 shows that the average scores in both groups are almost identical – both for empathy and for the credibility of sources and forms of medical information. The error bars indicate a relatively large variation in individual responses; however, the lack of apparent differences between the sexes confirms the results of the statistical tests.

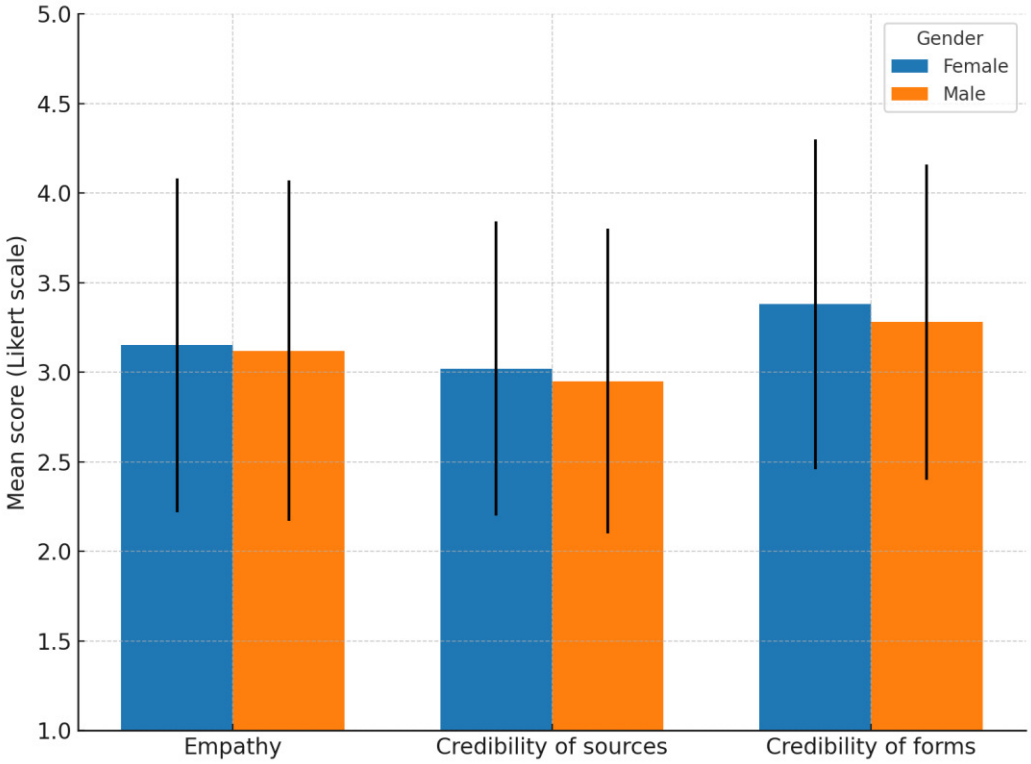

Figure 1. Average ratings of empathy and credibility of sources and forms of medical information by gender.

Source: own study.

Differences due to age

The Kruskal-Wallis test was used to examine differences between age groups. The results showed that:

- there were no significant differences in the assessment of the credibility of information sources (H = 3.29, p = 0.655),
- there were no significant differences in the assessment of the credibility of forms of medical information (H = 3.43, p = 0.634),
- there were significant differences in the assessment of the empathy of medical staff (H = 18.48, p = 0.002).

Post hoc analysis (Mann–Whitney tests with Bonferroni correction) showed that:

- the 18–29 age group rated empathy significantly lower than the 50–59 age group (U = 952.0, p_adj = 0.039),
- no statistically significant differences were found between the other groups (30-39, 40-49, 60-69, 70+).

Based on the distribution of responses in Figure 2, the youngest group of respondents (aged 18-29) reported lower empathy values more often, confirming the greater criticality of young patients towards medical staff communication. The highest values were recorded in the 50-59 age group, where high and very high ratings predominated. In the 60+ group, the responses

were more diverse, but the means and medians indicated a moderately positive assessment. These results confirm that patient age significantly differentiates their perception of empathy from medical staff.

Due to the very small number of respondents in the oldest category (70+, only 1), it was combined with the 60-69 age group (3 respondents) into a single 60+ category, which improved the reliability of the rating distribution.

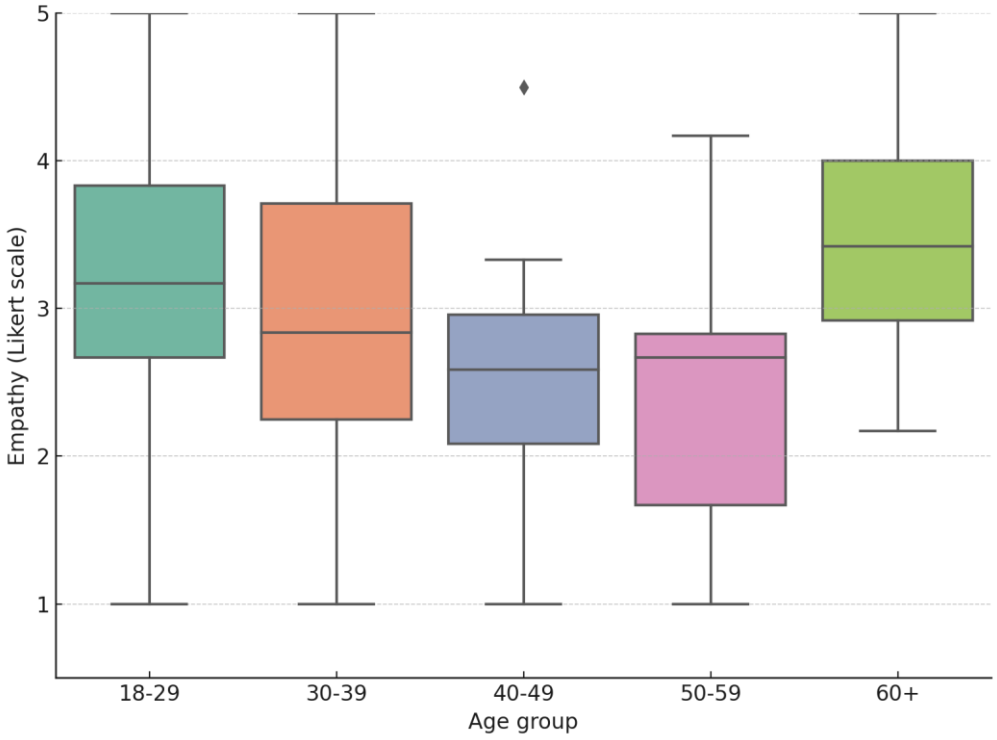

Figure 2. Distribution of empathy ratings of medical staff in age groups (with the combined 60+ category).

Source: own study.

5. Discussion

The analyses show that gender does not differentiate the perception of empathy or the credibility of medical information. This result is consistent with previous studies, which indicated that assessing communication quality in healthcare is universal, regardless of patients' gender (Mercer, Reynolds, 2002; Hojat, 2007). This suggests that measures to improve the quality of interpersonal relationships can be addressed to patients in general, without the need to differentiate by gender.

Different conclusions were drawn regarding age, which proved to be a factor in distinguishing perceptions of empathy among medical staff. The youngest patients (18-29 years old) made more critical assessments, while middle-aged people (50-59 years old) were more

likely to notice the positive aspects of empathetic behaviour. This phenomenon is consistent with the observations of Derksen, Bensing and Lagro-Janssen (2013), who emphasised that patients' communication expectations vary depending on their life experiences and cultural context. Stepien and Baernstein (2006) noted that a lack of empathy deepens information asymmetry and distance between patients and staff, which can strongly affect younger people accustomed to partnership-based relationships in other areas of social life.

These results confirm that empathy is a component that is particularly sensitive to demographic factors. Halpern (2001) points out that empathy is not only an interpersonal skill but also an integral part of human capital that can be developed and enhanced through training and practice. In this sense, generational differences can guide the design of educational programmes and training for medical staff to better understand patients' diverse needs.

In turn, the credibility of medical information – in terms of sources and forms of medical information – was perceived relatively uniformly. This finding is confirmed by research by Lim et al. (2025), which indicated that factors such as clarity of language, references to scientific sources, and unambiguous indication of authorship are universally important to patients, regardless of their demographic characteristics. Similarly, Zhao et al. (2024) found in a meta-analysis that the source's reputation and the message's consistency remain key determinants of the credibility of health information, regardless of the audience's age or gender.

The contrast between the results concerning empathy and the credibility of information is worth noting. While the former proved to be a variable sensitive to demographic factors (especially age), the latter was assessed uniformly, confirming its universal importance for patients.

In the context of human capital, the results indicate that empathy and the credibility of information serve complementary functions: the former strengthens interpersonal relationships. At the same time, the latter enhances the credibility of information. At the same time, the latter enhances the credibility of information. At the same time, the latter enhances the credibility of information. At the same time, the latter enhances the credibility of information. At the same time, the latter enhances the credibility of information. At the same time, the latter enhances the credibility of information. At the same time, the latter enhances the credibility of information. At the same time, the latter enhances the credibility of information. At the same time, the latter enhances the credibility of information. At the same time, the latter enhances the credibility of information. At the same time, the latter stabilises the communication process by providing the patient with a sense of trust and certainty about the information. In the face of digitalisation and growing social expectations towards the healthcare system (Catapan et al., 2025), developing empathy and ensuring the credibility of information should be prioritised in human capital management within public healthcare entities.

6. Conclusion

The study allowed for empirical verification of two key areas identified in the research questions within a comparative framework focused on differences between respondent groups: the assessment of medical staff empathy and the credibility of sources and forms of medical information in public healthcare. In response to the first question, the results indicated that respondents' gender did not differ in their perceptions of empathy. In contrast, age proved to be a significant factor – the youngest patients (18-29 years old) made more critical assessments, while middle-aged patients (50-59 years old) more often reported a higher level of empathy among staff. Regarding the second question, it was found that the credibility of sources and forms of medical information was relatively uniform, confirming its universal importance regardless of patients' demographic characteristics. Thus, the empirical contribution of the study lies primarily in identifying differences in the assessment of these dimensions of human capital across patient groups, rather than in testing direct correlational relationships between the analysed variables.

However, the study has certain limitations. First, a non-random sample was used, comprising a vast majority of young respondents (aged 18-29) and women. This excludes the possibility of generalising the results to the entire population of patients using public healthcare in Poland. It should also be emphasised that the study relied on participants' declarations, which entails the risk of subjectivity and the influence of situational conditions on the responses.

In light of the results obtained, practical recommendations were also formulated. Firstly, it is essential to develop medical staff's interpersonal skills, with particular emphasis on empathetic communication tailored to the expectations of patients of different ages. Secondly, it is crucial to standardise and ensure transparency in the medical information provided in order to reduce information asymmetry and build patient trust in the system. Finally, it is advisable to include components on digital skills in training programmes, enabling the effective use of new communication channels and strengthening the credibility of information in the era of digital healthcare system transformation.

The results clearly indicate that empathy and the credibility of medical information should be considered essential elements of quality care and strategic components of human capital. Together, these two factors strengthen patient–staff relationships and can increase both the effectiveness of and public trust in public healthcare entities.

References

1. Armstrong, M., Taylor, S. (2020). *Armstrong's Handbook of Human Resource Management Practice*. Kogan Page Publishers.
2. Becker, B.E., Huselid, M.A. (2006). Strategic Human Resources Management: Where Do We Go From Here? *Journal of Management*, *32(6),* pp. 898-925. Available at: https://doi.org/10.1177/0149206306293668.
3. Catapan, S. de C. *et al.* (2025). A systematic review of consumers' and healthcare professionals' trust in digital healthcare. *npj Digital Medicine*, *8(1),* p. 115. Available at: https://doi.org/10.1038/s41746-025-01510-8.
4. Chen, S.-Y., Kuo, H.Y., Chang, S.-H. (2024). Perceptions of ChatGPT in healthcare: usefulness, trust, and risk. *Frontiers in Public Health*, *12*, p. 1457131. Available at: https://doi.org/10.3389/fpubh.2024.1457131.
5. Derksen, F., Bensing, J., Lagro-Janssen, A. (2013). Effectiveness of empathy in general practice: a systematic review. *The British Journal of General Practice: the Journal of the Royal College of General Practitioners*, *63(606).* Available at: https://doi.org/10.3399/bjgp13X660814.
6. Diviani, N. et al. (2015). Low Health Literacy and Evaluation of Online Health Information: A Systematic Review of the Literature. *Journal of Medical Internet Research*, *17(5)*, p. e112. Available at: https://doi.org/10.2196/jmir.4018.
7. Drucker, P.F. (1999). Knowledge-Worker Productivity: The Biggest Challenge. *California Management Review*, *41(2),* pp. 79-94. Available at: https://doi.org/10.2307/41165987.
8. Ferreira, J.C. et al. (2025). Empowering Health Professionals with Digital Skills to Improve Patient Care and Daily Workflows. *Healthcare*, *13(3),* p. 329. Available at: https://doi.org/10.3390/healthcare13030329.
9. Halpern, J. (2001). *From Detached Concern to Empathy: Humanizing Medical Practice*. Oxford University Press.
10. Hoffman, S., Podgurski, A. (2013). The use and misuse of biomedical data: is bigger really better? *American Journal of Law & Medicine*, *39(4),* pp. 497-538. Available at: https://doi.org/10.1177/009885881303900401.
11. Hojat, M. (2007). *Empathy in Patient Care. Antecedents, Development, Measurement, and Outcomes*. 1st edn. New York, NY: Springer. Available at: https://doi.org/10.1007/0-387-33608-7.
12. Leggat, S.G. (2007). Effective healthcare teams require effective team members: defining teamwork competencies. *BMC Health Services Research*, *7(1),* p. 17. Available at: https://doi.org/10.1186/1472-6963-7-17.
13. Lim, W.X. et al. (2025). Appropriate trust in online health information is associated with information platform, commercial status, and misinformation in patients with high

cardiovascular risk. *Digital Health*, 11, p. 20552076251334438. Available at: https://doi.org/10.1177/20552076251334438.

14. Litendahl, M. et al. (2025). Healthcare Professionals' Perceptions of Emotional Intelligence in Remote Counselling-A Descriptive Qualitative Study. *Nursing Open*, *12(4),* p. e70218. Available at: https://doi.org/10.1002/nop2.70218.
15. Luetke Lanfer, H. et al. (2024). Digital clinical empathy in a live chat: multiple findings from a formative qualitative study and usability tests. *BMC Health Services Research*, *24(1),* p. 314. Available at: https://doi.org/10.1186/s12913-024-10785-8.
16. Mayer, R.C., Davis, J.H., Schoorman, F.D. (1995). An Integrative Model of Organizational Trust. T*he Academy of Management Review, 20(3),* pp. 709-734. Available at: https://doi.org/10.2307/258792.
17. Mazur-Wierzbicka, E. et al. (2025). The role of leaders in establishing and maintaining interorganizational relationships. *Scientific Papers of Silesian University of Technology. Organization and Management Series*, pp. 377-390. Available at: https://doi.org/10.29119/1641-3466.2025.221.21.
18. Mercer, S.W., Reynolds, W.J. (2002). Empathy and quality of care. *The British Journal of General Practice : the Journal of the Royal College of General Practitioners*, *52 Suppl(Suppl).* Available at: https://pubmed.ncbi.nlm.nih.gov/12389763/, 22 September 2025.
19. Metzger, M.J., Flanagin, A.J. (eds) (2007). *Digital Media, Youth, and Credibility*. Cambridge, MA, USA: MIT Press. Available at: https://mitpress.mit.edu/9780262562324/digital-media-youth-and-credibility/, 22 September 2025.
20. Nong, P., Ji, M. (2025). Expectations of healthcare AI and the role of trust: understanding patient views on how AI will impact cost, access, and patient-provider relationships. *Journal of the American Medical Informatics Association: JAMIA*, *32(5),* pp. 795-799. Available at: https://doi.org/10.1093/jamia/ocaf031.
21. Papadopoulos, K., von Wyl, V., Gille, F. (2024). What is public trust in national electronic health record systems? A scoping review of qualitative research studies from 1995 to 2021. Digit*al Health, 10*, p. 20552076241228024. Available at: https://doi.org/10.1177/20552076241228024.
22. Parasuraman, A., Zeithaml, V.A., Berry, L.L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, *64(1),* pp. 12-40.
23. Pira, G.L. et al. (2025). Could Empathy Be Taught? The Role of Advanced Technologies to Foster Empathy in Medical Students and Healthcare Professionals: A Systematic Review. Jou*rnal of Medical Systems, 49(1),* p. 6. Available at: https://doi.org/10.1007/s10916-025-02144-9.
24. Putnam, R.D. (2001). *Bowling Alone: The Collapse and Revival of American Community*. London: Touchstone Books by Simon & Schuster.

25. Savitz, S.T. *et al.* (2020). How much can we trust electronic health record data? *Healthcare (Amsterdam, Netherlands)*, *8(3),* p. 100444. Available at: https://doi.org/10.1016/j.hjdsi.2020.100444.
26. Sillence, E. et al. (2007). How do patients evaluate and make use of online health information? *Social Science & Medicine (1982)*, *64(9),* pp. 1853-1862. Available at: https://doi.org/10.1016/j.socscimed.2007.01.012.
27. Stepien, K.A., Baernstein, A. (2006). Educating for Empathy. *Journal of General Internal Medicine*, *21(5),* pp. 524-530. Available at: https://doi.org/10.1111/j.1525-1497.2006.00443.x.
28. Tapuria, A. et al. (2021). Impact of patient access to their electronic health record: systematic review. *Informatics for Health and Social Care*, *46(2),* pp. 194-206. Available at: https://doi.org/10.1080/17538157.2021.1879810.
29. Wamala Andersson, S., Gonzalez, M.P. (2025). Digital health literacy—a key factor in realising the value of digital transformation in healthcare. *Frontiers in Digital Health*, *7.* Available at: https://doi.org/10.3389/fdgth.2025.1461342.
30. Yin, R., Law, K., Neyens, D. (2021). Examining How Internet Users Trust and Access Electronic Health Record Patient Portals: Survey Study. *JMIR Human Factors, 8(3),* p. e28501. Available at: https://doi.org/10.2196/28501.
31. Zhao, Y. et al. (2024). Factors influencing online health information credibility: a meta-analysis. *Aslib Journal of Information Management*, *77(4),* pp. 701-732. Available at: https://doi.org/10.1108/AJIM-05-2023-0155.

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EVALUATION AND IMPROVEMENT OF THE ONBOARDING PROGRAM IMPLEMENTED BY A RETAIL CHAIN: A CASE STUDY

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Purpose: Onboarding is the process of introducing a new employee to a company, including familiarising them with the team, procedures, and the organization's values and culture. To ensure this process runs smoothly and effectively, it is essential to develop an appropriate onboarding program. This article aims to evaluate and propose improvements to the onboarding program implemented by a retail network operating in the food and industrial sector.
Design/methodology/approach: A case study method was employed to identify key areas needing improvement and to implement solutions that support the adaptation of new employees. The study is based on a literature review and a survey conducted among 71 newly hired employees. Principal components analysis was utilised for statistical analysis.
Findings: As a result of the analysis conducted, five key components supporting new employees were identified. The onboarding program had a positive impact on employee motivation and engagement, facilitating their integration through mentorship. Additionally, it enabled the precise determination of career paths. However, the program's weak points were practical training and understanding of organisational culture, which require long-term support.
Research limitations/implications: The limitation of this study is its focus on a single retail network. The non-random sample selection does not allow for the generalization of the results to the entire population. It is recommended that future research be conducted across other competitive enterprises to deepen the understanding of current trends and challenges in the onboarding process.
Practical implications: The study results provide practical recommendations and serve as a valuable source of knowledge for managers at various levels, including human resources managers and employees responsible for onboarding new hires and implementing onboarding programs. The findings can help refine and adapt onboarding programs to changing work conditions and the needs of both the company and its employees.
Originality/value: The conducted research enabled a critical evaluation of the onboarding program and the development of recommendations to enhance it. Implementing these recommendations aims to strengthen team collaboration, increase work efficiency, and develop employee competencies. Furthermore, it should lead to increased motivation, better career path planning, and a deeper understanding of organizational culture.
Keywords: onboarding program, human resources, factor analysis.
Category of the paper: research paper, case study.

1. Introduction

Onboarding, as a key element of human resource management, plays a crucial role in integrating newly hired employees into an organization. Over the past two decades, significant changes in the work environment have underscored the need to consider multiple factors when implementing onboarding. Modern enterprises operating in a rapidly changing environment must adapt their strategies to meet evolving customer expectations while simultaneously developing their employees.

Ensuring appropriate working conditions, opportunities for professional development, and access to training is crucial for maintaining high levels of employee motivation and engagement. In this context, a carefully designed onboarding program plays a significant role. Such a program not only facilitates the adaptation of new employees within the company but also builds their sense of belonging and understanding of the organization's processes, values, and culture. As a result, employees achieve full efficiency more quickly and can plan their long-term careers within the company.

The aim of the article is to evaluate and propose improvements to the onboarding program implemented by a retail chain operating in Poland's food and industrial sectors. The study employs a case study method, which enables the identification of key areas requiring improvement and the implementation of solutions that support the adaptation of new employees.

As a result of the merger of two retail networks operating in the same industry, the organization gained valuable, experienced employees. The aim of the companies' merger was not only to increase market share but also to strengthen human capital. The new employees have significantly contributed to improving operational efficiency and introducing innovative solutions. Thanks to their specialized knowledge and skills, the company has increased its competitiveness.

The study is both theoretical and empirical. As part of the literature review, specific objectives were achieved, including:

- presenting the definition of onboarding,
- demonstrating the impact of the onboarding program on the motivation and engagement of new employees,
- discussing the role of a mentor in integrating new members into the team,
- indicating how onboarding contributes to the development of employee competencies and the shaping of organizational culture.

In the empirical section, the results of a survey involving 71 newly hired employees are presented. The aim of the study was to identify factors affecting the effectiveness of the onboarding program within a retail network and to propose improvements. Principal component analysis was used for statistical analysis.

The results of the study can be used to optimize the onboarding program to more effectively respond to the dynamically changing work conditions and the needs of both the organization and its employees. Such analyses are crucial for HR departments and managers, as they help understand the impact of onboarding processes on the performance of newly hired employees. This allows for the enhancement of onboarding strategies that increase operational efficiency and optimize the utilization of employee potential.

One limitation of the study is its focus on employees of a single retail chain. Although the deliberately selected sample provided significant and valuable insights for the analyzed company, the findings cannot be generalized to the entire population. This study serves as a foundation for further analyses. In the future, it would be worthwhile to conduct research in other competitive enterprises to better understand current trends and challenges in the onboarding process.

2. Literature review – the essence of onboarding

Onboarding does not have a single, universal definition in the literature. It is analyzed from sociological, psychological, management, and quality perspectives. From a sociological standpoint, onboarding plays a crucial role in organizational socialization, affecting employee satisfaction, integration with organizational culture, and retention (Bowers et al., 2023; Khandekar, Mehtha, 2024). Proactive actions, such as asking questions and building relationships, accelerate the adaptation process (Revell et al., 2024). Improper socialization can lead to feelings of isolation and difficulties with adaptation (Ashforth et al., 2007). According to Harris and colleagues (2022), socialization experiences are particularly important in times of increasing job mobility, influencing employees' decisions to stay with or leave an organization.

From a psychological perspective, particular attention is given to the concept of psychological safety, which is defined as the ability to freely express thoughts, ask questions, and raise issues without fear of negative consequences (Hartley, 2024). Psychological safety is crucial for employee collaboration and development (Hartley, 2024). New team members often experience stress as they try to find their footing in a new work environment. It is essential that they receive support from supervisors and colleagues (Phillips et al., 2015). A lack of acceptance can lead to isolation and hinder integration (Phillips et al., 2015). New employees should feel supported and accepted.

From the perspectives of management science and quality, onboarding is much more than just the formalities of starting a new job. It is a comprehensive process aimed at acquainting new employees with the company's organizational culture, values, and goals (Cable, Parsons, 2001). This process involves building relationships and understanding the organization's mission and strategy. Its goal is to facilitate the employee's smooth integration into their new

responsibilities and to provide key information about the position. Difficulties in adaptation can lead to resignation (Peniuk, 2024), which is why it is crucial for the process to be well-organized and to consider the needs of both parties. Modern companies use artificial intelligence to develop onboarding programs that engage employees and increase retention (Brown, 2024). Modern onboarding tools, such as e-learning platforms, mobile applications, and virtual assistants, play a crucial role in stabilising the workforce by increasing employee engagement, job satisfaction, and overall organisational efficiency (Dovhan et al., 2025).

2.1. The impact of onboarding on employee motivation and engagement

Onboarding significantly influences new employees' motivation and engagement, especially during the initial period of employment. Strong connections between motivation and engagement are crucial for work efficiency (Pradhan, Jena, 2019). Motivated employees achieve better results, which is essential for the company's development (Voloshchenko, Nikolaeva, 2024). It influences their willingness to continue working (Tutar et al., 2026).

Both intrinsic and extrinsic motivation play a key role in professional engagement (Yuan et al., 2024), while low engagement leads to staff turnover. A comprehensive approach to designing onboarding programs can help avoid negative consequences such as low satisfaction, higher costs, and low productivity, which may result in employee departure (Bauer et al., 2007). The modern work environment requires managers to make greater use of motivational techniques and create an atmosphere conducive to active engagement (Yarbrough, Salazar, 2025). Onboarding through social media and microlearning (presenting content in short-form) permanently increases employee productivity by clearly defining their roles and strengthening their sense of belonging in an environment conducive to building trust (Tutar et al., 2026).

2.2. The role of a mentor in integrating new employees into the team

Mentoring facilitates the integration of new employees by fostering their professional development through the sharing of knowledge and experience from more seasoned mentors. Mentors with their experience, they can act as a source of information and support (Ragins, Kram, 2007). A mentor's support influences productivity, retention, and the company's culture of trust (Süveges, Kurucz, 2024).

Mentors facilitate relationship building and enhance a sense of belonging within a company (Higgins, Kram, 2001). A contemporary mentor can combine this role with that of a leader. A mentor-leader plays a key role in employees' personal and professional development by combining coaching skills with empathy and mindfulness, thereby contributing to the flexibility, creativity, and maturity of the workforce (Triantari, 2024). Employees who feel like an integral part of the team demonstrate higher engagement and greater job satisfaction (Van Vianen, De Pater, 2012). Regular meetings and constructive feedback contribute to skill development, which in turn increases efficiency and confidence in performing professional duties (Clutterbuck, 2004). Research conducted by Allen and colleagues (2004) indicates that

participants in mentoring programs exhibit higher organizational commitment and a lower tendency to leave the company. Mentoring positively influences the sustainable psychological contract and proactive behaviours of new employees (Yang et al., 2024). There are also ideas to use artificial intelligence as a substitute for expert mentoring (Tan et al., 2025). However, this requires appropriate research.

2.3. The impact of onboarding on employee competencies and organizational culture

A carefully designed onboarding program accelerates new hires' skill acquisition. Effective development requires creating conditions conducive to knowledge sharing and fostering an organizational culture that supports growth (Cheikh- Ammar et al., 2024).

Organisational culture plays an important role in the employee recruitment process, as it affects employees' performance and satisfaction (LaGree, Olsen, 2026).

Programs that incorporate organizational culture help new employees understand the company's values and norms (Cable, Parsons, 2001). To help employees better understand and embrace the organisational culture during onboarding, it is important to build relationships with colleagues, managers, and leadership (LaGree, Olsen, 2026). Additionally, integrating with the team and having opportunities to demonstrate initiative and independence strengthen their connection to the organisation's culture.

Research conducted by Harvard Business Review (2018) shows that employees participating in programs focused on organizational culture are more engaged and loyal. Examples from Google and Microsoft indicate that a comprehensive approach to cultural integration allows new employees to quickly adapt to the work environment (Stein, Christiansen, 2010).

3. Research methodology

To provide practical guidance for managers and employees involved in implementing and improving onboarding programs, a survey study was conducted. The aim of the study was to analyse the impact of the onboarding program on new employees' motivation and engagement, and to assess how mentor collaboration can accelerate their integration into the team.

Additionally, the study aimed to examine how the program influences the development of employees' competencies and their understanding of organizational culture.

To evaluate the onboarding program, a developed survey questionnaire was used. The survey employed a 5-point Likert scale. A purposive sampling method was conducted, resulting in 71 employees completing the survey after the program, which lasted four months.

The survey consisted of 10 questions and a demographic section. Detailed survey questions are presented in Table 2.

3.1. Description of the study group

Seventy-one newly hired employees participated in the study, of which 79% were women and 21% were men (Table 1). Analysing the positions held, the largest group consisted of salespeople and store employees (66.2%), responsible for customer service and direct sales. The second largest group comprised store managers, assistant managers, and department managers, collectively accounting for 21.1%.

Together, these two groups made up 87.3% of all positions. Specialists and office workers accounted for 8.5%, while regional and operational managers accounted for 4.2%. In terms of age, the largest group was employees aged 41-50, accounting for 56.3% of the team, indicating an experienced workforce. Employees aged 31-40 accounted for 23.9% of the team, while those aged 51-60 made up 12.7%. The younger generation (ages 21-30) accounted for 5.6% of the team, and individuals aged 60+ accounted for 1.5%. Employees aged 50 or younger accounted for 80.3% of the team. Regarding professional experience, the largest group was those with more than 10 years of experience, accounting for 49.3%, indicating that nearly half of the respondents have significant professional experience. Respondents with 6-10 years of experience accounted for 25.4%.

Table 1.
Characteristics of the study group

Position	**Quantity**	**%**	**Tenure**	**Quantity**	**%**
Salespeople and store employees	47	66,2	0-2 years	4	5,6
Store managers and assistant store managers, as well as department managers	15	21,1	3-5 years	14	19,7
Specialists and office workers	6	8,5	6-10 years	18	25,4
Regional managers	3	4,2	Over 10 years	35	49,3
Age	**Quantity**	**%**	**Gender**	**Quantity**	**%**
21-30 years old	4	5,6	Women	56	79
31-40 years old	17	23,9	Men	15	21
41-50 years old	40	56,3			
51-60 years old	9	12,7			
over 60 years of age	1	1,5			

Source: own study.

Combined with individuals possessing over 10 years of experience, these two groups constitute 74.6% of all survey participants. Individuals with 3-5 years of work experience accounted for 19.7% of respondents. The smallest group consisted of those with the shortest work experience, ranging from 0 to 2 years (5.6%). In summary, the majority of respondents have at least 3 years of professional experience, with the largest group having over 10 years.

3.2. Description of the onboarding program in the studied enterprise

In the analysed company, the HR department, in collaboration with managers and mentors, developed a comprehensive onboarding program for new employees. The structure of the program was carefully planned, and its implementation was tailored to the company's needs.

The program consisted of six stages:

- Stage I involved an informational meeting during which new employees received detailed information about the company and were assigned to mentors.
- Stage II consisted of familiarizing the team and assigning duties to the new employees.
- Stage III included theoretical training, conducted both in-person and online, regarding the company's products and processes.
- Stage IV comprised practical sessions where employees performed their duties under the supervision of experienced colleagues.
- Stage V contained feedback sessions, allowing for ongoing monitoring of progress and adapting the onboarding process to individual needs; employees also participated in integration meetings.
- Stage VI involved monitoring progress and evaluating the program's outcomes for further improvement.

It was assumed that the onboarding program should enable new employees to integrate quickly and effectively. Therefore, employees from various departments were engaged to assist in the process.

3.3. Presentation of research results

Principal component analysis was used for the statistical analyses. The rationale for using factor analysis was based on the results of Bartlett's test of sphericity, which showed statistical significance ($p < 0.001$), and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, which was 0.533. These results indicate that the data are suitable for factor analysis. Additionally, the chi-square statistic was 116.084 with 45 degrees of freedom, further confirming the validity of the conducted analysis.

The application of principal component analysis enabled the identification of factors with the greatest impact on data variability. The total explained variance was 74.307%, indicating that the first five factors account for over 74% of the total variability. Ultimately, five components were obtained, ordered from most to least significant (Table 2).

Based on the analysis, several key conclusions can be drawn about new employees' onboarding experiences. Five components of the onboarding program have been identified as significantly impacting various aspects of this process.

Component 1: work efficiency and trust. One of the beneficial elements of the program was the enhancement of trust and goodwill among employees, as evidenced by a high score (0.808). This result fosters better communication and collaboration. The program had a moderate impact

on understanding and acceptance of organizational culture (0.526). This indicates that fully grasping the organizational culture requires time and commitment from new employees, highlighting the need for long-term support in this area.

Table 2.
Results of the principal component analysis

Position	Component				
	1	2	3	4	5
1. Practical training in training stores had an impact on work efficiency	-.827	.215	.169	-.066	.119
2. The onboarding program strengthened mutual trust and kindness	.808	-.340	-.157	.148	.045
3. The onboarding program positively influenced the understanding and acceptance of the organizational culture	.526	-.348	-.048	-.346	.162
4. The onboarding program allowed for a clear definition of the career path	.372	.676	.215	-.107	.111
5. The onboarding program unleashed employee motivation and engagement	.290	.576	.486	.002	-.295
6. The onboarding program facilitated cooperation with a mentor	-.123	-.551	.551	.211	-.179
7. Participation in training allowed for the improvement of competencies	-.114	-.509	.478	.351	.302
8. Developed incentives encouraged staying within the organization	.185	-.135	.679	-.448	-.277
9. The onboarding program helped integrate with the new organization and colleagues	.271	.356	.134	.779	-.005
10. The onboarding program allowed for understanding the organization's values and mission	.103	.193	.309	-.142	.831

Source: developed based on the results of analyses.

On the other hand, practical training in training stores negatively affected work efficiency (-0.827). This may suggest that the current training format was not sufficiently effective. The training sessions were too theoretical, lacked interactivity, and lacked practical exercises. Therefore, it is necessary to introduce a more individualized approach, engage experienced employees as trainers, and utilize modern educational technologies.

Component 2: Career path and motivation. The onboarding program has enabled the precise definition of career paths, as evidenced by an effectiveness indicator of 0.676. Additionally, this program has influenced employee motivation and engagement, achieving a value of 0.576. Both of these elements are crucial for employees' professional development and their job satisfaction. An appropriate level of motivation and engagement translates into better work performance, greater loyalty to the company, and reduced employee turnover.

Component 3: Retention in the organization. The program encouraged retention within the organizations, as evidenced by a high effectiveness rate of 0.679. Most participants were satisfied with the program's outcomes. Additionally, the program facilitated new employee integration through mentor collaboration, as reflected in a 0.551 rate.

Component 4: Integration and training. The program contributed to effective integration with the new organizations and colleagues, as evidenced by an indicator level of 0.779. Effective integration can lead to increased job satisfaction and reduced employee turnover.

Additionally, it fosters employee relationships and promotes effective collaboration. According to the respondents, participating in the training enhanced skills, as reflected in an indicator of 0.351. However, it is recommended to continuously improve qualifications and acquire new skills, which should positively impact employee development.

Component 5: Organizational values. The program enabled employees to become familiar with the organizations's values and mission (0.831). This can help build a strong team and foster collaboration among employees.

In summary, the study results highlight the importance of a comprehensive approach to implementing an onboarding program. Building trust, supporting professional development, and fostering a sense of belonging to the team are key. It is also crucial to tailor practical training to employees' individual needs. This will help them better understand the organisational culture and increase work efficiency.

4. Conclusions and suggestions for improving the onboarding program

The analysis identified five key components that support new employees in adapting to a new work environment, thereby enhancing their efficiency and job satisfaction. Factor analysis confirmed that a carefully designed onboarding program positively impacts employee motivation and engagement. Motivated employees integrate more effectively into the team, which increases their loyalty to the organizations and their willingness to remain with the company long-term.

Ensuring long-term support is crucial for achieving a full understanding and acceptance of the organizational culture. The onboarding program offers numerous benefits; however, it needs enhancement, particularly in training, to better support the professional development of new employees. Additionally, the results indicate the necessity for a more balanced approach that considers both skill development and a deeper understanding of organizational values. As part of improving the program, actions have been proposed in six areas:

Regular performance evaluation. This will allow identification of areas needing improvement and adjustment of the program to better support new employees. To increase efficiency, focus should be placed on enhancing the motivational system. Career development planning through the establishment of clear career paths should foster a positive attitude and engagement at work.

Regular feedback from mentors and managers. Regularly providing feedback helps build trust and open communication within the team, leading to better collaboration and increased efficiency. It allows for identifying areas needing improvement and strengthening strong points.

Increasing the number of practical training courses, and workshops and integration with organizational culture. To effectively develop employees' competencies, it is crucial to increase the number of practical training sessions and workshops focused on enhancing adaptive skills, collaboration, and effective problem-solving. New employees should actively utilise modern e-learning platforms and interactive training modules to acquire knowledge flexibly. Creating a positive workplace atmosphere is essential for effective teamwork. Promoting a culture of open communication, where employees feel comfortable sharing their opinions and experiences, is equally important.

HR strategy update. Updating the strategy by analysing data on new employees' absenteeism, engagement, and productivity enables a better understanding of their needs and expectations. This type of analysis enables precise identification of areas for improvement and the implementation of specific actions to enhance team satisfaction and efficiency.

Competitive benchmarking. Analysing onboarding programs used by competing companies enables the implementation of proven, effective solutions. This enables an organization not only to enhance the effectiveness of its own program but also to better adapt it to the dynamically changing market needs and the growing expectations of new employees.

In summary, implementing the proposed recommendations should strengthen team collaboration, increase work efficiency, and support the development of employees' skills. Additionally, it can boost motivation levels, facilitate career path planning, and better align with the organizational culture.

References

1. Allen, T.D., Eby, L.T., Poteet, M.L., Lentz, E., Lima, L. (2004). Career benefits associated with mentoring for proteges: meta-analysis. *Journal of Applied Psychology, Vol. 89, No. 1*, pp. 127-136, doi: 10.1037/0021-9010.89.1.127
2. Ashforth, B.E., Sluss, D.M., Saks, A.M. (2007). Socialization tactics, proactive behavior, and newcomer learning: integrating socialization models. *Journal of Vocational Behavior, Vol. 70*, pp. 447-462.
3. Bauer, T.N., Bodner, T., Erdogan, B., Truxillo, D.M., Tucker, J.S. (2007). Newcomer adjustment during organizational socialization: a meta-analytic review of antecedents, outcomes and methods. *Journal of Applied Psychology, Vol. 92*, pp. 707-721, doi: 10.1037/0021-9010.92.3.707
4. Bowers, B.S., Thal, A.E., Jr, Elshaw, J.J. (2023). Onboarding: just how important is it? *Strategic HR Review, Vol. 22, No. 5*, pp. 164-168, doi: 10.1108/SHR-06-2023-0039

5. Brown, J.G. (2024). The impact of artificial intelligence in employee onboarding programs. *Advances in Developing Human Resources, Vol. 26, No. 2-3*, pp. 108-114, doi: 10.1177/15234223241254775
6. Cable, D.M., Parsons, C.K. (2001). Socialization tactics and person-organization fit. *Personnel Psychology, Vol. 54, No. 1*, pp. 1-23, doi: 10.1111/j.1744-6570.2001.tb00083.x
7. Cheikh-Ammar, M., Roy, M.Ch., Roy, M.J. (2024). Fostering competency development through knowledge sharing capabilities in onboarding. *International Journal of Knowledge Management (IJKM), Vol. 20, No. 1*, pp. 1-17. https://doi.org/10.4018/ijkm.336278
8. Clutterbuck, D. (2004). Everyone needs a mentor: fostering talent in your organizations. *Chartered Institute of Personnel and Development, Vol. 1*, pp. 45-67, doi: 10.1234/abcd.5678
9. Dovhan, V., Arziantseva, D., Zakharkevych, N. (2025). Modern onboarding tools as a means of stabilizing organizational staff. *Journal of Geography, Politics and Society, Vol. 15, No. 1*, pp. 57-65, doi: 10.26881/jpgs.2025.1.07
10. Harris, L., Cooper-Thomas, H., Smith, P., Cheung, G.W. (2022). Influence of relational learning and job autonomy in associations between social capital resources and newcomer adjustment: a moderated mediation study. *Career Development International, Vol. 27, No. 6/7*, pp. 566-583, doi: 10.1108/CDI-02-2022-0038
11. Hartley, M. (2024). Enhancing employee engagement and retention: the critical role of psychological safety in the onboarding process. *Strategic HR Review*, https://doi.org/10.1108/SHR-10-2024-0080.
12. Harvard Business Review (2018). The impact of onboarding on employee engagement. *Harvard Business Review, Vol. 96, No. 2*, pp. 58-66, doi: 10.1234/hbr.v96i2.5678
13. Higgins, M.C., Kram, K.E. (2001). Reconceptualizing mentoring at work: a developmental network perspective. *Academy of Management Review, Vol. 26, No. 2*, pp. 264-288, doi: 10.5465/amr.2001.4378023
14. Khandekar, S., Mehtha, V. (2024). Employee socialization as a determinant of retention: evidence from the IT industry in Pune. *Journal of Visual and Performing Arts, Vol. 5, No. 6*, pp. 2940-2949, doi: 10.29121/shodhkosh.v5.i6.2024.3504
15. LaGree, D., Olsen, K. (2026). Strengthening the pipeline: a leadership communication and organizational culture model to engage, retain and advance early-career women. *Leadership & Organization Development Journal, Vol. 47, No. 1*, pp. 171-184, doi: 10.1108/LODJ-03-2025-0163
16. Peniuk, V. (2024). Adaptation as a component of the staff onboarding process. *Business Inform, Vol. 4,* pp. 332-338, doi: 10.32983/2222-4459-2024-4-332-338
17. Phillips, C., Esterman, A., Kenny, A. (2015). The theory of organisational socialisation and its potential for improving transition experiences for new graduate nurses. *Nurse Education Today, 35(1),* 118-124. DOI: 10.1016/j.nedt.2014.07.011

18. Pradhan, S., Jena, L.K. (2019). Does meaningful work explains the relationship between transformational leadership and innovative work behaviour? *The Journal for Decision Makers, Vol. 44, No. 1*, pp. 30-40
19. Ragins, B.R., Kram, K.E. (2007). The handbook of mentoring at work: theory, research, and practice. *Sage Publications, Vol. 1*, pp. 123-456, doi: 10.4135/9781412976619
20. Revell, C., Gayman, A., Benson, A., Eys, M. (2024). Drawing team members together: intersection of socialization tactics and proactivity with cohesion. *Journal of Sport and Exercise Psychology, Vol. 47, No. 1*, pp. 1-12, doi: 10.1123/jsep.2024-0127
21. Stein, M.A., Christiansen, L. (2010). Successful onboarding: Strategies to unlock hidden value within your organization. *McGraw-Hill, Vol. 1*, pp. 15-30, doi: 10.1234/56789
22. Süveges, M., Kurucz, A. (2024). Focus on onboarding process: Examining mentoring and training programs from the perspective of HR and employees. *Journal of Infrastructure, Policy and Development, Vol. 8, No. 12*, pp. 1-15, doi: 10.24294/jipd.v8i12.8733
23. Tan, X., Long, X., Zhu, Y., Shi, L., Lian, X., Zhang, L. (2025). Revolutionizing newcomers' onboarding process in OSS communities: The future AI Mentor. *Proceedings of the ACM on Software Engineering*, *Vol. 2*, pp. 1091-1113, doi: 10.1145/3715767.
24. Triantari, S. (2024). From coaching to mentor leader: Profile and skills of the mentor leader in human resources management. *Dia-Noesis: A Journal of Philosophy, Vol. 15*, pp. 103-122, doi: 10.12681/dia.38176
25. Tutar, H., Mutlu, H.T., Erden, C. (2026), Beyond onboarding: social media, microlearning, and psychological safety in hybrid talent integration. *Employee Relations: The International Journal*, pp. 1-22, doi: 10.1108/ER-11-2025-1014
26. Van Vianen, A.E.M., De Pater, I.E. (2012). Content and development of newcomer person-organization fit: an agenda for future research. *Journal of Vocational Behavior, Vol. 81, No. 1*, pp. 1-6, doi: 10.1016/j.jvb.2012.05.008
27. Voloshchenko, J., Nikolaeva, M. (2024). Methods and techniques to increase employee motivation. *Strategic HR Review, Vol. 23, No. 1*, pp. 10-15, doi: 10.1108/SHR-11-2023-0062
28. Yang, W., Wang, Y., Choi, M., Li, Y. (2024). Influence of mentoring on the proactive behavior of new employees: moderated mediation effect of agreeableness. *Frontiers in Psychology*, *Vol. 15*, doi: 10.3389/fpsyg.2024.1370815
29. Yarbrough, J.W., Salazar, L.R. (2025). How employees' motivated needs relate to employees' personal and workplace spirituality. *Journal of Organizational Effectiveness: People and Performance, Vol. 12, No. 3*, pp. 736-755, doi: 10.1108/JOEPP-03-2024-0139
30. Yuan, R., Chen, R., Huang, B., Du, A.M. (2024). Shaping triumph from within: an investigation into employee-based brand co-creation, motivation drivers and enhanced job-related organizational performance. *Journal of Organizational Effectiveness: People and Performance, Vol. 12, No. 4*, pp. 998-1030, doi: 10.1108/JOEPP-04-2024-0165

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THE PARADOX OF THE CONTENTED MIGRANT IN A CRISIS CONTEXT: A COMPARATIVE ANALYSIS OF MOBBING AND JOB STRESSORS AMONG UKRAINIAN AND POLISH EMPLOYEES

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Purpose: The study compared perceptions of workplace mobbing and psychosocial job stressors between Ukrainian migrant employees and demographically matched Polish employees, examining differences between groups and assessing tenure and gender as moderators.
Design: A matched-pairs design was applied to 198 Ukrainian and 199 Polish employees matched by age, gender, and sector. Mobbing was measured using the SDM-64 Questionnaire, distinguishing behavioural exposure from psychological victimization. Job stressors included organizational constraints, workload, and interpersonal conflict. Non-parametric analyses were conducted.
Findings: Ukrainian employees reported lower levels of mobbing, victimization, constraints, and workload than Polish employees. Tenure effects emerged only among migrants, with increased stress during the second and third years of employment. Women in both groups reported higher victimization; migrant women additionally experienced higher structural stressors.
Research limitations: The cross-sectional design limits causal inference. Longitudinal research should examine adaptation trajectories and contextual moderators.
Practical implications: Organizational support should extend beyond onboarding, particularly during intermediate tenure stages, and include gender-sensitive monitoring of workload.
Social implications: The findings underscore differences in stress appraisal between migrant and native employees despite shared working conditions.
Originality: The study advances understanding of the "contented migrant" paradox by integrating resource-based and social comparison perspectives within a matched comparative design.
Keywords: migrant employees, job stressors, workplace mobbing/bullying, migrant adaptation, social comparison.
Category of the paper: research paper.

1. Introduction

The transformation of the Central European labour market, triggered by the mass influx of Ukrainian war refugees after February 2022, constitutes a major socio-economic shift in the region's recent history. Poland, as the primary destination for millions of Ukrainians, faced the unprecedented challenge of integrating two distinct migrant groups: a pre-existing population of economic migrants and a new, large wave of refugees predominantly composed of women and children.

While statistical data indicate a remarkably high employment rate among adult refugees, oscillating around 78-80% (OECD, 2023), these figures obscure underlying structural inequalities and psychological burdens. The quality of employment—particularly exposure to workplace mobbing and psychosocial stressors—is critical, given that precarious work conditions are well-established predictors of poor mental health and unsuccessful social integration (Porter, Haslam, 2005; Hobfoll et al., 2018; Einarsen, 2020).

Despite high labour market participation, Ukrainian employees in Poland face systemic barriers that constrain their professional well-being and reinforce their position within the secondary labour market. They are disproportionately concentrated in low-wage, unstable sectors. Institutional reports from the National Labour Inspectorate (PIP, 2025) indicate increasing irregularities in the employment of foreigners, including safety violations and accountability gaps within outsourcing arrangements, facilitating exploitative practices. Nearly half of Ukrainian employees (49%) earn below 3,000 PLN net per month, placing 46% at risk of poverty, compared to 9% of Polish citizens (NBP, 2024).

A central mechanism sustaining this precarity is occupational downgrading, commonly referred to as "brain waste". Approximately 30-40% of Ukrainian refugees work below their qualifications, while only 20% of high-skilled professionals maintain their pre-migration occupational status (Lewandowski et al., 2025). This downward mobility is associated with routine-intensive tasks, diminished autonomy, and reduced career prospects, thereby undermining professional identity and self-esteem.

These disadvantages are compounded by institutional precarity and war-related trauma. Clinical evidence suggests that up to 70% of refugees exhibit symptoms consistent with PTSD (Długosz, 2023), contributing to cumulative resource loss and shaping stress appraisal.

Extensive research indicates that precarious employment is associated with increased exposure to job stressors—such as organizational constraints, high workload, and interpersonal conflict—as well as a higher risk of workplace mobbing (Einarsen et al., 2020). Mobbing (also referred to as workplace bullying) is defined as persistent exposure to hostile and unwanted behaviours, typically occurring in situations of power asymmetry (Einarsen et al., 2020). Moreover, mobbing is a dynamic process involving escalating psychological harm and cumulative resource loss experienced by the target (Durniat, 2020, 2025; Nielsen, Einarsen, 2018).

While the economic aspects of Ukrainian migration to Poland have been widely examined (OECD, 2023; NBP, 2024), less attention has been devoted to the psychosocial risks faced by migrant workers. Little is known about how employees operating under conditions of cumulative stress and prior trauma appraise negative workplace experiences. Although some international studies have addressed these issues, most focus on migrant populations without matched native comparison groups, limiting the ability to disentangle structural labour market effects from vulnerabilities associated with migrant status.

To address this gap, the present study employs a matched-pairs design, comparing Ukrainian migrant employees with Polish employees matched on gender, age, and sector. This approach enables a more precise assessment of whether differences in exposure to mobbing—conceptualized as behavioural exposure and psychological victimization—and key psychosocial stressors (organizational constraints, workload, and interpersonal conflict) reflect objective job characteristics or differences in stress appraisal (Lazarus, Folkman, 1984; Baka, Bazińska, 2016; Durniat, 2020).

The study is grounded in Conservation of Resources (COR) theory (Hobfoll, 2001), which conceptualizes stress as a response to threatened or lost resources. Refugees and forced migrants are often described as entering host labour markets with depleted resource reservoirs due to trauma, displacement, and uncertainty (Porter, Haslam, 2005; Hobfoll et al., 2018). From this perspective, two competing mechanisms can be identified. The vulnerability perspective suggests that cumulative resource loss heightens sensitivity to additional stressors, increasing both exposure to negative workplace behaviours and the likelihood of psychological harm (Hobfoll, 2001; Halbesleben et al., 2014).

Conversely, a resilience or relative reference perspective posits that prior exposure to severe adversity may recalibrate stress appraisal thresholds (Lazarus, Folkman, 1984). Drawing on relative deprivation theory (Smith et al., 2012; Walker, Smith, 2002) and research on migrant satisfaction paradoxes (Bartram, 2011), workplace stressors may be evaluated against more adverse pre-migration experiences.

Against this theoretical background, the study compares Ukrainian migrant and Polish employees in terms of exposure to workplace mobbing and key psychosocial job stressors. Grounded in the vulnerability framework, it is expected that migrant employees will report higher levels of both stressors and mobbing-related experiences than their native counterparts. At the same time, the study examines whether these relationships vary as a function of tenure and gender, capturing potential adaptation processes and group-specific vulnerabilities (Ward, Geeraert, 2016).

2. Method

2.1. Participants and Selection Procedure

The initial sample comprised 869 employees (410 Polish, 459 Ukrainian) working in various sectors of the Polish economy. To ensure cross-national comparability and reduce demographic confounding, a purposive pair-matching procedure was applied based on sector, gender, and age. Because 98.7% of Ukrainian participants were employed in the private sector, public-sector employees were excluded to avoid sectoral bias.

For each Ukrainian participant, a Polish counterpart was selected using exact matching on gender and age group. When multiple matches were available, preference was given to candidates employed in the same industry and holding comparable job positions.

The final matched sample included N = 397 participants: 199 Polish and 198 Ukrainian employees. The two groups were equivalent in gender distribution and age structure (M_age category = 2.49, SD = 0.83 in both groups), ensuring comparability without major demographic imbalance.

Overall, the sample consisted of 52.4% men and 47.6% women. Most participants were aged 26-35 (40.3%) or 36–45 (37.8%), while younger (<25) and older (>45) employees each constituted approximately 11%.

Despite demographic equivalence, occupational differences reflected labour-market segmentation. Ukrainian participants were predominantly employed in industry (88.4%) and in subordinate positions (94.4%), whereas the Polish group showed greater occupational diversity, including services and trade, and a higher proportion of specialist or managerial roles. These structural differences were retained to preserve ecological validity.

2.2. Procedure and Data Collection

Data were collected in the second half of 2023 in Wrocław and the Lower Silesia region, a major economic hub with a substantial Ukrainian migrant population.

The study was conducted online using convenience and snowball sampling through professional and personal networks. Participation was voluntary and anonymous. Respondents were informed about the scientific purpose of the study, data confidentiality, and their right to withdraw at any time without consequences.

2.3. Measures

2.3.1. Assessment of Mobbing

Workplace mobbing was assessed using the 64-item version of the SDM Questionnaire (Skala Doświadczania Mobbingu), developed and psychometrically validated in the Polish socio-organizational context (Durniat, 2020, 2025). The questionnaire comprises 64 items rated

on a 5-point frequency scale (1 = never, 5 = very often) and differentiates between behavioural exposure (SDM-IDM) and psychological harm/victimization (SDM-ODC), reflecting the interactional approach to workplace mobbing (Durniat, 2020, 2025).

The SDM-IDM scale includes 43 items and demonstrated excellent internal consistency in prior validation studies (α ≈ .96; Durniat, 2020), which was replicated in the present study (α = .96). It comprises three subdimensions: Isolation and Intimidation (19 items; α = .91; e.g., "My credibility and authority at work are challenged"), Humiliation and Ridicule (17 items; α = .94; e.g., "My every mistake is seized upon and blown out of proportion"), and Obstruction of Tasks (7 items; α = .81; e.g., "I receive contradictory orders").

The SDM-ODC scale consists of 21 items assessing cognitive–emotional and psychosomatic harm (e.g., "I feel less and less confident at work", "After leaving the workplace I feel mentally exhausted and shattered"). Prior studies reported excellent internal consistency for this scale (α ≈ .97; Durniat, 2020), which was replicated in the present sample (α = .97).

2.3.2. Assessment of Job Stressors

Psychosocial job stressors were measured using three established self-report instruments developed by Spector and Jex (1998): the Organizational Constraints Scale (OCS), the Quantitative Workload Inventory (QWI), and the Interpersonal Conflict at Work Scale (ICAWS). These measures conceptualize job stressors as situational and interpersonal demands that impede effective performance and contribute to psychological strain. The scales were adapted and psychometrically validated in the Polish socio-organizational context by Baka and Bazińska (2016), confirming their factorial structure and satisfactory reliability.

The OCS (11 items) assesses situational barriers interfering with task execution (e.g., "How often do you find it difficult to do your job because of inadequate equipment or supplies?") and demonstrated high reliability in the present study (α = .91). The QWI (5 items) measures perceived workload intensity and pace (e.g., "How often does your job require you to work very fast?"; α = .90). The ICAWS (4 items) captures the frequency of interpersonal tensions and arguments at work (e.g., "How often do you get into arguments with others at work?"; α = .76). These instruments have demonstrated meaningful associations with workplace bullying, supporting their relevance for assessing psychosocial risk environments.

2.4. Cross-Language Adaptation Procedure

All instruments administered to the Ukrainian sub-sample underwent double-translation and expert verification in accordance with established cross-cultural adaptation guidelines (Beaton et al., 2000). Independent translation and back-translation were conducted by bilingual psychology graduates, followed by expert reconciliation by a senior scholar in work and organizational psychology. Any discrepancies were resolved by consensus to ensure semantic and conceptual equivalence across language versions.

2.5. Statistical Approach and Preliminary Analysis

Data distributions were examined using the Kolmogorov–Smirnov test, which indicated significant deviations from normality for all variables ($p < .001$). Accordingly, non-parametric tests were applied. The Mann–Whitney U test was used for two-group comparisons (nationality, gender), and the Kruskal–Wallis H test for multi-group analyses (tenure). Effect sizes were calculated using the r coefficient (.10 = small, .30 = medium, .50 = large).

3. Results

3.1. Comparative Analysis of Mobbing Exposure and Victimization

The analysis examined differences in workplace mobbing between Ukrainian migrant employees and matched Polish employees (Table 1).

Table 1.
Comparison of Mobbing Exposure and Victimization Between Ukrainian and Polish Employees (N = 397)

Variable	Ukrainian (n = 198) M (SD)	Polish (n = 199) M (SD)	Z	p	r
SDM-IDM Total	52.38 (15.94)	58.95 (18.25)	-5.88	< .001	.30
Isolation & Intimidation	22.94 (7.20)	25.92 (8.34)	-6.01	< .001	.30
Humiliation & Ridicule	19.75 (6.58)	21.77 (7.10)	-5.38	< .001	.27
Obstruction of Tasks	9.69 (3.36)	11.26 (4.25)	-3.85	< .001	.19
SDM-ODC (Harm)	28.22 (10.55)	33.63 (12.89)	-5.84	< .001	.29

Note. SDM-IDM = behavioural exposure to mobbing; SDM-ODC = psychological harm and victimization; M = mean; SD = standard deviation; Z = Mann–Whitney U standardized test statistic; r = effect size calculated as $Z/\sqrt{N}$.

Source: Own research, Katarzyna Durniat.

Significant differences emerged across all dimensions of mobbing. Polish employees reported higher levels of overall mobbing exposure (SDM-IDM Total: $Z = -5.88$, $p < .001$, $r = .30$), as well as psychological harm and victimization (SDM-ODC: $Z = -5.84$, $p < .001$, $r = .29$).

This pattern was consistent across behavioural subdimensions. The largest differences were observed for Isolation and Intimidation ($Z = -6.01$, $p < .001$, $r = .30$) and Humiliation and Ridicule ($Z = -5.38$, $p < .001$, $r = .27$), while Obstruction of Tasks showed a smaller, though still significant, effect ($Z = -3.85$, $p < .001$, $r = .19$).

Overall, Polish employees reported a more hostile work environment than their Ukrainian counterparts.

3.2. Comparative Analysis of Job Stressors

Differences were also observed in perceived job stressors (see Table 2).

Table 2.
Comparison of Job Stressors Between Ukrainian and Polish Employees (N = 397)

Scale	Ukrainian (n = 198) M (SD)	Polish (n = 199) M (SD)	Z	p	r
ICAWS (Conflict)	4.64 (1.23)	4.96 (1.70)	-1.76	.034	.09
OCS (Constraints)	13.74 (4.83)	18.57 (7.74)	-7.38	< .001	.37
QWI (Workload)	10.23 (5.07)	14.36 (5.12)	-7.92	< .001	.40

Note. ICAWS = Interpersonal Conflict at Work Scale; OCS = Organizational Constraints Scale; QWI = Quantitative Workload Inventory; M = mean; SD = standard deviation; Z = Mann-Whitney U standardized test statistic; r = effect size calculated as $Z/\sqrt{N}$.

Source: Own research, Katarzyna Durniat.

Polish employees reported significantly higher levels of Quantitative Workload ($Z = -7.92$, $p < .001$, $r = .40$) and Organizational Constraints ($Z = -7.38$, $p < .001$, $r = .37$), both with medium effect sizes. In contrast, differences in interpersonal conflict were small ($Z = -1.76$, $p = .034$, $r = .09$), indicating largely comparable levels of direct interpersonal tensions. Overall, the most pronounced disparities concerned structural and workload-related stressors rather than overt conflict.

3.3. The Influence of Tenure on Stressors

To examine whether stress perceptions varied with tenure, Kruskal–Wallis H tests were conducted separately for each national subgroup. Among Ukrainian employees, tenure significantly differentiated mobbing exposure ($H = 20.11$, $p < .001$), victimization ($H = 14.05$, $p = .007$), and organizational constraints ($H = 13.49$, $p = .009$). The highest mean levels were observed among employees with 1–3 years of tenure (mobbing: $M = 64.23$; victimization: $M = 35.17$; constraints: $M = 16.03$), whereas those employed for less than one year reported the lowest scores.

In contrast, no significant tenure effects were observed among Polish employees (all $p > .05$). Descriptive trends indicated a gradual increase in mobbing and victimization across tenure categories in the Polish group, whereas the migrant group displayed a non-linear pattern.

3.4. Gender Differences in Stressors and Victimization

Gender analyses revealed both similarities and differences across national groups. In both samples, women reported significantly higher levels of psychological harm and victimization (SDM-ODC) than men (Poles: $Z = 2.07$, $p = .038$; Ukrainians: $Z = 2.48$, $p = .012$). Among Polish employees, women reported higher levels of interpersonal conflict ($Z = 2.28$, $p = .009$). Among Ukrainian employees, women reported higher quantitative workload ($Z = 2.62$,

p = .008), organizational constraints (Z = 2.20, p = .020), and task-related obstruction (Z = 2.07, p = .033). No comparable structural gender differences were observed among Polish employees.

4. Discussion

The present study compared perceptions of workplace mistreatment and psychosocial stressors between Ukrainian migrant employees and demographically matched Polish employees. Using a matched-pairs design, it examined whether migrant status is associated with heightened perceptions of mobbing and job stressors in the context of recent geopolitical instability. The findings challenge the assumption that migrant workers necessarily experience greater subjective vulnerability and underscore the importance of tenure and gender in shaping stress appraisal.

Contrary to expectations derived from the vulnerability perspective, Ukrainian employees reported significantly lower levels of mobbing exposure, victimization, organizational constraints, and quantitative workload than their Polish counterparts. Differences in interpersonal conflict were negligible. These findings do not support a simple loss-spiral interpretation but instead indicate a more complex pattern of stress appraisal among migrant workers (Bartram, 2011; Olgiati et al., 2013; de Vroome, Hooghe, 2014; Safi, 2010).

This counterintuitive result may be interpreted through Social Comparison Theory (Festinger, 1954; Gerber et al., 2018), which emphasizes the role of shifting reference standards in stress appraisal. It is further consistent with the concept of relative deprivation (Smith et al., 2012; Walker, Smith, 2002). Stress perceptions are inherently comparative and shaped by reference standards (Gerber et al., 2018).

For native employees, these standards may include organizational ideals or Western European labour norms. In contrast, migrants escaping war-related instability or economic collapse may evaluate current working conditions against far more adverse prior experiences. Such reference shifts play a central role in explaining migrant life satisfaction and adaptation (de Vroome & Hooghe, 2014; Safi, 2010). Under these circumstances, demands that might be perceived as burdensome by native workers may be appraised as tolerable or even favorable.

From the perspective of Conservation of Resources (COR) theory (Hobfoll, 2001; Halbesleben et al., 2014), employment itself constitutes a critical resource for migrants, providing income, legal stability, and psychological security. COR theory posits that individuals are motivated to protect valued resources and avoid further loss, particularly when resources are already threatened (Hobfoll, 2001). Accordingly, the motivation to preserve employment may elevate the cognitive threshold for labeling negative behaviors as mobbing or stressful, thereby attenuating reported exposure and harm. Together, these mechanisms explain

the "contented migrant" paradox: lower reported stress despite structurally constrained conditions.

Tenure analyses indicated that stress perceptions varied only among Ukrainian employees, revealing a non-linear pattern. Migrants in their first year reported the lowest levels of mobbing and constraints, followed by a marked increase among those with 1-3 years of tenure, and a subsequent decline among longer-tenured employees. This pattern may reflect a temporary buffering effect during initial resettlement, potentially driven by relief, gratitude, or protective cognitive framing in the immediate post-migration period. As adaptation progresses, migrants may become more aware of status inconsistency and occupational downgrading, increasing sensitivity to workplace stressors.

Such trajectories are consistent with acculturation models describing early optimism followed by adjustment strain (Ward, Geeraert, 2016) and align with reference-dependent appraisal mechanisms discussed earlier. The absence of tenure effects among Polish employees suggests that this pattern is specific to migration-related adaptation rather than general organizational socialization. Importantly, these findings should be interpreted with caution, as the cross-sectional design precludes causal conclusions regarding adaptation trajectories. Longitudinal studies are needed to verify whether the observed tenure pattern reflects within-person change over time.

Gender analyses further indicated that stress experiences varied across national groups. In both samples, women reported higher levels of psychological victimization, consistent with prior research indicating that women are more likely to report relational forms of workplace bullying and experience stronger psychological consequences (Nielsen, Einarsen, 2018; Salin, Hoel, 2013). However, among Ukrainian employees, women also reported higher structural stressors (workload, organizational constraints, and task obstruction), a pattern not observed in the Polish group. This finding aligns with intersectionality frameworks suggesting that overlapping minority statuses may amplify structural strain. Given that migrant women are often employed below their qualifications, increased workload may reflect compensatory overperformance or pressure to secure employment stability.

These results have important practical implications. Although migrant employees may not initially report elevated stress, vulnerability may increase during intermediate tenure stages. Organizational support should therefore extend beyond initial onboarding, particularly during the second and third years of employment. Career development planning, anti-discrimination initiatives, and gender-sensitive workload monitoring may help prevent the escalation of victimization and burnout among migrant workers.

At the same time, several limitations should be acknowledged. Pre-migration trauma and individual resilience factors were not directly measured and may influence stress appraisal. Future research should also examine the role of language proficiency and organizational inclusion practices as potential moderators of mobbing exposure and victimization.

5. Summary

This study challenges the prevailing vulnerability narrative in migration and stress research (Hobfoll, 2001; Porter, Haslam, 2005) by demonstrating that Ukrainian migrant employees reported lower levels of mobbing exposure, victimization, and structural job stressors than demographically matched Polish employees. Rather than reflecting absence of strain, these findings suggest a reference-dependent appraisal process (Festinger, 1954; Gerber et al., 2018) combined with resource-protection mechanisms emphasized in Conservation of Resources theory (Hobfoll, 2001; Halbesleben et al., 2014). Together, these processes explain the "contented migrant" paradox.

At the same time, the results reveal conditional vulnerability. Migrants exhibited a non-linear adaptation trajectory consistent with contemporary acculturation models (Ward, Geeraert, 2016), with heightened stress during intermediate tenure stages. Gender further differentiated outcomes, as migrant women experienced elevated structural strain, aligning with intersectional perspectives on workplace inequality (Salin, Hoel, 2013).

By integrating social comparison, relative deprivation, and resource-based frameworks, this study advances a more differentiated understanding of migrant adaptation in organizational contexts and underscores the need for sustained, gender-sensitive organizational support beyond initial onboarding phases.

References

1. Baka, Ł., Bazińska, R. (2016). Polish adaptation of three self-report measures of job stressors: The Interpersonal Conflict at Work Scale, the Organizational Constraints Scale and the Quantitative Workload Inventory. *International Journal of Occupational Medicine and Environmental Health*, *Vol. 29, Iss. 4,* pp. 623-639, doi: 10.13075/ijomeh.1896.00600
2. Bartram, D. (2011). Economic migration and happiness: Comparing immigrants' and natives' happiness gains from income. *Social Indicators Research*, *Vol. 103, Iss. 1*, pp. 57-76, doi: 10.1007/s11205-010-9696-2
3. Beaton, D.E., Bombardier, C., Guillemin, F., Ferraz, M.B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*, *Vol. 25, Iss. 24,* pp. 3186-3191, doi: 10.1097/00007632-200012150-00014
4. de Vroome, T., Hooghe, M. (2014). Life satisfaction among ethnic minorities in the Netherlands: Immigration experience or adverse social conditions? *Journal of Happiness Studies*, *Vol. 15, Iss. 6,* pp. 1389-1406, doi: 10.1007/s10902-013-9478-0

5. Długosz, P. (2023). The War Trauma of Ukrainian Refugees in Poland: Mental Health Disorders and Coping Strategies. *Scientific Reports*, *Vol. 13, Iss. 1, Article No. 1-10*, doi: 10.1038/s41598-023-31473-2
6. Durniat, K. (2020). Development and psychometric properties of the Polish basic version of the SDM Questionnaire for measuring bullying. *International Journal of Occupational Safety and Ergonomics*, *Vol. 26, Iss. 2,* pp. 312-326, doi: 10.1080/10803548.2018.1451111
7. Durniat, K. (2025). Beyond behavioural mobbing indicators: Revision and shortening of the SDM Questionnaire for measuring and diagnosing workplace bullying. *Health Psychology Report*.
8. Einarsen, S.V., Hoel, H., Zapf, D., Cooper, C.L. (Eds.) (2020). *Bullying and harassment in the workplace: Theory, research and practice* (3rd ed.). Boca Raton: CRC Press.
9. Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *Vol. 7, Iss. 2,* pp. 117-140, doi: 10.1177/001872675400700202
10. Gerber, J.P., Wheeler, L., Suls, J. (2018). A social comparison theory meta-analysis 60+ years on. *Psychological Bulletin*, *Vol. 144, Iss. 2,* pp. 177-197, doi: 10.1037/bul0000127
11. Halbesleben, J.R.B., Neveu, J.-P., Paustian-Underdahl, S.C., Westman, M. (2014). Getting to the "COR": Understanding the role of resources in conservation of resources theory. *Journal of Management*, *Vol. 40, Iss. 5,* pp. 1334-1364, doi: 10.1177/0149206314527130
12. Hobfoll, S.E. (2001). The influence of culture, community, and the nested-self in the stress process. *Applied Psychology*, *Vol. 50, Iss. 3*, pp. 337-421, doi: 10.1111/1464-0597.00062
13. Hobfoll, S.E., Halbesleben, J., Neveu, J.-P., Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior*, *Vol. 5,* pp. 103-128, doi: 10.1146/annurev-orgpsych-032117-104640
14. Lazarus, R.S., Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
15. Lewandowski, P., Lipowska, K., Smoter, M. (2025). Occupational downgrading, job tasks, and the return intentions of the Ukrainian refugees in Poland (Working Paper). Munich: CESifo.
16. Narodowy Bank Polski (2024). *Sytuacja życiowa i ekonomiczna migrantów z Ukrainy w Polsce w 2024 r.* Warszawa: Departament Statystyki NBP.
17. Nielsen, M.B., Einarsen, S. (2018). What we know, what we do not know, and what we should and could have known about workplace bullying: An overview of the literature and agenda for future research. *Annual Review of Organizational Psychology and Organizational Behavior*, *Vol. 5,* pp. 381-403, doi: 10.1146/annurev-orgpsych-032117-104651
18. OECD (2023). *Refugee integration in Poland: Labour market performance and policy challenges*. Paris: OECD Publishing, doi: 10.1787/ceec2206-en

19. Olgiati, A., Calvo, R., Berkman, L. (2013). Are migrants going up a blind alley? Economic migration and life satisfaction around the world. *Journal of Population Economics*, *Vol. 26, Iss. 3*, pp. 1007-1030, doi: 10.1007/s00148-012-0420-1
20. Państwowa Inspekcja Pracy (2025). *Sprawozdanie z działalności Państwowej Inspekcji Pracy w 2024 roku*. Warszawa: Główny Inspektorat Pracy.
21. Porter, M., Haslam, N. (2005). Predisplacement and postdisplacement factors associated with mental health of refugees and internally displaced persons: A meta-analysis. *Journal of the American Medical Association*, *Vol. 294, Iss. 5*, pp. 602-612, doi: 10.1001/jama.294.5.602
22. Safi, M. (2010). Immigrants' life satisfaction in Europe: Between assimilation and discrimination. *European Sociological Review*, *Vol. 26, Iss. 2,* pp. 159-176, doi: 10.1093/esr/jcp013
23. Salin, D., Hoel, H. (2013). Workplace bullying as a gendered phenomenon. *Journal of Managerial Psychology*, *Vol. 28, Iss. 3,* pp. 235-251, doi: 10.1108/02683941311321187
24. Smith, H.J., Pettigrew, T.F., Pippin, G.M., Bialosiewicz, S. (2012). Relative deprivation: A theoretical and meta-analytic review. *Personality and Social Psychology Review*, *Vol. 16, Iss. 3,* pp. 203-232, doi: 10.1177/1088868311430825
25. Spector, P.E., Jex, S.M. (1998). Development of four self-report measures of job stressors and strain: Interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory. *Journal of Occupational Health Psychology*, *Vol. 3, Iss. 4*, pp. 356-367, doi: 10.1037/1076-8998.3.4.356
26. Walker, I., Smith, H.J. (2002). *Relative deprivation: Specification, development, and integration*. Cambridge: Cambridge University Press.
27. Ward, C., Geeraert, N. (2016). Advancing acculturation theory and research: The acculturation process in its ecological context. *Current Opinion in Psychology*, *Vol. 8,* pp. 98-104, doi: 10.1016/j.copsyc.2015.09.009

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COMMITMENT AS AN INDICATOR OF THE ORGANIZATION'S HUMAN CAPITAL IN THE AREA OF SOCIAL RELATIONS

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Purpose: This article attempts to identify the relationship between the level of work commitment and human capital in the area of social relations. Despite numerous studies devoted to this topic, relatively few studies are conducted to identify the interdependencies between these categories. In an era of organizational change, organizational commitment is gaining importance, as it can act as a mediating mechanism between human capital and the transformation processes taking place within an organization. The obtained results indicate that a high level of work commitment promotes the activation and development of employee competency resources. Work commitment, in turn, can be interpreted as a significant indicator of the organization's human capital quality, particularly in the dimension of social relations.
Objective: The aim of the study was to understand the links between work commitment and human capital in the area of social relations.
Design/Methodology/Approach: The research used an indirect survey method. Questions and responses were submitted in written form. The research was conducted using a translational method; the classic survey was digitized and transferred online. Research conducted by a company providing CAWI services.
Findings: The research findings confirm that employee commitment is a key component of an organization's human capital, particularly in the area of social relations. It is strongly linked to the process of accumulating professional and organizational experience. What was found in the course of the work? This will refer to analysis, discussion, or results.
Research limitations/implications: The main limitation is that the data were collected from respondents working in different size enterprises (from microenterprises to corporations) and with diverse business activities (e.g., manufacturing, services, trade). It introduces sample heterogeneity and may impact the findings generalization.
Practical implications include a recommendation for managers to focus on segments with similar organizational characteristics and, for further research, to increase the sample size. Furthermore, strengthening commitment can support the process of updating employee competencies and facilitate the implementation of organizational change.
Originality / Value: The obtained results constitute a significant contribution to the approach of human capital measurement particularly from the perspective of social research methods.

Keywords: Commitment, human capital, social relations, professional and organizational experience.
Category of the paper: research paper.

1. Introduction

Commitment links an organization's human capital [OHC] with the effectiveness and quality of its operations and the results it achieves (Shaima, 2023). Therefore, its intensity and scope are key OHC indicators. Commitment influences the extent to which employees use their competencies and resources (Armstrong, 2012), and from the other hand, it co-shapes and develops their professional and organizational experience. Commitment strength and quality are determined by both individual employee characteristics and organizational factors, including organizational culture, management style, participation in decision-making, and trust (Coyle-Shapiro et al., 2009). These factors are deeply embedded in the social relationships context what stimulates employee commitment and its level.

The subject of this article is employee commitment based on social relations in the work environment. Although the literature contains analyses of social relations in the work environment as commitment determinants (Vonneilich, 2022), there is a lack of commitment research as a factor co-shaping professional-organizational experience in the area of social relations. The research presented in this article fullfills this gap.

2. Organization’s Human Capital

Human capital has received numerous definitions, so any systematic approach will always be incomplete, omitting. Definitions of human capital most often emphasize the qualifications, knowledge, experience, skills, and competencies of all employees, but it does not reflect the organizational reality. This resource must be embedded in social relationships that enable its effective using. Human capital is perceived contemporary as a synergy of knowledge, skills, abilities, experience, and commitment of individuals and groups, which generate the organization value (Tasheva, Hillman, 2019). Employees develop competencies, such as problem-solving skills, creativity, innovation, and adaptability to new technologies, such as AI in hybrid work environments, through learning by experience. They build valuable professional and organizational experience, in OHC (Chukwudi et al., 2022; Bayraktar, 2024). Employee commitment which motivates continuous development is one of the main factors contributing the growth of this experience. An operational definition of human capital consisted of knowledge, competences, professional and organizational experience, and employee

commitment, was recognized in this research. It allows to consider its role in social relations in the research.

3. Employee Commitment as an Indicator of Organization Human Capital

Employee commitment is a complex phenomenon that distinguishes work involvement (e.g., commitment to job, position, or career) and organizational commitment, i.e., the employee's relationship with the organization (Meyer, Allen, 1991). W. Kahn (Kahn, 1990) noted that commitment occurs when an employee expresses his authentic attitude and is willing to devote his energy to achieve the organization's goals. Organizational commitment: promotes high quality and effectiveness (Tolentino, 2013; Ogala, 2020), influences productivity increasing and work results (Ogala, 2020; Shaima, 2023), acceptance of change (Yousef, 2017; Vveinhardt & Sedziuviene, 2022), innovation, creativity, and the learning (Xanthopoulou et al., 2009; Serna et al., 2018; Yang, 2024). Organizations can expectate the support of commited employees during a crisis (Saks, 2006). Commitment depends on both individual employee characteristics and organizational factors, such as culture, management style, fair treatment, development opportunities, communication, relationships, safety, appreciation and salaries (Kahn, 1990; Robinson et al., 2004). Therefore organizational commitment is a crucial OHC element which influences the organization functioning and success (Becker, 2008).

4. Social Relationships and Employee Commitment

Social relationships are determined as relatively durable, recurring, and regulated normatively connections between individuals or groups, based on mutual expectations, social roles, resource exchange, and shared meaning (Simmel, 2006). They are dynamic and processual in nature – they are constantly reproduced in everyday communication, decision-making, and cooperation practices (Bidart et al., 2020). Employee competencies become productive only in relationships that enable their activation, transfer, and complementarity (Vonneilich, 2022).

Organizations, as social systems, states space for an intense network of formal and informal relationships. Organizational relationships are not only hierarchical (superior-subordinate) ones but also cover horizontal relationships, networks of team collaboration, common practice communities and informal influence and support systems (Wenger, 1999).

Even high individual competencies remain untapped or become fragmented without high-quality relationships. This competency determines the level of trust, learning, and willingness to involve (Ferlander, Mäkinen, 2025). G. Simmel (2006) conceptualizes commitment not as a characteristic of an individual, but as a result of their participation in social relationships. In Edward Deci and Richard Ryan's (1985, 2000) Self-Determination Theory, social relationships constitute one of the motivation basics (Bakker, Demerouti, 2007). The relatedness fulfilling is a condition for autonomous commitment.

According to J. Coleman and P. Bourdieu, employees are more engaged in environments where relationships are constant, based on trust, predictable, ensured with support, and acceptance of mistakes as part of the learning process, and enable long-term benefits (Coleman, 1988; Yip et al., 2018). J. Coyle-Shapiro and N. Conway (2009) emphasized the importance of supervisors support which influenced the level of organizational commitment among team members. According to social exchange theory, employees reciprocate received support by loyalty increasing and effort willingness (Wnuk, 2019). Social relationships also influence commitment by strengthening organizational identification, building a sense of work, increasing a sense of agency and influence, reducing uncertainty and stress, and facilitating competency development (Imran et al., 2020; Łaguna et al., 2015).

Employee commitment is not an individual atribute or a simple motivation response, but it is a relational state settled in networks, norms, and expectations. Its level and sustainability depend on the relationship models that dominate the organization, how they are communicated, and whether they are consistent. Organizations that consciously manage relationships—not just tasks and outcomes—create the conditions for deep, lasting engagement.

5. Methodology

The research presented in this article is part of a OHC qualitative methods measurement project. It concerns two OHC indicators: work commitment and professional-organizational experience, as well as their interrelationships and various determinants. Empirical data were collected by a research company, Ogólnopolski Panel Badawczy Ariadna Sp. z o.o. from September and December 2022 with CAWI method.

The research problem in the project was: **The influence of social relationships in the work environment on work commitment as an indicator of OHC and its connections with professional and organizational experience.** Precise questions were formulateg to solve this problem:

1. To what extent do employees in Polish enterprises perceive their work commitment?
2. Do social relationships influence work commitment and how?
3. Do employees perceive any links between work commitment and professional and organizational experience?

The following hypotheses were formulated:

Hypothesis 1 [H1]: Employee commitment in Polish enterprises is at an average level.

Hypothesis 2 [H2]: Relationships with superiors influence employee commitment more than relationships with other employees.

Hypothesis 3 [H3]: Elements of organizational culture, such as the system of values and behavioral standards, influence employee commitment.

Hypothesis 4 [H4]: The work commitment is related directly to the professional and organizational experience.

The research was done with a diagnostic survey method. An author questionnaire was used as a tool. The questionnaire consisted of 24 statements, 12 referred to work commitment (Z) and 12 to professional and organizational experience created by commitment (ZD). Taking into account these both OHC indicators, the statements concerned: social relationships with superiors and other employees, trust in superiors and other employees, participation in decision-making, elements of organizational culture – the system of values and behavioral standards, commitment to the company due to identification with it, loyalty, and employment preferences. There were used 7-point Likert Scale (1 - almost never to 7 - almost always) to answer the questions. To classify the level of work commitment and creating the professional and organizational experience with it, the following scale was used: 1.00-2.20 – very low; 2.21-3.40 – low; 3.41-4.60 – medium; 4.61-5.80 high; 5.81-7.00 – very high. Calculations were performed using the STATISTICA 13.3 program.

6. Results

The research presented in this article is the part of a larger project, only results relevant to the analyzed issue were presented. The study group consisted of 310 SME employees. Analyzing the respondent profile, women slightly predominated – 55%. In terms of age, 21% were between 35-39 years old and 50 years and older (20%), with 10-14 years of experience (21%). Taking into account organizational variables, the vast majority of respondents were employed under a permanent employment contract (93%), with white-collar workers predominating (77%). The vast majority of respondents worked in a culturally homogeneous Polish environment (67%), and most of them continued to work as before the pandemic (68%). The majority of respondents were employees of small and medium-sized

enterprises (33%), service businesses (37%), co-located businesses (56%), with Polish capital (75%).

The research is characterized by very high reliability, Cronbach's alpha = 0.97. The data do not form a normal distribution; the Kolmogorov-Smirnov test result is d = 0.06312 ($p < 0.2$). Furthermore, it is left-skewed, meaning that most respondents perceive their commitment and its impact on creating their professional and organizational experience at high level (M from 4.61 to 5.80). Results analysis indicates that employee opinions on the level of commitment are more diverse than those regarding professional and organizational experience created by engagement.

Due to the lack of normal distribution, the Mann-Whitney U Test and the Kruskal-Wallis Test were used. The results showed that gender ($Z = 1.3297$; $p = 0.18$), do not influence either the work commitment or the professional and organizational experience created with it ($Z = 0.7163$; $p = 0.09$). In turn, the Kruskal-Wallis Test revealed that age, total job experience, and education did not influence the work commitment.

The employees surveyed perceive their commitment to work as high (mean scores ranging from 4.70 to 5.10). A detailed analysis of the commitment level because of social relationships, showed that the most significant factors here are: responsibility for other colleagues (M = 5.10), maintaining and developing relationships with them (M = 5.07), trust in colleagues (M = 5.00) and participation in staff decisions (M = 4.99). Meanwhile, the following factors are slightly less importance: the company's value system (M = 4.70) and behavioural standards (M = 4.71), trust in superiors (M = 4.73), relationships with them (M = 4.73), and attachment to the organisation appeared as preference to remain in the current workplace (M = 4.74). Respondents also rate very highly the level of professional and organisational experience created by trust (mean scores ranging from 4.78 to 5.09). Analysis of ZD in terms of social relationships showed that the most important factors for the employees were: relationships with colleagues (M = 5.09), participation in staff decisions (M = 5.06), responsibility for other colleagues (M = 5.04) and trust in them (M = 4.99). Considering connections between work commitment and the professional and organisational experience created by that, it appeared high correlation between the work commitment and the extent to which it creates that experience; Spearman's ρ coefficient was generally above 0.80. The results of psychosocial variables obtained that younger employees (aged 25-29) are slightly less likely to perceive high levels of both Z and ZD simultaneously. Basing on the analysis of the correlation between Z and ZD, it was shown that because of business activity type the weakest correlation between Z and ZD is found among employees of manufacturing companies, while it is strongest in multi-sector companies.

7. Discussion

The analyses appeared that two of the five hypotheses were confirmed. H3 was confirmed: organisational culture, and particularly system of values and behavioural standards, is of significant importance. The results indicated that there was a strong relationship between the level of commitment and the perception of its role in creating professional and organisational experience, as confirmed by H4. The level of commitment among employees in Polish enterprises, as well as its impact on creating experience, is not high (concerning hypothesis H1). The results showed that relationships between employees were no more significant for commitment than relationships with supervisors (concerning hypothesis H2).

According to M. Sasin (2018), building employee commitment it is more than just a strategy — it is a management culture based on wise trust and faith in employees' positive intentions, as well as on the belief that people are intelligent, creative and have the potential to commit themselves to the company. Management through commitment influences the direction of creating and strengthening interpersonal and intergroup relationships which arise from shared goals and values, cooperation and shared responsibility (Juchnowicz, 2012).

J.A. Gruman and A.M. Saks (2011) state that orienting the management system towards promoting employee commitment can be an effective way of increasing work productivity.

A responsible approach to the issue of commitment requires an environment that is not only demanding but also conducive to maintaining a work-life balance (Alfes et al., 2010). A high level of commitment requires also from employees to identify with the organisation. It is possible to achieve if employment relationships are based on: stability, shared responsibility and participation of decision-making (Bartczak et al., 2018). As indicated in the "Commitment 2024" study conducted by Enpulse (2025), an commitment rate of 66% in Poland drives organizational effectiveness. More than half of the respondents can be classified as engaged employees. This represents an 8% increase year-on-year, thanks to emotional connections, which seems to be another direction for further exploration of this research topic.

8. Conclusions

The obtained results indicate that the level of involvement of employees of Polish enterprises in the use of professional competences is moderate, which is confirmed by the average sten score of 5.53. This indicates that employees are involved in the process of updating and using their competence resources to an average degree.

Analysis of the mean responses for selected items suggests that both positive and negative emotions play a role in shaping professional commitment. However, positive experiences (mean 4.63) seem to have a stronger impact compared to negative emotions (mean 3.93).

Relatively high mean values for statements related to self-discovery through work (mean 4.52) and the use of career counseling (mean 4.61) indicate the significant importance of developmental factors in building professional commitment. This may indicate that work is perceived not only as an obligation, but also as a space for personal development and reflection on one's professional identity.

The collected empirical data justify the need to continue research on the relationships between the level of work commitment and the use of competencies. Further analyses may contribute to deepening knowledge on the mechanisms supporting the development of human capital in Polish organizations.

The work engagement factor encompasses: dedication to work to perform assigned tasks to the best of one's ability, the emotional and personal aspects of work expressed through absorption and independent initiation of professional tasks. The sense of responsibility for work, in turn, encompasses responsibility for work results, maintaining order in the workplace, and good social relations with co-workers. The work engagement factor determines the level of activation of possessed knowledge and competencies in the implementation of professional tasks (the level of its "capitalization"), thus indicating the actual value of the KL quality indicator.

Extensive research on human capital was conducted by a team consisting of: J. Dziwulski, S. Skowron and K. Wojciechowska. J. Dziwulski was responsible for this part of the research.

References

1. Abdelmoula, L., Boudabbous, S. (2021). Impact of organizational commitment on accounting professionals' performance: Case of accounting firms. *Journal of Accounting, Business & Management, 28(2),* 59-71.
2. Armstrong, M. (2002). *Zarządzanie zasobami ludzkimi.* Kraków: Oficyna Ekonomiczna.
3. Armstrong, M. (2005). *Zarządzanie zasobami ludzkimi (3rd ed.).* Kraków: Oficyna Ekonomiczna.
4. Armstrong, M. (2009). *Zarządzanie wynagrodzeniami.* Warszawa: Wolters Kluwer Polska.
5. Armstrong, M. (2012). *Zarządzanie zasobami ludzkimi.* Warszawa: Wolters Kluwer Polska.
6. Armstrong, M. (2020). *Armstrong's handbook of human resource management practice (15th ed.).* London: Kogan Page Ltd.

7. Bae, J., Kang, J. (2023). *Human capital quality and stock returns. Journal of Banking and Finance, 152*, 106857. https://doi.org/10.1016/j.jbankfin.2023.106857
8. Bakker, A.B., Demerouti, E. (2008). Towards a model of work engagement. *Career Development International, 13*(3), 209-223. https://doi.org/10.1108/13620430810870476
9. Becker, B.E., Huselid, M.A. (2006). Strategic human resources management: Where do we go from here? *Journal of Management, 32(6),* 898-925.
10. Becker, B.E., Huselid, M.A., Ulrich, D. (2001). *The HR scorecard: Linking people, strategy, and performance.* Boston: Harvard Business School Press.
11. Becker, G.S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education (3rd ed.).* Chicago: University of Chicago Press.
12. Boxall, P., Purcell, J. (2011). *Strategy and human resource management.* London: Palgrave Macmillan.
13. Boyatzis, R.E. (1982). *The competent manager: A model for effective performance.* New York: John Wiley & Sons.
14. Chłoń-Domińczak, A., Kamieniecka, M., Trawińska-Konador, K., Pawłowski, M., Rynko, M. (2015). *Popyt na kompetencje i kwalifikacje oraz ich podaż – wnioski z badań.* Warszawa: Instytut Badań Edukacyjnych.
15. Dajczak, K., Kijewska, K. (2008). Rola szkoleń w rozwoju kapitału ludzkiego przedsiębiorstwa. *Zeszyty Naukowe Instytutu Ekonomii i Zarządzania Politechniki Koszalińskiej, 1(12),* 11-17.
16. Daulay, R.A., Restu, D.A. (2019). Indicators of human capital quality: Competencies, experience, and engagement. *Journal of Human Resource Management, 7(3)*, 45-56.
17. Daulay, R.A., Restu, D.A. (2023). Development of human capital indicators to improve employee performance. *Sharia Economic Management Business – Journal, 4(1),* 19-23.
18. Dessler, G. (2009). *Framework for human resources management.* New Jersey: Prentice-Hall.
19. Filipowicz, G. (2004). *Zarządzanie kompetencjami zawodowymi.* Warszawa: PWE.
20. Goldin, C., Katz, L.F. (1998). Human capital and social capital: The rise of secondary schooling in America, 1910 to 1940. *National Bureau of Economic Research Working Paper, 6439*. https://doi.org/10.3386/w6439
21. Hafiz, A. (2017). Relationship between organizational commitment and employee's performance: Evidence from banking sector of Lahore. *Arabian Journal of Business and Management Review, 7(2)*, 1-7.
22. Hou, Y., Gao, G., Li, T., Yu, Z. (2011). Organizational commitment and creativity: The influence of thinking styles. *Annals of Economics and Finance, 12*, 411-431.
23. Juchnowicz, M. (Ed.) (2014). *Zarządzanie kapitałem ludzkim. Problemy–narzędzia–aplikacje.* Warszawa: PWE.
24. Juchnowicz, M., Mazurek-Kucharska, B., Turek, D. (2013). *Kapitał ludzki w zarządzaniu organizacją.* Warszawa: Difin.

25. Juchnowicz, M., Mazurek-Kucharska, B., Turek, D. (2015). Pomiar wybranych jakościowych cech kapitału ludzkiego. In: Ł. Sienkiewicz (Eds.), *Pomiar kapitału ludzkiego przedsiębiorstwa – perspektywy badawcze* (pp. 183-237). Warszawa: PARP.
26. Kahn, W.A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33(4),* 692-724. https://doi.org/10.2307/256287
27. Kaplan, M., Kaplan, A. (2018). The relationship between organizational commitment and work performance: A case of industrial enterprises. *Journal of Economic and Social Development, 5(1)*, 46-50.
28. Klemp, G.O. (2001). *Competency management: A practitioner's guide.* Belchertown: HRD Press.
29. Kotter, J.P. (1996). *Leading change.* Boston: Harvard Business Review Press.
30. Król, H. (2007). Podstawy koncepcji zarządzania zasobami ludzkimi. In: H. Król, A. Ludwiczyński (Eds.), *Zarządzanie zasobami ludzkimi. Tworzenie kapitału ludzkiego organizacji* (pp. 50-91). Warszawa: PWN.
31. Król, H., Filipowicz, G. (2010). *Zarządzanie zasobami ludzkimi w organizacji.* Łódź: Wydawnictwo Uniwersytetu Łódzkiego.
32. Kwiatkowska, B. (2010). Kapitał ludzki jako źródło przewagi konkurencyjnej przedsiębiorstwa. *Studia i Prace Kolegium Zarządzania i Finansów, 102*, 91-103.
33. Ljungquist, U. (2007). Core competency beyond identification: Presentation of a model. *Management Decision, 45(3),* 393-402.
34. Meyer, J.P., Allen, N.J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review, 1(1),* 61-89. https://doi.org/10.1016/1053-4822(91)90011-Z
35. Meyer, J.P., Allen, N.J. (1997). *Commitment in the workplace: Theory, research, and application*. London: Sage Publications.
36. Molino, M., Cortese, C.G., Ghislieri, C. (2020). The promotion of technology acceptance and work engagement in Industry 4.0: From personal resources to information and training. *International Journal of Environmental Research and Public Health, 17*(7), 2438. https://doi.org/10.3390/ijerph17072438.
37. Noe, R.A., Hollenbeck, J.R., Gerhart, B., Wright, P.M. (2017). *Human resource management: Gaining a competitive advantage (10th ed.).* New York: McGraw-Hill Education.
38. Nogalski, B., Śniadecki, J. (1998). *Kształtowanie umiejętności menedżerskich.* OWOPO.
39. Ogala, S.C. (2020). Effect of employees' commitment on organizational performance in selected firms. *Randwick International of Social Science Journal, 1*(1), 108-120.
40. Oyeniyi, K.O., Adeyemi, M.A., Olaoye, B.O. (2017). Organizational commitment and employee's job performance: Evidence from Nigerian hospitality industry. *International Journal of Innovative Psychology & Social Development, 5(3)*, 15-22.

41. Parkes, D. (1993). *Szkolenie zawodowe – wspólne cele, różne rozważania. System standardów kwalifikacji zawodowych.* Miedzeszyn: BKKK.
42. Peters, L., Taylor, P. (2017). Human capital and organizational performance: Complementarity with intangible assets. *International Journal of Business and Management, 12(5),* 75-89.
43. Rafiei, M., Amini, M.T., Foroozandeh, N. (2014). Studying the impact of the organizational commitment on the job performance. *Management Science Letters*, *4*, 1841-1848.
44. Robinson, D., Perryman, S., Hayday, S. (2004). *The drivers of employee engagement.* Brighton: Institute for Employment Studies.
45. Sajkiewicz, A. (2003). *Jakość zasobów pracy.* Warszawa: Poltext.
46. Sajkiewicz, A. (2007). *Kompetencje kluczowe pracowników – źródło przewagi konkurencyjnej organizacji.* Warszawa: Difin.
47. Saks, A.M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology*, *21*(7), 600-619. https://doi.org/10.1108/02683940610690169
48. Serna, M., Martínez, J.E.V., Eternod, V. (2018). The influence of organizational commitment and learning orientation on innovation in SMEs. *Contaduría y Administración*, *63*(3), 1-19.
49. Shaima, M. H., & Kalaiselvi, K. (2023). *An empirical study on employee commitment and job performance of private sector employees.* Journal of Survey in Fisheries Sciences, *10*(1S), 3331-3342.
50. Skrzypczak, J. (1998). Tak zwane kompetencje kluczowe, ich charakter i potrzeba kształtowania w toku edukacji ustawicznej. *Edukacja Ustawiczna Dorosłych*, *3*, 39-46.
51. Skrzypczak, J. (2005). *Kompetencje zawodowe i ich rozwój.* Poznań: Wydawnictwo Akademii Ekonomicznej w Poznaniu.
52. Tolentino, R.C. (2013). Organizational commitment and job performance of the academic and administrative personnel. *International Journal of Information Technology and Business Management*, *15*(1), 40-51.
53. Ulrich, D., Brockbank, W., Johnson, D., Sandholtz, K., Younger, J. (2010). HR competencies: Mastery at the intersection of people and business. *NHRD Network Journal*.
54. Vveinhardt, J., Sedziuviene, N. (2022). Acceptance of change by reducing employee resistance and strengthening organizational commitment. *Polish Journal of Management Studies*, *26*(1), 356-372.
55. Walkowiak, R. (2004). *Model kompetencji menedżerów organizacji samorządowych.* Olsztyn: Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego w Olsztynie.
56. Whiddett, S., Hollyforde, S. (2003). *Modele kompetencyjne w zarządzaniu zasobami ludzkimi.* Kraków: Oficyna Ekonomiczna.

57. Whiddett, S., Hollyforde, S. (2003). *The competencies handbook.* London: Chartered Institute of Personnel and Development (CIPD).
58. Włodarkiewicz-Klimek, H. (2018). *Kapitał ludzki w kształtowaniu zwinności przedsiębiorstw opartych na wiedzy*. Poznań: Wydawnictwo Politechniki Poznańskiej.
59. Wołowska, A. (2013). *Przywiązanie do organizacji a kontrakt psychologiczny*. Toruń: Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika.
60. Wziątek-Staśko, A., Michalik, I., Vveinhardt, J. (2023*)*. Organizational commitment in the assessment of employees of different generations: A research study. *European Research Studies*, *26*(3), 534-555.
61. Xanthopoulou, D., Bakker, A.B., Demerouti, E., Schaufeli, W.B. (2009). Work engagement and financial returns: A diary study on the role of job and personal resources. *Journal of Occupational and Organizational Psychology*, *82*(1), 183-200. https://doi.org/10.1348/096317908X285633
62. Yang, L. (2024). Effect of organizational support in terms of training, autonomy, and technology on work engagement at private universities in Bangkok, Thailand. *Human Behavior, Development and Society*, *25*(1), 42-50.
63. Yousef, D.A. (2017). Organizational commitment, job satisfaction and attitudes toward organizational change: A study in the local government. *International Journal of Public Administration*, *40*(1), 77-88.

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AUTONOMOUS TEAMS' CONTRIBUTION TO GAINING BENEFITS FROM NETWORK COLLABORATION

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Purpose: The main scientific purpose of this article is to identify benefits of autonomous teams in collaboration within inter-organizational network. The study focuses on diagnosing in what way autonomous teams contribute to the increase in efficiency of operating, from the perspective of both individual network participant and network as a whole.
Design/methodology/approach: Conceptual positioning of the research aim at providing a generalizable contribution to management science, at the same time being accessible to practitioners. The research was carried out using the interpretative method of a case study, following its methodological rigor. The study provided data corresponding with set research questions. Additionally, the results were confronted and confirmed within internal documents analysis.
Findings: The specificity of autonomous teams corresponds well with the nature of inter-organizational network. Consequently, the teams have a noticeable contribution to gaining benefits from this type of collaboration. In most cases the impact is strong or moderate, and it refers to both types of rent: from the perspective of an individual participant and of the whole network.
Research imitations/implications: Although implemented research methods allowed achieving research objectives, natural character of case studies requires cautiousness in generalizing results.
Practical implications: The results serve as a guideline for managers who can take advantage of autonomous teams and increase the efficiency of inter-organizational network collaboration.
Originality/value: The author adopts a new perspective to the issue of taking advantage of autonomous teams in managing organizations, concentrating on the specific conditions of inter-organizational networks. The study expands our understanding of how the nature of network collaboration corresponds with the features of autonomous work groups. It presents a concise theoretical construct which explains how network participants can exploit such teams and contribute to gaining unique rents dedicated to network collaboration.
Keywords: autonomous teams, inter-organizational networks, network collaboration benefits.
Category of the paper: Research paper.

1. Introduction

Today organizations operate in the environment characterised by multi-directional co-dependence of business partners (Renteria, 2025; Peterman, Kourula, Levitt, 2020), which constitutes inter-organizational network of interactions (Pereira Morais, Ferreira, Jayantilal, 2024; Bugan, Ionescu, 2024; Kim, Howard, 2016; Gebo, Bond, 2019; Sakai, Kang, 2000). Network itself constitutes a collection of long-term, formal and informal, direct or indirect relations, based on free will of joining or leaving network, trust, partnership and equality (Edelenbos, Klijn, 2007). As a consequence, network's structure becomes flat and flexible; network itself can reconfigure fast, in order to adjust to changing conditions (Liu et al., 2023). These features make network collaboration especially valuable, as it corresponds well with global economic conditions of doing business, which are rather unfavourable and demanding (He, Ma, Zhang, 2020; Pedersen, Clausen, Jørgensen, 2022; Barbier, Robertson, 2022). Taking all these aspects into consideration, a natural question arises how to optimize efficiency of networks and support exploitation of key network advantages such as flexibility and fast reaction to changes. The answer may be the increase in autonomy of workers by delegating tasks and responsibilities down the hierarchy, and at the same time organizing work within teams (Li, Li, 2025). In this context, the most advanced way of organizing team work, which allows most efficient and complex exploitation of team's members' skills and competences, is reflected in so-called autonomous teams.

This leads to a general problem in what way autonomous teams can support achieving benefits from network collaboration. In the paper the focus was put on answering the following research questions:

1. How do the crucial features of autonomous teams correspond with the nature of collaboration within inter-organizational networks?
2. In what way do autonomous teams contribute to gaining relational rent and network rent by organizations collaborating within network?

The main objective of the paper is to identify benefits of exploiting autonomous teams by participants of inter-organizational networks. Understanding the possibilities of autonomous teams contributes to the increase in efficiency of the process of creating value by each member of network and network as a whole (Bugan, Ionescu, 2024; Sharkey et al., 2021).

These considerations intend to provide both theoretical and practical contribution. A concise theoretical construct that explains different kinds of network collaboration benefits and how autonomous teams can support gaining these rents was presented. Consequently, this conceptualization serves as a template for practical use by managers; it explains how to exploit autonomous teams in order to maximize expected benefit within inter-organizational network.

2. Literature review

2.1. Specificity of autonomous teams

An autonomous team (also called an autonomous work group) is a kind of teamwork which is managed independently without any direct supervision of upper management. Such a team is given some goals (they have assigned projects), but the way they are achieved depends only on the team itself; it is free to define its schedule, govern daily work and delegate responsibilities among team members (Coronado-Maldonado, Benítez-Márquez, 2023; Magpili, Pazos, 2018; Powell, Pazos, 2017; Patanakul, Chen, Lynn, 2012).

Autonomy of the team is reflected in the following features:

- team selects new members and chooses their leader,
- team selects projects that are interesting or match members' skill set, and decides which teammates to collaborate with,
- all members participate in setting their workloads and deadlines, and in the process of coordinating tasks (collaborative decisions that concern gathering data, evaluating options and choosing a course of action),
- team may create its own management systems or choose to use software to streamline its workflow,
- team decides what resources (materials, tools etc.) they will need to accomplish tasks (a project), and how to use them,
- team itself monitors and controls the results of its work,
- team members decide about the division of payment among them (according to the individual contribution).

Thus, in case of an autonomous team there is no central authority figure enforcing schedules and deadlines, the team is free to plan, organize and control its work. Such an organization of work brings various benefits. First of all, employees are more engaged and innovative in work; since they feel more control and ownership over projects that they are part of, they are more willing to put in the effort and contribute new ideas, which lead to innovative solutions (van Zijl, 2022; Van der Voet, Steijn, 2021; Dackert, 2016). What is vital, finally it leads to higher productivity (Kaur, Kaur, 2022; Ryan, Deci, 2017; Anitha, 2014) Moreover, work in the environment where you have more freedom, feel more valued and can expect assistance from teammates causes less stress and burnout. Empowering employees to make their own decisions and being independent may result in a more confident and satisfied team.

The specificity of autonomous teams seem to correspond quite well with the nature of collaboration within inter-organizational networks. Such teams can be established for a particular project or work permanently. Some organizations use such work groups as a way

to align team members who work on different continents or in different time zones, which is especially useful for collaboration within networks that may consist of participants scattered across the globe. Also, autonomy enhances agility and flexibility (Stray, Moe, Hoda, 2018) that support fulfilling customers' needs with a unique product; these features constitute key advantages of network collaboration.

2.2. Benefits from inter-organizational network collaboration – two perspectives

Regarding collaborative advantage generated by network, the synergy effect leads to creating unique value for both individual participants (network rent) and the whole network (relational rent). Thus, **network rent** reflects an egocentric perspective, since it constitutes an advantage that can be achieved by an *individual* participant of network. These are the following types of benefit:

- rent from participating in network of value - value within network is generated through the synergy of key resources and the way they are used by collaborating partners;
- rent from creating and diffusing knowledge - it refers to the ability to create hidden knowledge and to diffuse it to other network members. The knowledge sharing is supported mostly by a relational approach to collaborative work (Whetsell, Kroll, DeHart Davis, 2020);
- rent from creating dynamic abilities – they refer to the skill of integrating, building and reconfiguring competencies, which allows adjusting to fast changes in organizational surrounding (Teece, Pisano, Shuen, 1997). The benefit derives from networks' unique features, such as: network structure's flexibility, skills for fast reconfiguration, lack of hierarchical dependencies;
- rent from convergence processes – the convergence effect within network is understood as a situation in which some network member with a weaker position on a market develops faster than other network participants with a better position, and ultimately it achieves similar market position;
- rent from lower transactional and hierarchical costs - lower transactional costs are possible because of network contracting (formal or informal), which replaces traditional contracts. As for hierarchical costs, they reflect benefits from replacing hierarchical structures by network coordination;
- network effect – it bases on the idea that the gain for all network members grows as the number of its participants increases, since each new member creates additional value for the whole network (Church, Gandal, Krause, 2008);
- rent from appropriating value created by other participants of network – appropriation can be understood in two ways: 1) taking over some value generated by other members of network; 2) keeping for an organization (not sharing) the value which was created by the unit itself (Najda-Janoszka, 2016). It may be done in both legal and illegal ways.

Another type of benefit relates to an advantage from *the whole network's* perspective (gained by network as a whole). This **relational rent** consists of the following kinds of benefit:

- resource oriented (Ricardian) –advantage from having an access to and exploiting valuable, rare resources (Ricardo, 1817) which in this case are delivered by all network members;
- monopolistic – benefit from having privileged position on a market (in a sector), which leads to limiting competition, e.g. by creating barriers for entering a market by other organizations. Network takes advantage of having better competitive position on a market and from creating rarity;
- innovative (Schumpeterian) – gain generated by innovations (Schumpeter, 2003), which ought to be perceived in a very wide meaning; they may be related to a product itself, but also development of technology, structures, processes etc.;
- entrepreneurial, managerial – it concerns generating synergy from exploitation of entrepreneurial and managerial knowledge, skills and competences of all network participants;
- organizational – synergy of different management systems which are implemented by network members;
- E. Penrose's rent – it refers to the possibility of more effective exploitation of the resources which are disposable by network participants (than if they were used individually).

3. Research methodology

In the research, the interpretative paradigm perspective was adopted, which allows understanding fully the phenomenon in some particular context (Eisenhardt, Graebner, 2007). Following this reasoning, the research was based on the methodological rigor of a qualitative research method, represented by a case study (Yin, 2014; Eisenhardt, 1991). This choice corresponds with the above-stated research objectives and what is currently known about scrutinized problems (Graebner, Martin, Roundy, 2012). Inter-organizational networks are still a relatively new phenomenon, conditioned by many variables. Their nature requires a thorough examination, including conditions of gaining benefits by organizations collaborating within network.

The case research provided data corresponding with set research questions. The results were referred to internal documents analysis. As a result, it was possible to make some theoretical generalizations concerning the autonomous teams' contribution to gaining relational rent and network rent by network participants. Within the procedure, the statistical method of clustering

was used: benefits were clustered according to two perspectives, of the individual participant of network and of the whole network.

Basing on the procedure presented by Flyvbjerg (2012), the main criteria of selecting the case were implemented:

- clarity of case – this criterion refers to two conditions: 1) researched organization is an active member of inter-organizational network; 2) organization has exploited autonomous teams to realize some tasks or projects. Hence, collected data bases on real experience, which ensures its reliability;
- access to crucial data –possibility of carrying out an interview and analysing internal documents.

The studied case was a production and trade organization located in Poland, but operating internationally. What is important, it collaborates not only with business units, but also with public organizations and NGOs. Such a diversity served as a base for a complex and consistent analysis of the researched phenomena. Although the situational context of the interpretative paradigm determined the research results in the analysed organization, at the same time it constituted a base for presenting characteristics of the whole class of researched objects.

The strategy of triangulation of gathering data methods was implemented (Yin, 2014):

- expert interview - carried out with the managing director; semi-structured forms were used, which allowed identifying autonomous teams' contribution to gaining different kinds of benefit,
- documents analysis - included operational and statistical reports. It allowed confronting the gathered data with the information provided by the interviewee.

The interview was transcribed and analysed. According to the methodological rigor, the qualitative data was: 1) reduced – material was coded according to adopted conceptual frames (*a priori* codes); 2) displayed – the codes were particularized and ordered; 3) verified – interpreted with reference to literature concepts and theories.

Correctness and trustworthiness of the research was ensured by fulfilling three evaluation criteria for qualitative research: credibility (presenting a real picture of the investigated phenomena), transferability (presenting the contextual aspect and formulating recommendations for other units which were not subject to the research) and confirmability (using triangulation of methods and a thorough description of the methodological perspective in relation to the empirical findings).

4. Results and discussion

4.1. Autonomous team's contribution

The above classification of rents constitutes a fundament for assessing how autonomous work groups contribute to gaining different types of benefit within network collaboration. Results of the analysis were presented synthetically in Table 1.

Table 1.
Autonomous teams' contribution to gaining benefits from network collaboration

Type of rent	Degree of impact*	Autonomous team's contribution
Network rent: Rent from participating in network of value	**	Supports optimal exploitation of unique value created within network, mostly by: - being flexible and agile (which enhances fast reaction to unique and permanently changing customers' needs); - being free to decide what resources they need to accomplish tasks (which contributes to further optimization of the network value chain); - being more motivated which results in higher productivity;
Rent from creating and diffusing knowledge	***	Autonomous teams create environment that strongly supports effective analysis of data and decision-making processes, mainly by: - independent, collaborative decisions (that sparks off synergy of expert knowledge, skills and competences); - being free to select projects which match team members' competences;
Rent from creating dynamic abilities	***	Supports fastening data analysis and decision-making processes thanks to: - flexibility and agility (reconfiguration competences), which enhance fast reaction to permanently changing environment; - being free to make decisions without middle management supervision; - being able to create its own, internal management system which optimizes (speeds-up) decision-making processes and exploitation of available resources;
Rent from convergence processes	**	Supports mastering competences, which leads to catching-up with other network members: - some network participants may learn how to exploit autonomous teams (from other network members); being part of such group work allows taking advantage of its main features and, as a result, increasing general efficiency of operating;
Rent from lower transactional and hierarchical costs	* (indirect impact)	Within the process of lowering hierarchical costs, autonomous teams contribute to optimizing network structures which are based on horizontal coordination, mostly by: - strengthening *trust* between organizations and individual workers (team members), since delegating responsibilities (which is a key element of building autonomy) requires relations that base on trust; such relations constitute a fundament of network collaboration;
Network effect	-	No contribution in researched organization;
Rent from appropriating value created by other participants of network	-	No contribution in researched organization;

Cont. table 1.

Relational rent: Resource oriented (Ricardian)	* (indirect impact)	Supports coordinating exploitation of resources by all network participants, since the team's autonomy allows more precise matching available resources with realized tasks;
Monopolistic	* (indirect impact)	Supports strengthening competitive position on a market and creating rarity, mainly by: - being flexible and agile; - independent, collaborative decisions (that sparks off synergy of expert knowledge, skills and competences); - being able to create its own, internal management system which optimizes decision-making processes and exploitation of available resources; - being more motivated which results in higher productivity;
Innovative (Schumpeterian)	***	Supports innovative potential of network and implementation of creative solutions, thanks to: - independent, collaborative decisions (that leads to synergy of expert knowledge, skills and competences); - being flexible and agile (which enables fast reaction to changes in environment, including taking advantage of *chances* to strengthen competitive position); - being able to create its own, internal management system which optimizes decision-making processes and exploitation of available resources; - being free to select projects which match team members' competences;
Entrepreneurial, managerial	***	Supports synergy of managerial knowledge, skills and competences provided by all team members, thanks to: - independent, collaborative decisions; - being able to create its own, internal management system which optimizes decision-making processes and exploitation of available resources;
Organizational	**	Supports effective combining and taking advantage of different management systems exploited by network participants, mostly thanks to: - being able to create its own, internal management system which optimizes decision-making processes and exploitation of available resources;
E. Penrose's rent	***	Supports more effective exploitation of the resources disposable by network participants (inner synergy effect) thanks to: - autonomy in deciding what resources (materials, tools etc.) the team will need to accomplish tasks or projects, and how to use them; - being free to make decisions without middle management supervision (collaborative decisions that concern gathering data, evaluating options and choosing a course of action); - being able to create its own, internal management system which further optimizes decision-making processes; - flexibility and agility (reconfiguration competences);

*Degree of impact: (-) no impact; (*) weak; (**) moderate; (***) strong. The interviewee classified the degree of impact basing on his assessment of how much autonomous teams' work is reflected in organizational advantages in question. Since the scope and character of all rents vary considerably, the assessment included both direct and indirect contribution.

Source: Own study.

5. Conclusions

Basing on the research results, it was possible to identify conditions and benefits of autonomous teams within network collaboration. The general conclusion is that the specificity of such teams corresponds well with the nature of network. Consequently, the teams have a noticeable contribution to gaining benefits from this type of collaboration. In most cases the impact is strong or moderate, and it refers to both types of rent (from the perspective of an individual participant and of the whole network). Detailed analysis of the research results led to the following remarks and conclusions:

1. The features and general idea of autonomous teams correspond especially well with the rent from creating and diffusing knowledge. This benefit constitutes the key reason for building such teams; autonomy most of all is supposed to lead to more effective exploitation of team members' knowledge by creating synergy effect. Thus, autonomous work groups constitute a substantial support for the rent in question.
2. Although autonomous teams strongly support building network's dynamic abilities, it ought to be underlined that network itself constitutes a structure which is highly dynamic, so autonomous teams should not be perceived as a key factor which conditions such abilities. In this case the teams do not *create* these abilities (which are immanent for networks), but *enhance* them.
3. Lack of contribution in case of network effect results from the character of analysed network, in which the value creating process is not conditioned by the number of network participants. However, autonomous teams' contribution to this type of rent theoretically is possible, but still rather indirectly, since the specificity of network rent does not correspond strictly with the idea and benefits of autonomous group work. In this case it can only be assumed that as the number of network participants increases, it will be easier to select team members with appropriate competences, which will result in higher efficiency of the team as a whole.

   Similarly, contribution to the rent from appropriating value could be only indirect; team's autonomy makes it possible to act without supervision in the field of setting objectives and using resources in order to initiate intercepting-value processes at the team level.
4. Concerning relational rent, it is especially interesting to compare the result for Ricardian and E. Penrose's rent – surprisingly, although the idea of these two benefits is quite similar and they are connected with each other, the degree of impact is very different. E. Penrose assumes that the real benefit stems from not a mere access to rare resources (controlled by network participants), but their more effective exploitation (synergy effect). That makes a substantial difference regarding the autonomous teams contribution to these two rents. In case of Ricardian rent, it is only indirect, since the

very fact of having an access to resources does not correspond with the key features and advantages of autonomous teams. It is the team's competence to exploit resources more effectively that constitutes its real value, and this is exactly what E. Penrose postulates.

As for the theoretical contribution of the study, it expands our understanding of potential benefits from autonomous work groups in the context of inter-organizational networks collaboration. A concise theoretical construct which explains scale and form of the contribution was presented, referring it to the specificity of two types of rent from network collaboration. From the practical perspective, the study may serve as a guideline for managers; it suggests how to optimize taking advantage of autonomous teams and, consequently, increase efficiency of network.

Concerning the limitations of the study, although implemented research methods allowed achieving research objectives, natural character of case studies requires cautiousness in generalizing results. The context-specific nature of the case has an impact on exact replication of the study. Also, it can be influenced by the researcher's personal interpretations, and the interviewees may not be able or willing to reveal their opinions in an objective way.

However, case studies are highly valued for providing in-depth and holistic insights into complex, real-life phenomena. The study was intended to deepen our understanding of the phenomenon which was not fully identified and explored yet. It should be treated as a starting point for further scientific explorations (Yin, 2014); The research area could be expanded into the conditions and efficiency factors of the process of identifying key competences of the teams. Such further studies would expand our knowledge about the role of work groups in optimizing efficiency of networks.

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References

1. Anitha, J. (2014). Determinants of employee engagement and their impact on employee performance. *International Journal of Productivity and Performance Management, Vol. 63, No. 3*, 308-323, https://doi.org/10.1108/IJPPM-01-2013-0008
2. Barbier, L.T., Robertson K. (2022). Enhancing Public Service Delivery in a VUCA Environment in South Africa: A Literature Review. *Rudn Journal of Public Administration, 9*(4), pp. 418-437.
3. Bugan, O.D., Ionescu, S. (2024). Establishing Collaborative Research Networks: A Literature Review. *Journal of Information Systems & Operations Management, vol. 18*(1), pp. 66-81.
4. Church, J., Gandal, N., Krause, D. (2008). Indirect network effects and adoption externalities. *Review of Network Economics, Vol. 7, No. 3*, pp. 337-358. https://doi.org/10.2139/ssrn.369120
5. Coronado-Maldonado, I., Benítez-Márquez, M.D. (2023). Emotional intelligence, leadership, and work teams: A hybrid literature review. *Heliyon*, *9*(10), e20356. https://doi.org/10.1016/j.heliyon.2023.e20356
6. Dackert, I. (2016). Creativity in teams: the impact of team members' affective well-being and diversity. *Open Journal of Social Sciences, Vol. 4, No. 9*, pp. 19-28. https://doi.org/10.4236/jss.2016.49003
7. Edelenbos, J., Klijn, E.H. (2007). Trust in complex decision-making networks: a theoretical and empirical exploration. *Administration and Society*, *39*(1), pp. 25-50. https://doi.org/10.1177/0095399706294460
8. Eisenhardt, K.M. (1991). Better stories and better constructs: The case for rigor and comparative logic. *Academy of Management Review*, *16*(3), pp. 620-627. https://doi.org/10.2307/258921
9. Eisenhardt, K.M., Graebner, M.E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, *50*(1), pp. 25-32. https://doi.org/10.5465/amj.2007.24160888
10. Eisenhardt, K.M., Martin, J.A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal, Vol. 21*, pp. 1105–1121.
11. Flyvbjerg, B. (2012). Five misunderstandings about case study research. In: M. Savin-Baden, C. Howell Major (Eds.), *Qualitative research: The essential guide to theory and practice*. London: Routledge.
12. Gebo, E., Bond, B.J. (2019). Improving inter-organizational collaborations: An application in a violence reduction context. *The Social Science Journal*, 2019, pp. 1-9. https://doi.org/10.1016/j.soscij.2019.09.008

13. Graebner, M.E., Martin, J.A., Roundy, P.T. (2012). Qualitative data: Cooking without a recipe. *Strategic Organization*, *10*(3), pp. 276-284.
14. He, F., Ma, Y., Zhang, X. (2020). How does economic policy uncertainty affect corporate Innovation? Evidence from China listed companies. *International Review of Economics & Finance*, *67*, pp. 225-239.
15. Kaur, S., Kaur, G. (2022). Human resource practices, employee competencies and firm performance: a 2-1-2 multilevel mediational analysis. *Personnel Review, Vol. 51, No. 3*, pp. 1100-1119.
16. Kim, J.Y., Howard, M., Pahnke, E.C., Boeker, W. (2016). Understanding network formation in strategy research: exponential random graph models. *Strategic Management Journal*, *37*(1), pp. 22-44.
17. Li, K., Li, K. (2025). The impact of collaboration networks constructed through common project experience on research output. *Humanities and Social Sciences Communications 12/1882*. https://doi.org/10.1057/s41599-025-04996-5
18. Liu, J., Guo, X., Xu, S., Zhang, Y. (2023). Quantifying the impact of strong ties in international scientific research collaboration. *PloS one*, *18*(1), e0280521
19. Magpili, N.C., Pazos, P. (2018). Self-managing team performance: a systematic review of multilevel input factors. *Small Group Research, Vol. 49, No. 1*, pp. 3-33. https://doi.org/10.1177/1046496417710500
20. Najda-Janoszka, M. (2016). *Dynamic capability-based approach to value appropriation.* Cracow: Jagiellonian University Press.
21. Patanakul, P., Chen, J., Lynn, G.S. (2012). Autonomous teams and new product development. *Journal of Product Innovation Management, Vol. 29, No. 5*, pp. 734-750.
22. Pedersen, S., Clausen, Ch., Jørgensen, M.S. (2022). Navigating value networks to co-create sustainable business models: An actionable staging approach. *Business Strategy and the Environment*, 2023/32, pp. 240-258. https://doi.org/10.1002/bse.3127
23. Pereira Morais, C., Ferreira, J., Jayantilal, S. (2024). A systematic literature review on the network perspective and resource interaction: where are we now and where should we go? *Journal of Organizational Change Management, Vol. 37, Iss. 7*, pp. 1559-1593. https://doi.org/10.1108/JOCM-05-2024-0254
24. Peterman, A., Kourula, A., Levitt, R. (2020). Organizational roles in a sustainability alliance network. *Business Strategy and the Environment*, *29*(8), pp. 3314-3330. https://doi.org/10.1002/bse.2574
25. Powell, A.W., Pazos, P. (2017). Building high-performing autonomous teams in complex manufacturing settings: a naturalistic research approach. *Engineering Management Journal, Vol. 29, No. 3*, pp. 206-219. https://doi.org/10.1080/10429247.2017.1324244
26. Renteria, C. (2025). Organizational adaptation to dynamic environments: Insights from literature on the organization-environment relationship. *Administrative Theory & Praxis*, *47*(2), pp. 141-160. https://doi.org/10.1080/10841806.2024.2436704

27. Ricardo, D. (1817). *On the principles of political economy and taxation*. London: John Murray.
28. Ryan, R.M., Deci, E.L. (2017). Work and organizations: Promoting wellness and productivity. In: E.L. Deci, R.M. Ryan (Eds.), *Self-determination theory: basic psychological needs in motivation, development and wellness*. New York: The Guilford Press.
29. Sakai, K., Kang, N.H. (2000). *International strategic alliances: Their role in industrial globalization.* OECD Science, Technology and Industry Working Papers 2000/5, OECD Publishing.
30. Schumpeter, J. (2003). *Capitalism, socialism and democracy*. New York and London: Routledge.
31. Sharkey, T.C., Nurre Pinkley, S.G., Eisenberg, D.A., Alderson, D.L. (2021). In search of network resilience: An optimization-based view. *Networks*, 2, pp. 225-254. https://doi.org/10.1002/net.21996
32. Stray, V., Moe, N., Hoda, R. (2018). *Autonomous agile teams: challenges and future directions for research*. Retrieved from: https://arxiv.org/abs/1810.02765, 12.10.2025.
33. Teece, D.J., Pisano, G., Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, Vol. 18, No. 7*, pp. 509-533.
34. Van der Voet, J., Steijn, B. (2021). Team innovation through collaboration: how visionary leadership spurs innovation via team cohesion. *Public Management Review, Vol. 23, No. 9*, pp. 1275-1294.
35. Van Zijl, A.L. (2022). The use of autonomous teams for individual vitality and team innovation: a 2-1-2 multilevel mediation model in the public context. *Public Performance & Management Review, Vol. 45, No. 6*, pp. 1287-1307. https://doi.org/10.1080/15309576.2022.2115088
36. Whetsell, T.A., Kroll, A., DeHart Davis, L. (2020). *Formal hierarchies and informal networks: how organizational structure shapes information search in local government*. Retrieved from: https://arxiv.org/abs/2006.08019, 16.07.2025
37. Yin, R.K. (2014). *Case study research: design and methods*. Thousand Oaks: Sage Publications.

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INTERNAL ORGANISATIONAL FACTORS INFLUENCING CREATIVITY AS A DETERMINANT OF EFFECTIVE EMPOWERMENT

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Purpose: Identifying the levels of empowerment used in practice and the associated factors influencing creative attitudes.
Methodology: The primary research method is a questionnaire survey. The research is of a pilot nature and is being conducted on a small sample.
Findings: The organisational units of the companies surveyed offer a conducive environment for creativity, though this potential is not being fully utilised when it comes to delegating decisions and responsibility. In terms of empowerment, the prevailing approach is one where the manager makes the decision, either after consulting others (25%) or without consulting them (24%).
Research limitations: One limitation is the small sample size and the significant proportion of young people aged 25 or under. Future research into empowerment and creativity should also take into account the size of the enterprise and the source of its capital.
Practical implications: Research reveals that, from the perspective of internal conditions for creativity, companies are ready to adopt mature forms of empowerment, although this is not generally practised.
Originality/value: The originality of this study lies in its attempt to explore the relationship between empowerment and the factors associated with this phenomenon in the field of creativity.
Keywords: creativity, empowerment, development, autonomy, leadership.
Category of the paper: Research paper.

1. Introduction

Effective empowerment involves delegating responsibility and decision-making authority to employees in line with the scope of their duties. This process involves a psychological burden and requires up-to-date skills; therefore, effective empowerment should provide both psychological and skills-based support. Employees' willingness to take on responsibility is

directly dependent on the existence of such support. Empowerment is therefore not limited solely to managers delegating responsibility, but also encompasses systemic organisational solutions (e.g. training, kaizen) and employees' readiness to make decisions. Consequently, effective empowerment is based on a triad: manager – systemic support – employee.

From a management perspective, empowerment should mean creating conditions in which employees feel encouraged to engage in the decision-making process and to carry out tasks independently, from the initial idea through to the evaluation of its implementation. Such an approach will influence their perception of their impact on the work they perform, which in turn will translate into their self-esteem, competence development, creativity and motivation (Łuszczyńska, 2018, p. 31). H. Czubasiewicz and R. Ronowicz point out (2022, p. 164) the validity of seeking links between the development of internal organisational solutions and the development of incentive systems and the building of a sense of security among employees, as this promotes the implementation of the concept of empowerment. In this context, it becomes important to provide systematic support to employees. This may manifest itself in a preference for teamwork and a focus on encouraging development and independence, as changes in corporate structures increasingly require members of the organisation to perform their roles in a more independent, creative and innovative manner. In particular, the transition to project-based or process-based structures demands that employees demonstrate independence and creativity in problem-solving. It is suggested that these qualities stem from their intellectual potential as well as their attitudes and behaviours, whilst being dependent on the employee's motivation, commitment and job satisfaction. Furthermore, the introduction of empowerment within an organisation also requires the use of participatory management techniques, based on access to knowledge and effective communication. F. Yilmaz (2019, p. 968) also highlights the link between empowerment and providing employees with organisational support and building trust.

In this study, we focus on the importance of creativity, considering it as a key determinant of empowerment. B. Jamka (2018, p. 85) writes that the role of creativity in shaping the economy of the future is highlighted in contemporary academic and public discourse through terms such as the knowledge-based economy, the conceptual era, the economy of creativity, and the creative economy. We agree with P. Graciano and colleagues (2023, p. 2) that creativity is a multidimensional construct that integrates cognitive abilities, environmental influences and motivational factors to generate new and useful solutions. T. Amabile and M. Pratt (2016, p. 160) point out that it is shaped by social and organisational contexts, in which leadership and culture play a fundamental role in either fostering or inhibiting creative potential.

If this is the case, the organisation should provide creative employees with an environment that supports their activities and the implementation of new ideas. Combining employees' skills with an organisational culture that fosters creativity is the foundation for achieving synergy in relation to the intended work outcomes (Baranowska, Waszkiewicz, 2022, p. 27).

2. Empowerment

Empowerment is a concept whose principles boil down to providing employees with the opportunity to participate in decision-making processes, delegating authority and responsibility for their work, but also ensuring they have the opportunity to acquire and develop knowledge, abilities and skills. It can therefore be said that it represents a development of earlier theoretical trends in management studies, such as participatory management or job enrichment (Pytel-Kopczyńska, 2019, p. 513).

The literature discusses two dimensions of empowerment. The first treats it as an employee's motivational state, the second as a management style. In the first case, it concerns the employee's beliefs regarding their own position, influence, competencies, the meaning of their work and autonomy, which, as emphasised, strengthens their sense of professional efficacy. The second refers to managerial practices that involve sharing power, resources and information with employees, and involving them in decision-making (Fernandez, Moldogaziev, 2013, p. 496).

G. Spreitzer (2008, p. 18) argues that empowerment boosts work productivity because it enables employees to move beyond rigidly defined roles and responsibilities, undertaking more innovative activities. Stankevičienė and co-authors (2019, p. 375) also highlight its positive aspects, noting that it provides employees with autonomy, which helps to reveal their talents, enables the effective use of their skills, stimulates the acquisition of new knowledge and skills, and fosters initiative and creativity. H. Ganjinia and colleagues (2013, p. 2431) suggest that employees who work in an environment where they have greater freedom of action are more inclined to accept organisational changes, engage in continuous improvement, achieve and exceed organisational goals, and make independent decisions.

Much research into employees' innovative behaviour is conducted from the perspective of their personality traits and predispositions; however, A. Zuraik and colleagues (2020, p. 1480) highlighted the influence and significance of external situational factors. They note that leadership plays a significant role in corporate innovation. Leadership style and management practices can directly or indirectly influence employees, encouraging them to demonstrate creative and innovative behaviour. Through empowerment, managers can make employees feel supported and valued by the company, which will translate into innovative behaviour. It is therefore crucial to examine how to improve employees' innovative behaviour from a leadership perspective.

3. Creativity and its determinants

Creativity is defined in various ways, and it is not easy to provide a clear and unambiguous definition of the concept. It is associated with the ability to create something new and sought-after; it is equated with solving problems in a creative, yet competent and original manner; it is the ability to propose ideas that are not only innovative but also useful (Sołoducho-Pelc, 2018, p. 27).

Creativity and innovation are determined, on the one hand, by employees' personal traits, and on the other, can be shaped by appropriate organisational measures. The personal traits that foster innovative and creative behaviour are, above all: curiosity, imagination, a high level of intellectual ability, courage, a willingness to challenge the status quo, and a high degree of self-motivation. However, without developing appropriate management methods, such as collaboration, communication and development, achieving the set goals may prove difficult. Measures taken for the benefit of employees, organisational conditions and the working environment often shape their potential for creative and innovative activities. Within these factors, empowerment and the improvement of organisational solutions consistent with the idea of empowerment are of significant importance (Grajewski, Czubasiewicz, 2018, p. 154).

The growing demand for innovation, driven by organisations' desire to stand out in the market, necessitates the constant generation of new ideas. New or improved products or services are created thanks to the creativity of employees. Consequently, creativity is very often seen as a trait that significantly enhances a candidate's value and is crucial in the recruitment process (Samuel-Idzikowska, 2017, p. 46). This stems from the fact that creativity is an essential element of the innovation process, yet it does not in itself guarantee the emergence of innovation. Only a pro-innovation attitude – that is, a readiness to implement ideas – allows creative ideas to be transformed into concrete solutions. Therefore, traditional management, based on performance monitoring and data analysis, is insufficient. An approach that supports innovation and the creative engagement of employees becomes essential. Creativity should be an integral part of the management process, as it is precisely this that enables organisations to develop productively (Brzozowska et al., 2025, p. 52).

The effective harnessing of employees' creativity, the development of creative thinking skills among managers, and the implementation of methods that encourage the generation of innovative ideas can lead to the establishment of an integrated system of creative and innovative processes. Such a system will enable the continuous integration of scientific progress with production practice and market realities, which in turn will intensify the organisation's innovative development and allow for the effective resolution of complex management problems (Hrabovska, 2025, p. 110). In the text, the Harvard referencing style should be used (Smith, 2017) or (Smith, Bradley, 2017). In the case of more than three authors, write the surname of the first author and add the abbreviation "et al." (Bradley et al., 2017).

4. Methodology

The study involved 84 respondents enrolled on part-time courses at the University of Economics in Wrocław. Consequently, the sample included a high proportion of young people aged under 25 (71%) and those aged between 25 and 40 (27%). The study can therefore be considered to be of a survey nature. A questionnaire method was used to conduct the research. The research was carried out using the Forms application.

In our study, we used J. Appelo's scale to measure the level of empowerment. Respondents rated the following statements (2016, p. 136):

- The manager makes decisions and announces them to staff (according to J. Apello, this is not empowerment) – Level 1: „Tell".
- The manager makes decisions but tries to persuade staff to accept them by 'selling' them the idea – Level 2: „Sell".
- Before making a decision, the manager asks for their employees' opinions, considers them whilst making it clear that they are the one who makes the final decision – Level 3: „Consult".
- The manager invites employees to a joint discussion and encourages them to reach a consensus. Every voice counts equally – Level 4: „Agree".
- The manager tries to influence employees by sharing their opinion, but the final decisions are made by the employees – Level 5: „Advise".
- The manager allows employees to decide first, suggesting that it would be a nice, though not necessarily essential, gesture to inform him – level 6: „Inquire".
- The manager allows the team to take charge of the 'whole matter', whilst he is free to, for example, manage the system as a whole (strategic actions) – level 7: „Delegate".

Respondents also provided assessments relating to creativity, which, as noted above, we regard as an important determinant of empowerment. To this end, we formulated the following questions (statements):

- Does the manager encourage staff to suggest new ideas and improvements? (Question1).
- Does the manager favour new solutions over 'the usual approach'? (Question2).
- Are staff's new ideas not only listened to, but also actually put into practice? (Question3).
- Are mistakes made when implementing new ideas treated as an opportunity to learn, rather than as grounds for punishment? (Question 4).
- Are there opportunities within the team to jointly create and develop ideas? (Question 5).
- Does the manager recognise and reward innovative ideas or improvements? (Question6).

- Is there an atmosphere of trust and openness within the team, encouraging the free expression of even bold ideas? (Question 7).
- Are there specific measures in place within the organisation to support creativity? (Question 8).

5. Results

The research yielded the results discussed below. Table 1 presents the responses to the question concerning leadership behaviour according to Appelo. As can be seen, the majority of responses—around 50%—relate to decisions made by the leader, whether or not these were preceded by consultation.

Table 1
Survey results on leadership behaviour according to Appelo

Line labels	**Your leader's behaviour**	
Level 1: „Speak”	20	24%
Level 2: „Sell”	4	5%
Level 6: „Inquire”	5	6%
Level 7: „Delegate”	5	6%
Level 5: „Advise”	1	1%
Level 3: „Consult”	21	25%
Level 4: „Negotiate”	17	20%
Various	11	13%
Final total	84	100%

Source: Own work.

Figure 1 shows a visual representation of the research results presented in Table 1.

Table 2 summarises the responses regarding the internal determinants of creativity.

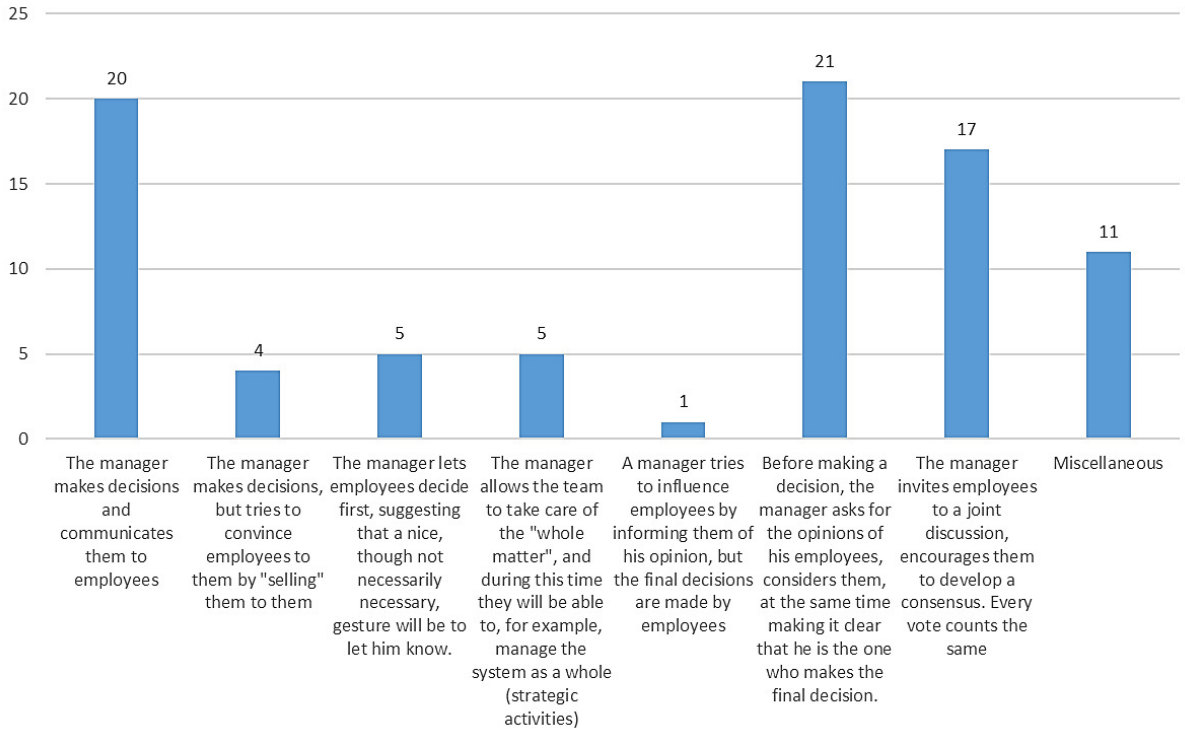

Figure 1. Results of the survey on the behavior of a leader according to Appelo.

Source: Own work.

Table 2.

Answers regarding the factors influencing creativity.

	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8
NO	16	26	31	23	27	36	20	53
	19%	31%	37%	27%	32%	43%	24%	63%
YES	68	58	53	61	57	48	64	31
	81%	69%	63%	73%	68%	57%	76%	37%

Source: Own work.

As many as 81% of respondents indicate that managers encourage new approaches. However, only in 31 (37%) cases are there systemic measures in place to promote creativity, such as time for experimentation, ideation spaces, hackathons and innovation labs.

An important finding is that 76% of respondents state that their organisational unit has an atmosphere of openness and trust.

It can be said that the units provide suitable conditions for creativity, though this is not fully utilised when it comes to delegating responsibility. In terms of empowerment, the prevailing approach is one where the manager makes the decision, which they may or may not consult on. In some cases (20%), decisions are made by consensus, where every voice counts equally. In this instance, we can already speak of a significant step towards delegating responsibility and decision-making. Figure 2 is a graphical representation of the information contained in Table 2.

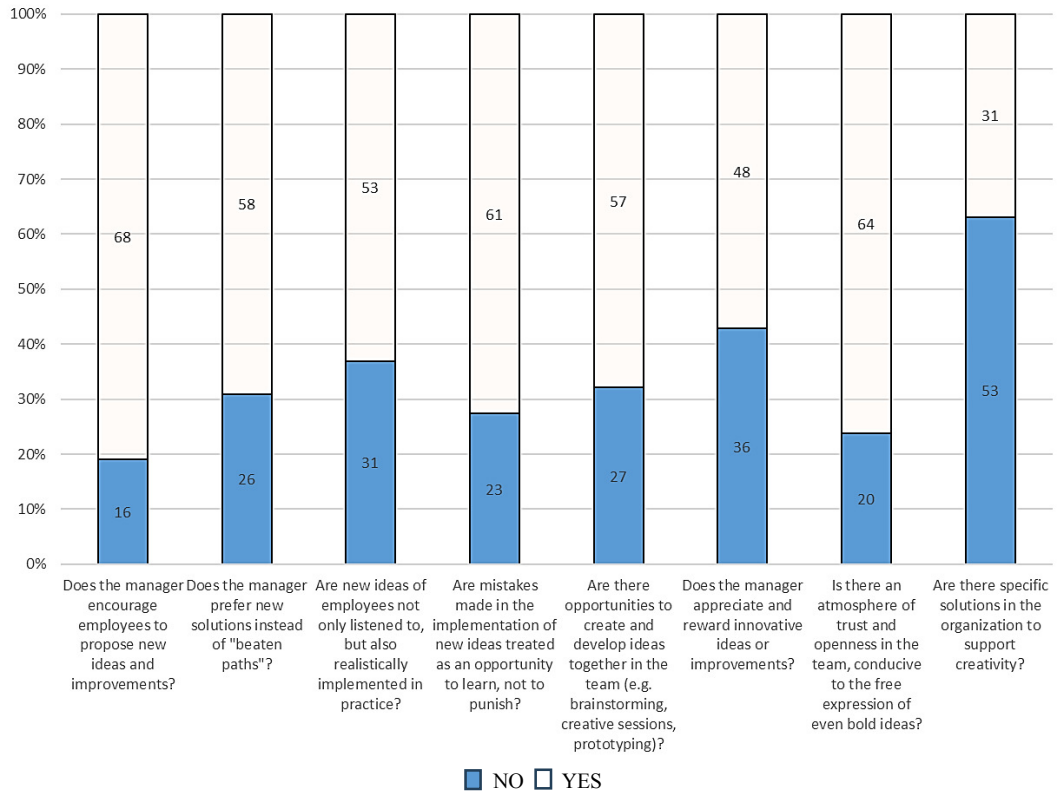

Figure 2. Answers about the determinants of creativity.

Source: Own work.

6. Discussion

In our research, we have identified that:

- Before making a decision, the manager seeks the views of their staff (25%).
- The manager invites staff to join in a discussion and encourages them to reach a consensus (20%).
- The manager makes decisions and informs staff of them (24%).

As can be seen, therefore, these findings do not allow for an unequivocally positive or negative assessment of empowerment practices.

H. Czubasiewicz and R. Ronowicz (2022, pp. 167, 172) also investigated, amongst other things, the level of empowerment among employees. Their research indicates that 86% of the employees surveyed report positive, highly favourable indicator values, which confirm their sense of influence, commitment and agency regarding day-to-day matters related to company management. The authors point to a high level of empowerment maturity at the stable/adaptive level (level 2+/level 3-) on a four-point scale. They therefore assume that the surveyed employees are ready for change and for advancing to increasingly higher levels of process

maturity within the organisation. The areas of empowerment rated most positively were: the scope of innovation and creativity, the development of competencies, and the contribution to the final outcome of the project.

When analysing question 1, 'Does the manager encourage employees to propose new ideas and improvements?', and question 3, 'Are employees' new ideas not only listened to but also actually put into practice?', it should be noted that the research findings presented in the literature are not conclusive. In the study by M. Pawłowski and colleagues (2017, p. 158), we read that 79% of respondents stated that they had an influence on the performance of their professional duties, whilst 11% of respondents gave a negative answer. The researchers indicate that employees who experience autonomy in the decision-making process and opportunities for professional development perform their duties more effectively, both individually and as part of a team. In the same study, 76% of respondents stated that they were ready to participate in the decision-making process, which, as the researchers indicate, means that these employees will show initiative in making strategic and tactical decisions. Furthermore, in the research by M. Rabhi and colleagues (2024, p. 153) indicates that the team leader expresses confidence in the team's ability to achieve its goals (the highest among the means, with an arithmetic mean of 3.1944 and a standard deviation of 1.19434). The researchers explain this by the fact that the manager effectively influences team members, strengthening their position and encouraging them to take the initiative, rather than limiting their contribution to decision-making.

Meanwhile, a study by D. Socha and N. Ćwikowski (2024, p. 38) reveals that over 60% of respondents feel they have no influence over decisions affecting their work. In light of these findings, the researchers propose increasing employee participation in the decision-making process, as this may have a positive impact on employee engagement.

The next question assessed was: 'Does the manager prefer new approaches rather than "well-trodden paths"?' (question 2). In this context, B. Jamka (2018, p. 89) highlights time as a significant factor. Time pressure and stress promote the release of adrenaline, which triggers rapid thinking based on established patterns of behaviour. Conversely, a safe, calm environment promotes the release of oxytocin, which activates the areas of the brain responsible for cooperation. The working environment therefore influences employees' ways of thinking and behaving. Companies focused on intense competition do not foster creativity, as it requires slow and reflective thinking. In contrast, working in diverse teams encourages the integration of different knowledge resources and ways of thinking, increasing the likelihood of synergy in terms of creativity and innovation. K. Kozioł-Nadolna (2020, p. 9) examined the role of leadership in fostering innovation within an organisation. She points out that leaders rated statements highest regarding, amongst other things, openness to new ideas and ways of working, encouraging employees to collaborate within a group and build cross-departmental networks, promoting innovative behaviour amongst employees, and encouraging them to express their own ideas. The study also revealed that those employed by leaders are perceived as individuals who can make a significant contribution to the company's development.

According to the author, the results show that leaders highly value their role in stimulating innovative activity. They are open to new ideas, encourage employees to express them, and promote innovative behaviour among staff. Equally important is the recognition of teamwork and group collaboration as factors that stimulate innovation.

The next question assessed was question 4: 'Are mistakes made when implementing new ideas treated as an opportunity to learn, rather than as grounds for punishment?'. Here, too, high scores were recorded. This is entirely consistent with the research of many authors in the field of innovation. They point to the necessity of experimentation and a readiness to accept failure, from which new knowledge is derived (Gaynor, 2002, p. 25).

Question 5 asked: "Are there opportunities within the team to jointly generate and develop ideas?" Here too, we recorded high levels of agreement among respondents. Similarly, M. Rabhi and colleagues (2024, p. 154) present high scores from respondents regarding the statement "we work in an atmosphere that fosters cooperation among team members" in their research. This variable achieved the highest value among the averages, with an arithmetic mean of 3.0972 and a standard deviation of 1.17677. The researchers explain this by the fact that the environment in which the team operates is supportive in nature, which consequently increases the group's effectiveness, enables the exchange of experiences and opinions, and their integration to create creative solutions and options that contribute to improving decision-making processes.

Question 6 asked: "Does the manager value and reward innovative ideas or improvements?". In their study, M. Rabhi and co-authors (2024, p. 154) point out, somewhat alarmingly, that there were relatively lower scores for the statement "The organisation values our team's achievements". An analysis of the results points to significant implications for management and research, highlighting the need to develop effective mechanisms to stimulate innovation within organisations. Leadership plays a key role in the development of innovative behaviour, which it can effectively reinforce through appropriate actions and roles. Incentive mechanisms such as promotion, pay rises or the opportunity to manage innovative projects foster innovation. It is also important to foster attitudes that encourage initiative and responsibility, not only among formal leaders but also among employees. The role of a leader should primarily be to support the development and self-fulfilment of employees, which is of particular importance in the context of digital transformation requiring technological competencies (Kozioł-Nadolna, 2020, p. 15).

We also recorded high scores for question 7, which asked: "Is there an atmosphere of trust and openness within the team that encourages the free expression of even bold ideas?" J. Dzieńdziora and M. Smolarek (2016, p. 66) conducted research into factors that may have a demotivating effect on employees. Alongside factors such as remuneration inadequate for the work performed, job insecurity, rivalry with colleagues, conflicts, stress, and a lack of opportunities for professional development and promotion, they noted a lack of trust and the

exertion of pressure and coercion by superiors, as well as a lack of a say in matters concerning the organisation.

M. Dankiewicz (2016, p. 250) presents research suggesting that Poland is characterised by a culture of mistrust. One of the main problems facing Polish organisations is a lack of internal trust. The research points to a prevailing climate of mistrust: over 30% of managers do not trust their subordinates, and as many as 50% of employees declare a lack of trust in their colleagues. Only about half of those surveyed recognise efforts to build a culture of trust, whilst in many organisations such efforts are not undertaken at all. At the same time, respondents note a link between the climate of trust and team effectiveness as well as job satisfaction.

The final question analysed was: 'Are there specific measures in place within the organisation to support creativity?'. In this context, E. Uzoamaka and colleagues (2015, p. 139) indicate in their research that empowering employees should involve a shift in managerial roles from supervisory to coaching roles. This means that employees should be provided with appropriate information and decision-making authority, and the delegation of tasks itself should be based on clear communication and the setting of realistic goals. It is also important to ensure a proper match of competencies, staff training and a system for motivating employees. It was emphasised that empowerment fosters independent thinking; however, in the absence of appropriate training, it can lead to decision-making chaos and actions inconsistent with the organisation's policy, especially when managers perceive employees' competencies as insufficient.

7. Conclusion

Employees at various levels of management should demonstrate the ability to analyse problems in depth and move beyond formulaic and simplistic solutions. This requires creative thinking, innovative solutions and a willingness to take risks. At the same time, they are expected to demonstrate professionalism in carrying out their tasks, whilst expanding their competencies and scope of decision-making, a process known as empowerment. Its implementation entails changes in organisational authority, access to information and knowledge, and incentive systems, as well as a reduction in supervision by superiors and an increase in employee autonomy and engagement (Brajer-Marczak, 2013, p. 29).

The research indicates that, in most cases, managers of organisational units foster creativity; however, this does not translate into mature empowerment. Managers make decisions independently, often following consultations.

A limitation of the study is the small sample size (84 people) and the significant proportion of young people in the sample – those aged 25 or under (71%). Further research should focus on the remaining internal determinants of empowerment. It is also necessary to examine the issue of mpowerment in the context of enterprise classes and the origin of capital.

References

1. Amabile, T.M., Pratt, M.G. (2016). The dynamic componential model of creativity and innovation in organizations: Making progress, making meaning. *Research in Organizational Behavior, 36*, 157-183. https://doi.org/10.1016/j.riob.2016.10.001
2. Appelo, J. (2016). *Zarzadzanie 3.0 Kierowanie zespołami z wykorzystaniem metodyk Agile.* Gliwice: Helion.
3. Baranowska, K., Waszkiewicz, M. (2022). Kreatywność jako kompetencja kierownika projektu. *Przegląd Organizacji, 12*(995), 26-33, https://doi.org/ 10.33141/po.2022.12.03
4. Brajer-Marczak, R. (2013). Empowerment pracowników w przedsiębiorstwie zorientowanym w zarządzaniu na procesy. *Zeszyty Naukowe Wyższej Szkoły Bankowej We Wrocławiu, 4*(36), 23-35.
5. Brzozowska, K., Niewińska, J., Szydło, J. (2025). Kreatywność w praktyce zarządzania: narzędzia, przeszkody i warunki skutecznej implementacji, *Academy of Management, 9*, 51-68. https://doi.org/10.24427/az-2025-0048
6. Czubasiewicz, H., Ronowicz, R. (2022). The assessment of the empowerment level of managerial and specjalist staff - case study. *Journal of Modern Science, 48*(1), 161-182. https://doi.org/10.13166/jms/150871
7. Dankiewicz, M. (2016). Empowerment w organizacji czyli siła w pracownikach. In: A. Hennel-Brzozowska (ed.), *Empowerment czyli dawanie siły w praktyce psychologicznej* (pp. 237-256). Kraków: Scriptum, http://rszarf.ips
8. Dzieńdziora, J., Smolarek, M. (2016). Analiza systemu motywacji w ocenie pracowników badanego przedsiębiorstwa. Studium przypadku. *Zeszyty Naukowe Wyższej Szkoły Humanitas Zarządzanie, 17*(3), 57-70. https://doi.org/10.5604/18998658.1228259
9. Fernandez, S., Moldogaziev, T. (2013). Employee Empowerment, Employee Attitudes, and Performance: Testing a Causal Model. *Public Administration Review, 73*(3), 490-506. https://doi.org/10.1111/puar.12049
10. Ganjinia, H., Gilaninia, S., Poorali, R., Sharami, M. (2013). Overview of Employees Empowerment in Organizations. *Arabian Journal of Business and Management Review, 3*(2), 38-43.
11. Gaynor, G.H. (2002). *Innovation by Design. What It Takes to Keep Your Company on the Cutting Edge.* AMACOM.

12. Graciano, P., Lermen, F.H., Reichert, F.M., Padula, A.D. (2023). The impact of risk-taking and creativity stimuli in education towards innovation: A systematic review and research agenda. *Thinking Skills and Creativity, 47*, 1-17. https://doi.org/10.1016/j.tsc.2022.101220
13. Grajewski, P., Czubasiewicz, H. (2018). Koncepcja empowermentu w zarządzaniu organizacjami. *Studia i Prace Kolegium Zarządzania i Finansów, 162*, 153-174.
14. Hrabovska, I. (2025). Innowacje organizacyjno-zarządcze jako konieczny warunek efektywnego zarządzania biznesem w oparciu o kreatywność. In: P. Jarosh, L. Cherchyk, W. Włoch (eds.), *Managerial practices and challenges in various* (pp. 98-110). Higher School of Social and Economic.
15. Jamka, B. (2018). Tryby myślenia a aktywacja kreatywności i innowacyjności zasobów ludzkich. *Marketing i Zarządzanie, 1*(51), 83-91. https://doi.org/10.18276/miz.2018.51-08
16. Kozioł-Nadolna, K. (2020). The Role of a Leader in Stimulating Innovation in an Organization. *Administrative Sciences, 10*(3), 1-18. https://doi.org/10.3390/admsci10030059
17. Łuszczyńska, M. (2018). Empowerment jako innowacyjne narzędzie zarządzania w instytucjach publicznych. *Studia i Prace Kolegium Zarządzania i Finansów, 168*, 27-41.
18. Pawłowski, M., Kułakowska, A., Piątkowski, Z., Sajecka, R., Piątkowski, A. (2017). Uwarunkowania stosowania empowermentu w pracy zawodowej pracowników i kadry kierowniczej w organizacji - część II. *PTPP*, *1*, 156-163.
19. Pytel- Kopczyńska, M. (2019). Idea of the best workplace in the context of improving team performance. *Silesian University of Technology Papers*. *Organization and Management Series, 136*, 511-521. https://doi.org/10.29119/1641-3466.2019.136.39
20. Rabhi, M., Harizi, R.A., Djoual, M.S., Thamri, A. (2024). Empowering Work Teams as a Mechanism to Increase the Speed of Administrative Decision-Making. *Management Dynamics in the Knowledge Economy, 12*(2), 145-165. https://doi.org/10.2478/mdke-2024-0010
21. Samuel-Idzikowska, O. (2017). Kreatywność jako kompetencja zawodowa. In: J. Bieńkowska (ed.), *Kreatywność w praktyce biznesowej* (pp. 45-59). Wydawnictwo Uniwersytetu Łódzkiego. https://doi.org/10.18778/8088-614-8.05
22. Socha, D., Ćwikowski, N. (2024). Employee motivation systems on the example of the industry company. *Zeszyty Naukowe Wyższej Szkoły Humanitas Zarządzanie, 25*(2), 23-43. https://doi.org/10.5604/01.3001.0054.6942
23. Sołoducho-Pelc, L. (2018). Kreatywność – główne trendy i problemy badawcze. *Studia i Prace Kolegium Zarządzania i Finansów, 162*, 25-37. Retrieved from: www.hbrp.pl/b/skrusz-bariere-przekonania-nie-jestem-kreatywny/1EI8wGs7E
24. Spreitzer, G. (2008). *Taking stock: A review of more than twenty years of research on empowerment at work.* The SAGE Handbook of Organizational Behavior: Volume I - Micro Approaches. SAGE Publications Inc., 54-72, https://doi.org/10.4135/9781849200448.n4

25. Stankevičienė, A., Šarupičiūtė, J., Naudžiūnaitė, G. (2019). Relationships between Employee Empowerment. *European Conference on Management, Leadership & Governance*, 357-366.
26. Uzoamaka, O.E., Emeka, N., Eze J. (2015). Employee empowerment and team-work in management of change: techniques, challenges and prospects. *Journal of Policy and Development Studies, 9*(3), 126-141, Retrieved from: www.arabianjbmr.com/ JPDS_index.php
27. Yilmaz, F. (2019). Organizational Support and the Role of Organizational Trust in Employee Empowerm. *International Journal Of Eurasia Social Sciences, 10(37)*, pp. 968-980, https://doi.org/10.35826/ijoess.2599
28. Zuraik, A., Kelly, L., Perkins, V. (2020). Gender differences in innovation: the role of ambidextrous leadership of the team leads. *Management Decision*, *58(7)*, pp. 1475-1495, https://doi.org/10.1108/MD-01-2019-0054

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INTEGRATION PROCESSES IN AN ENTERPRISE AND ORGANIZATIONAL IDENTITY – THE PERSPECTIVE OF GENERATION Z EMPLOYEES

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Purpose: The aim of this article is to identify factors that, in the opinion of Generation Z representatives, can positively influence integration processes in a company/organization, as well as those that negatively impact organizational identity. Furthermore, it is important to identify potential opportunities to improve the situation.
Design/methodology/approach: The article reviews the literature on organizational identity and its importance, as well as integration processes and their determinants, and also presents the results of the author's own empirical research.
Findings: The research identified the main causes of difficulties in implementing integration activities within the company. From the perspective of Generation Z employees, these include: communication problems among employees, hierarchical relationships that create a division between management and lower-level employees. Areas of action were identified for improving integration within the company/organization. These include: organizing integration events, improving communication between employees, demonstrating respect and greater understanding between employees, a more equitable division of responsibilities, collaboration, shared goals and motivation, training, changes in organizational structure, and other employee benefits.
Research limitations/implications: The limitations of the conducted research include the non-probabilistic sampling. The research was local in nature, conducted in the Lubuskie Voivodeship. Therefore, there is a need to conduct future research that adheres to the recommended representativeness of the research sample so that conclusions can be drawn for the entire population.
Practical implications: As a result of the conducted research, it should be pointed out that there is a need for systematic monitoring of factors limiting integration processes in the enterprise in the context of shaping mechanisms simulating organizational identity in the dimension of managing Generation Z.
Social implications: The research topic addressed meets the need to look at enterprise management in the face of demographic changes, which encourage managers to seek effective tools that support integration processes in enterprises, shape employee well-being and support mechanisms that create lasting foundations for organizational identity, taking into account multigenerational management.
Originality/value: Empirical research was conducted that fits into a new, important trend in the management of generationally intelligent organizations promoted by J. Moczydłowska.
Keywords: integration processes, organisational identity, company, Generation Z.
Category of the paper: Research paper.

1. Introduction

Enterprises operating in the third decade of the 21st century are grappling with a wide variety of conditions, demonstrating significant volatility and, as a result, a future that is difficult to predict. The flexibility of enterprises to adapt to new realities necessitates seeking sources of stability. According to Szarucki, Noga, and Kosch (2021), these include, among others: the leader's personality traits that influence interactions with employees and their surroundings, and employee attitudes. In seeking a foundation for the firm's stability in the new reality that has emerged after the global crisis (pandemic), it is important to shape an organizational identity based, among other things, on integration processes that unite employees. It is important to understand the opinions of employees, whose actions contribute to shaping a favourable organizational climate. For this to be satisfying and motivating for employees, and to translate into building a long-term platform for cooperation within a given entity, it is essential to understand employee opinions on the conditions shaping this integration and organizational identity. This provides a valuable source of information on how a given entity – a company/organization – perceives itself through the lens of Generation Z employees, where, despite the various internal processes taking place, a stable foundation for further development can be found.

The aim of this article is to identify factors that, in the opinion of Generation Z representatives, can positively influence integration processes in a company/organization, as well as those that negatively impact organizational identity. Furthermore, it is important to identify potential opportunities to seek sources of improvement. The article is based on the challenges for companies facing the turbulent environment in the post-pandemic period and takes into account the perspective of young Generation Z representatives, who may offer their own perspective on the practical implementation of actions that stimulate or inhibit integration within the company in the context of building organizational identity. Managers now face new challenges requiring, in particular, the demonstration of broad competencies, including the area of so-called "soft management" skills. Whether management can systematically acquire the opinions of all employees, but especially young employees – representatives of Generation Z – will influence the future of the company.

The theoretical section of the article presents various approaches to organizational identity, its determinants, and highlights its importance. Furthermore, it addresses the topic of integration processes and their determinants. The study was prepared based on the results of empirical research conducted from April to September 2023 on a sample of individuals employed in the Lubuskie Voivodeship.

2. Organisational identity – its essence and determinants

Ashforth, Rogers and Corley (2011), when discussing organisational identity, argue that it should be viewed through the prism of individual and group identities, which are interlinked. Frostenson, Helin and Arbin (2022) share this view. They argue that: "Organisational identity is not necessarily static or permanent, but refers to an ongoing construction between individuals and groups within organisations" (p. 1).

The sources of organisational identity can be found in two areas: the cognitive perception and the affective sense of unity with the organisation in which the employee works (Johnson, Morgeson, Hekman, 2012). For this to happen, it is necessary to identify which internal organisational factors bring employees together and ensure the development of strong bonds with the company.

Organisational identity, which refers to an individual's inclination to belong to an organisation, is linked to specific emotions arising from the fact of being recognised as a member of that particular organisation.

For employees to identify with the organisation's goals, it is necessary not only to communicate effectively with them but also to pay attention to: their job satisfaction, management practices, organisational culture and their perception of the organisation's prestige. The influence of these variables on employees' identification with the company makes it possible to foster a working atmosphere that promotes organisational identity. It is also important that the goals and values held by employees align with those of the organisation as a whole. It is worth noting that employees' sense of organisational integrity constitutes one of the soft factors of organisational success (Blanchard K., Blanchard S., Zigarmi, 2018).

Employee behaviour is linked to organisational identity, and without a strongly established organisational identity, an organisation cannot be said to survive throughout all stages of its life cycle. This objective is supported by the ongoing assessment of the extent to which employees identify with the organisation (Stuart, 2002).

Company management should bear in mind that identity-related behaviours are linked to the type of organisational culture. According to W. Bańka, the following leadership styles may be beneficial in an integrative corporate culture: promotional, integrative, democratic, mentoring and task-oriented. The first of these is based, among other things, on paying close attention to the company's 'brand' and ensuring the integration of employees with the organisation. The second style focuses, among other things, on motivating employees, with the 'attitude towards the company's strategy and mission' serving as the glue that binds the team together. In practice, the third style means that managers coordinate the work of their subordinates and delegate authority. In the mentoring style, it is important to support employees' development plans. The final style is characterised by the fact that managers

prioritise the outcome of the task, and their involvement, where necessary in complex situations, is limited to acting as an instructor to their subordinates (Bańka, 2009).

It is worth examining the attitudes employees display towards the organisation, how they perceive their workplace and the conditions there, including relation to integration processes that foster the development of organisational identity. It should be added that a strong image of organisational identity has a positive impact on employee behaviour; it acts as a catalyst for their commitment, boosts motivation, builds job satisfaction and contributes to the achievement of good results (Gilani, 2019). It is important to ascertain the views of employees working in the companies under study regarding their perception of organisational identity.

3. Integration processes within a company and their significance

Business entities operating as open systems, as they interact with their environment, must have a solid foundation to meet the challenges posed by that environment. This is only possible by building a lasting foundation of strength within the organisation. The source of this strength lies in a constant focus on ongoing integration efforts within the business entity. What are these integration processes and what forms can they take? From a holistic perspective in the context of managing the entire business entity, what is the significance of activities undertaken in this area?

Referring to A. Maslow's hierarchy of human needs, it can be said that the integration processes taking place within organisations can be linked to higher-order needs, referred to as the need for belonging (Griffin, 2017). These belong to the group of social needs. In the ERG model, these needs are linked to the formation of organisational identity and influence the establishment of healthy interpersonal relationships (Kozłowski, 2017). In shaping integration processes within the company, a positive psychosocial climate undoubtedly plays a significant role, as it satisfies many important work-related needs, including: security, respect, recognition and belonging (Penc, 2007). A bond with the organisational environment, sustained by identification with institutional values and the quality of interpersonal relationships, also has a positive impact on productivity growth (Mazlan, Jambulingam, 2023).

"An integrated organization performs its tasks more efficiently and makes decisions faster" (Buszko, 2013, p. 77), which is crucial in today's turbulent environment, where companies must respond quickly and with a high degree of flexibility. The integration aspects discussed above are focused on the company's relationships with its environment. However, it is worth highlighting other factors related to the business itself. Namely, efficient task execution, which is made possible by improved work comfort. Synergy is achieved not only through the integration of human capital but also through the skillful alignment of competencies and high

levels of employee engagement. This engagement becomes possible when employees identify themselves with their workplace.

Research conducted by Rovetta, Bortolotti, and Palumbo (2025) indicates that team and organizational identification influence employee well-being, behaviour, trust, organizational citizenship behaviour, and goal achievement. It is crucial to develop identification at an optimal level for both specific teams and the entire organization so as not to compromise the effectiveness of the enterprise. Strategies for developing identification within the enterprise encompass the individual, team, and organizational levels.

In order to ensure high effectiveness of integration processes in the enterprise, it is worth striving to build the foundations of affective commitment, which promotes long-term commitment of newly hired employees and reduces their risk of turnover (Lourenço, Rodrigues, 2025).

The use of integration in the workplace is closely linked to shaping internal communication while maintaining its multifaceted nature, which requires practitioners to possess a range of competencies. Information exchange and teamwork are crucial to ensure a significant level of fluidity, transparency, and understanding between superiors and subordinates. Sensitivity to interpersonal relationships is essential (Yakubu, 2018).

Integration processes that socialize employees are particularly relevant to employees who, as Generation Z representatives, are entering a new professional reality, requiring a thorough understanding of, but also the adoption of, behavioural patterns and prevailing values. This applies to all activities that facilitate understanding and acceptance of organizational culture. How does the organizational socialization process work? The socialization process in an enterprise is reflected in productivity, employee engagement, and loyalty. It is the result of how perceptions of the organization are formed, which, when confronted with the existing reality, are then subject to a process of transformation (Ahmadi, Salavati, Sheikhesmaeili, Mirzaei, 2011).

The presented approach to the socialization process, so crucial for Generation Z employees, highlights the need to undertake systematic actions within organizations that ultimately significantly shape employee integration within a given business entity. How do employees of the surveyed companies assess these processes?

4. Research methods

The article reviews the literature on organizational identity and its importance, as well as integration processes and their determinants, and presents the results of author's own empirical research. These studies represent a fragment of research conducted on complex issues in the field of enterprise management.

The research was conducted using a survey questionnaire. Respondents answered three questions closely related to the topic of the article. One question was a single-choice, one was a multiple-choice, and one was open-ended. The study drew on empirical research conducted between April and September 2023 on a group of individuals employed in the Lubuskie Voivodeship. A limitation of the research was that the sample was not probabilistic, which does not ensure representativeness. However, care was taken to ensure diversity among respondents in terms of length of service at the enterprise/organization, position held, and nature of work performed. For the purposes of this article, 117 individuals representing the youngest age group, i.e., employees of enterprises – representatives of Generation Z, aged under 30 – were selected from a group of 200 respondents. The vast majority of respondents were employees of enterprises.

A more detailed description of the discussed group of respondents is presented in Table 1.

Table 1.
Characteristics of the studied population

Description		Number of indications as a percentage (%)
Work experience in the company/organization	Less than 1 year	29,0
	From 1 to 5 years	59,8
	From 6 to 10 years	10,3
	From 11 to 15 years	0,9
Type of job position	executive	74,4
	managerial	25,6
Nature of the work performed*	physical work	59,8
	intellectual work	65,0

Note: Some respondents do both physical and intellectual work.

Source: own study based on the survey research

The majority of respondents had been employed in the company or organisation for between 1 and 5 years (59.8% of respondents). Next, 29.0% had been employed for less than 1 year, whilst 10.3% had been working in the organisation for between 6 and 10 years. In terms of job roles, the majority of respondents were employed in operational roles (74.4%), whilst 25.6% held managerial positions. 65.0% of respondents performed intellectual work and 59.8% performed manual work.

In addition, a tabular summary has been provided showing the characteristics of the companies/organisations where the respondents are employed. These are presented in Table 2.

Table 2.
Characteristics of enterprises/organizations in which the respondents are employed

Description		Number of indications as a percentage (%)
The period of operation of the enterprise/organization on the market	Up to 5 years	23,9
	From 6 to 10 years	14,5
	From 11 to 15 years	12,0
	From 16 to 20 years	12,0
	Over 20 years	37,6

Cont. table 2.

The geographical scope of the enterprise/organization's activity*	Local market	31,6
	Regional market	25,6
	Domestic market	39,3
	International market	41,9

Source: own study based on the survey research.

The employees surveyed were employed by businesses that had been operating on the market for varying lengths of time. The largest group consisted of those that had been in existence for over 20 years – 37.6%. The geographical scope also varied. It was found that the largest group was active on the international market – 41.9%. In terms of capital ownership, Polish capital predominated.

5. Research findings

The aim of this article is to identify the factors which, in the opinion of Generation Z representatives, can have a positive impact on integration processes within a company or organisation, as well as those which have a negative impact in the context of organisational identity. Furthermore, it is important to identify areas of action that could help to improve the situation.

Figure 1 shows respondents' views on whether, in their opinion, measures are being taken in the workplace to promote staff integration.

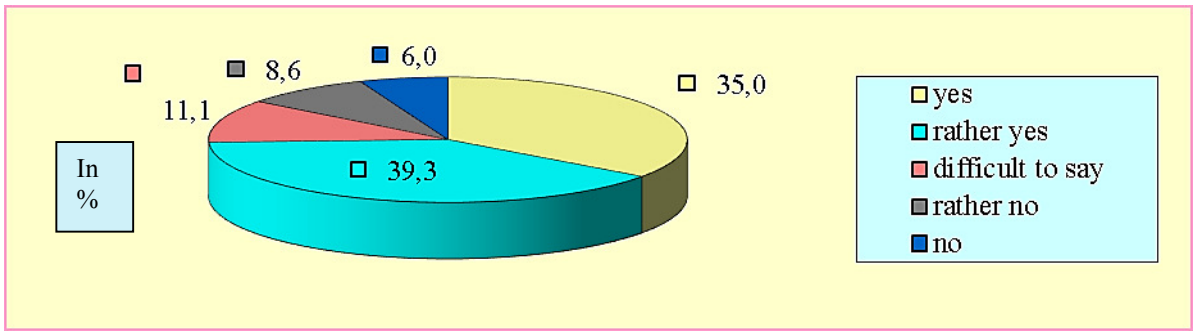

Figure 1. Respondents' opinions on measures taken to promote staff integration.

Source: own study based on the survey research.

The survey found that 35.0% of respondents believe that measures are being taken in the workplace to promote staff integration. 39.3% of respondents chose the answer 'rather yes'. 8.6% of respondents chose 'rather no' and 6.0% chose 'no'. 11.1% of respondents were unable to answer this question.

Figure 2 presents the opinions of respondents who cited reasons for difficulties regarding integration activities among members of the company/organisation in which they are employed.

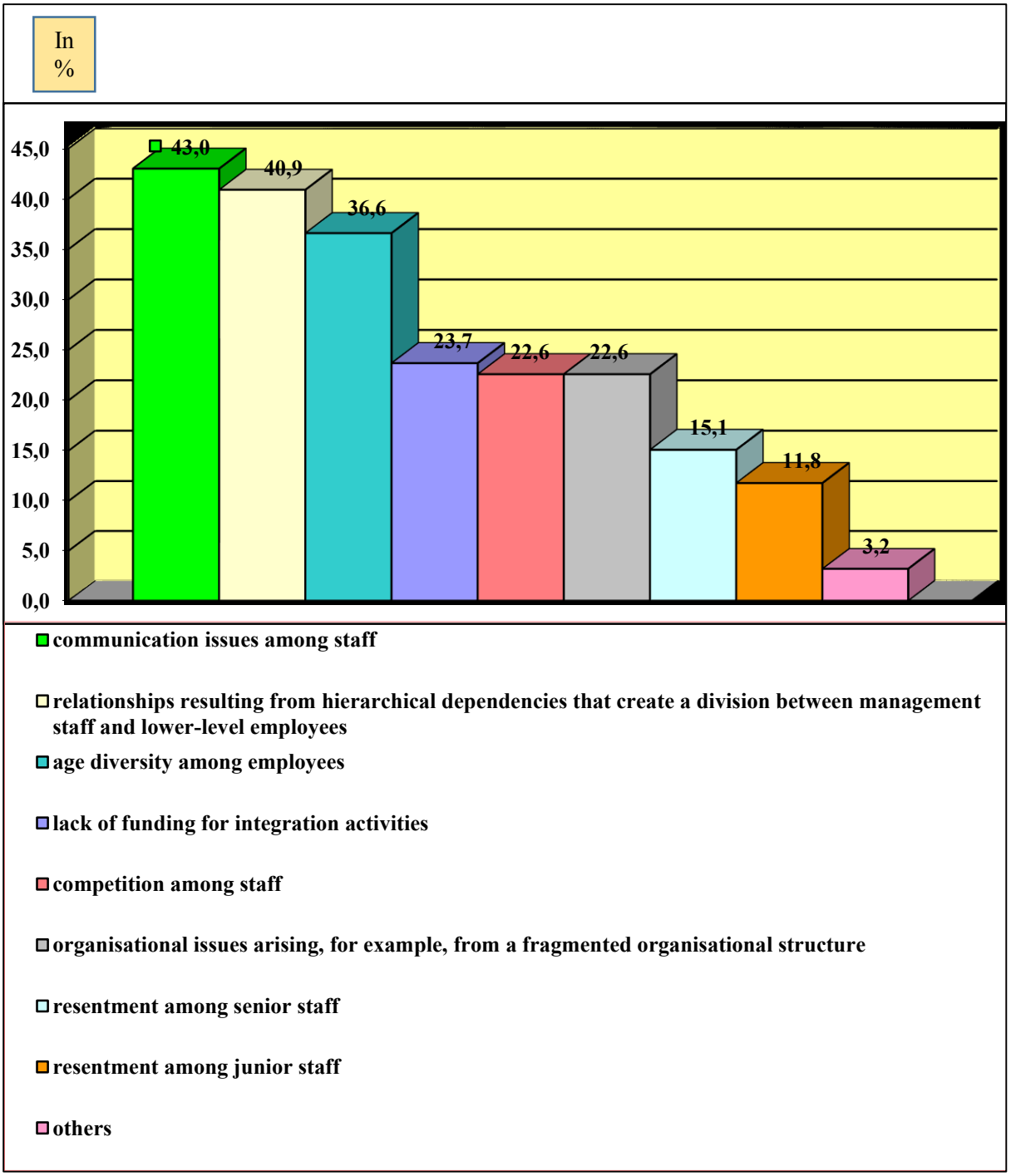

Figure 2. Respondents' views on reasons for difficulties in integrating members of the company/organisation where they are employed.

Source: own study based on the survey research.

Based on the research conducted, it can be concluded that the three main causes of difficulties in team-building activities among members of a company or organisation are:

1. problems relating to communication between employees (43.0% of respondents),
2. relationships arising from hierarchical structures, which create a division between management and lower-level staff (40.9% of respondents),
3. age differences among staff (36.6% of respondents).

Next, the reasons cited by just over 20.0% of respondents were identified. This group includes:

1. a lack of funds for integration activities,
2. rivalry among staff,
3. organisational issues within the company or organisation where the respondents work.

In the final group of responses, the reasons cited were resistance from senior staff (15.1%), resistance from junior staff (11.8%) and other reasons (3.2%).

In order to obtain a more complete picture of the reality regarding the assessment of the integration situation within the company/organisation where the respondents are employed, the respondents indicated areas of action that could contribute to improving the situation. Respondents were given the opportunity to provide their own comments (open-ended question), and based on their suggestions, several areas for improvement were identified. These are presented in Table 3.

Table 3.
Areas of action that could help improve the situation within the company regarding staff integration

Examples of areas for action to improve integration within a company or organisation	
Area	**Description**
1. Organising team-building events	• team-building events both at and outside the workplace, including, for example, picnics, festivals and cinema trips for employees' families, • team-building trips, including for employees at all levels
2. Improving communication between staff	• better flow of information between departments/staff, • gaining insight into the views of front-line staff, • clear and unambiguous regulations/guidelines governing the company's operations
3. Respect and greater understanding among staff	• showing greater respect for junior staff, • giving staff greater recognition, • eliminating the passing on of responsibilities
4. A fairer division of responsibilities	• a more pleasant atmosphere when assigning tasks, equality
5. Changes to the organisational structure and other benefits for staff	• a change in working hours to allow for larger gatherings, • bridging the gap between senior and junior staff, • creating an outdoor relaxation area
6. Cooperation, shared goals and motivation	• introduction of group tasks
7. Training courses	• better pay and opportunities for career development

Source: own analysis based on empirical research.

The integration of diverse work processes within a given organisation, manifested, among other things, in: the fair treatment of all stakeholders, the implementation of affirmative action initiatives, and the representation of various demographic groups both within and outside the organisation, which contributes to improved learning, innovation, creativity and organisational flexibility (Roberson, 2006; Zadykowicz, Chmielewski, Siemieniako, 2020).

6. Summary

Given that "people management is, above all, about partnership-based relationships" (Ridge, 2010, p. 33), it is worth nurturing these relationships appropriately. Undoubtedly, this is facilitated by implementing measures to promote integration processes within an organisation, which in turn helps to shape organisational identity. Empirical research has established that the factors contributing most significantly to the weakening of integration processes include, above all: communication issues between employees, and relationships arising from hierarchical dependencies, which create a division between management and lower-level staff. These are the areas that need to be addressed in order to improve organisational integrity, which in turn will foster bottom-up processes that contribute to building and consolidating organisational identity. Support from managers can play a significant role for Generation Z employees; this support takes the form of providing appropriate guidance during the work process, being accessible, and showing appreciation, which can strengthen trust in the organisation as a whole as well as in the management team. Furthermore, it should be emphasised that this accelerates adaptation to the new working environment and may have a positive impact on productivity.

In practical terms, measures taken to shape organisational identity should be linked to the process of organisational renewal (Gabryś, 2015). It is worth emphasising that this requires undertaking a range of activities aimed at integrating employees within the organisation. This also applies to members of Generation Z, who, upon entering the labour market, should encounter a welcoming atmosphere in the workplace and feel that their well-being, in the broadest sense, is properly addressed by top management.

The arguments presented in this article align with the highly valuable concept of managing generationally intelligent organisations. One must agree with the view expressed by J.M. Moczydłowska, author of a monograph on this subject (2018, pp. 9-10) that "(…) one of the most important challenges facing management is to build an organisational culture and employ management tools that transform generational differences into a source of organisational success".

7. Suggestions for further research and research limitations

The author plans to conduct comparative research on a representative sample, which would show how representatives of different age groups perceive integration processes in the enterprises where they work, in the context of shaping organizational identity.

The limitations of the conducted research include the non-probabilistic sampling. The research sample is not representative, as the research was conducted with the author's own funds. Future research will utilize a Likert scale to assess individual factors that determine the causes of difficulties with integrating members of the enterprise/organization where respondents are employed. A similar approach could be used to determine the potential impact of activities implemented to improve integration within the enterprise/organization. This will allow for a more extensive statistical analysis. Another limitation of the research was its local nature, conducted in the Lubuskie Voivodeship. The author recognizes the need to conduct the research while maintaining the recommended representativeness of the research sample so that conclusions can be drawn for the entire population.

The topic discussed in the article is current and extremely important, as demographic changes encourage managers to look for effective tools that support integration processes in enterprises, shape employee well-being and support mechanisms that create lasting foundations for organizational identity, taking into account multigenerational management.

References

1. Ahmadi, F., Salavati, A., Sheikhesmaeili, S., Mirzaei, M. (2011). Effects of organizational socialization (OS) on organizational citizenship behaviour (OCB). *Interdisciplinary Journal of Contemporary Research in Business, Vol. 3*, *No. 5,* pp. 395-406.
2. Ashforth, B.E., Rogers, K.M., Corley, K.G. (2011). Identity in organizations: Exploring cross-level dynamics. *Organization Science*, *Vol. 22, No. 5*, pp. 1144-1156. https://doi.org/10.1287/orsc.1100.0591
3. Bańka, W. (2009). *Kultura organizacji naturalną wartością przedsiębiorstwa*. Warszawa: NOVUM.
4. Buszko, A. (2013). *Uwarunkowania współczesnych zachowań w organizacji*. Warszawa: Difin.
5. Frostenson, M., Helin, S., Arbin, K. (2022). Organizational sustainability identity: Constructing oneself as sustainable. *Scandinavian Journal of Management, July*.
6. Gabryś, B.J. (2015). Tożsamość organizacji w procesie odnowy organizacyjnej: ujęcie narracyjne, *Management Forum*, *Vol. 3, No. 2*, pp. 25-29, DOI: 10.15611/mf.2015.2.04, https://www.researchgate.net/profile/Bartlomiej-Gabrys/publication/284208881_Tozsamosc_organizacji_w_procesie_odnowy_organizacyjnej_ujecie_narracyjne/links/5900aa644585156502a008a2/Tozsamosc-organizacji-w-procesie-odnowy-organizacyjnej-ujecie-narracyjne.pdf, 19.04.2023.
7. Gilani, H. (2019). Corporate brand identity and employee brand citizenship behaviour: A conceptual framework. *The Marketing Review*, *Vol. 19, No. 1-2*, pp. 51-84(34). Westburn Publishers Ltd, https://doi.org/10.1362/146934719X15633618140783

8. Griffin, R.W. (2017). *Podstawy zarządzania organizacjami.* Warszawa: PWN.
9. Johnson, M.D., Morgeson, F.P., Hekman, D.R. (2012). Cognitive and affective identification: Exploring the links between different forms of social identification and personality with work attitudes and behavior. *Journal of Organizational Behavior*, *Vol. 33, No. 8*, pp. 1146-1167. https://doi.org/10.1002/job.1787, 18.11.2022.
10. Kozłowski, W. (2017). *Motywowanie pracowników w organizacji.* Warszawa: CeDeWu.
11. Lourenço, B., Rodrigues, R. (2025). Organisational onboarding and talent retention: The mediating role of workplace attachment and supervisor support, *Social Sciences & Humanities Open*, *Vol. 12*, 101909, https://doi.org/10.1016/j.ssaho.2025.101909, 6.02.2026.
12. Mazlan, M.R.M., Jambulingam, M. (2023). Challenges of talent retention: a review of literature. *Journal of Business and Management Review*, *Vol. 4, No. 2*, pp. 078-091, 10.47153/jbmr42.6302023, 6.02.2026.
13. Moczydłowska, J.M. (2018). *Organizacja inteligentna generacyjnie.* Warszawa: Difin.
14. Penc, J. (2007). *Nowoczesne kierowanie ludźmi: wywieranie wpływu i współdziałanie w organizacji.* Warszawa: Difin.
15. *Przywództwo wyższego stopnia: Blanchard o przywództwie i tworzeniu efektywnych organizacji*, Ken Blanchard oraz współzałożyciele i konsultanci The Ken Blanchard Companies (2018). Warszawa: PWN.
16. Ridge, G. (2010). Nie oceniaj mojej pracy – pomóż mi dostać piątkę. In: Blanchard K., Ridge G., *Jak zwyciężyć w pracy: Przywództwo wyższego stopnia w praktyce.* Warszawa: PWN, pp. 19-35.
17. Roberson, Q.M. (2006). Disentangling the meanings of diversity and inclusion in organizations. *Group & Organization Management*, *Vol. 31, No. 2,* pp. 212-236. https://doi.org/ 10.1177/1059601104273064.
18. Rovetta, A., Bortolotti, A., Palumbo, R. (2025). Integrating team and organizational identity: a systematic literature analysis. *Frontiers in Organizational Psychology*, *Vol. 2*, https://www.frontiersin.org/journals/organizationalpsychology/articles/10.3389/forgp.2024.1439269, 6.02.2026.
19. Stuart, H. (2002). Employee identification with the corporate identity-Issues and implications. *International Studies of Management & Organization*, *Vol. 32, No. 3*, pp. 28-44.
20. Szarucki, M., Noga, G., Kosch, O. (2021). Wpły wpandemii COVID-19 na modele biznesu przedsiębiorstw sektora MŚP w Polsce. *Horyzonty Polityki, Vol. 12, No. 40*, pp. 95-114.
21. Yakubu, Y. (2018). Integration and disintegration in organizations: role of human relations management theory. *4TH Social Sciences*, *146*.
22. Zadykowicz, A., Chmielewski, K.J., Siemieniako, D. (2020). Proactive customer orientation and joint learning capabilities in collaborative machine to machine innovation technology development: The case study of automotive equipment manufacturer. *Oeconomia Copernicana*, *Vol. 11, No. 3*, pp. 531-547.

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OCCUPATIONAL SAFETY IN INDUSTRY 5.0 – TECHNICAL ASPECTS OF SHAPING SAFE HUMAN–MACHINE INTERACTION

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Purpose: The aim of the work is to define guidelines for selecting technical solutions that ensure safe cooperation between employees and machine equipment. Their application improves the operation of machine equipment in Industry 5.0 enterprises, reducing the scale of potential burdens and losses.
Design/methodology/approach: The study was prepared based on subject literature and legal documents related to the analysed issue. A synthesis of available scientific publications and legal regulations was conducted, in particular the Machinery Regulation (EU) 2023/1230.
Findings: The conducted analysis indicated that ensuring the efficient implementation of activities in Industry 5.0 requires taking into account the limitations of individuals working alongside technical equipment. For this purpose, the implicational requirements of Industry 5.0 and the guidelines specified in applicable legal regulations (e.g., Machinery Regulation (EU) 2023/1230) should be considered. This makes it possible to increase usability during operation while eliminating an unacceptable level of risk.
Research limitations/implications: The results of the study indicate that effective improvement of human interaction with technical equipment requires the implementation of solutions that eliminate potential incompatibilities. Due to the limited number of available information sources, the study should be considered complex and preliminary. The effectiveness of the applied solutions should be verified through their practical implementation and assessment of their impact on work comfort and safety.
Originality/value: The study linked the technical aspects of Industry 5.0 operation with the provisions of the Machinery Regulation (EU) 2023/1230. Attention was drawn to the importance of applying the indicated guidelines to ensure safety during the use of technical equipment. The current lack of detailed knowledge regarding the above relationship justifies the need for further verification in this area, fitting into the research gap associated with the changing machinery requirements.
Keywords: Industry 5.0, technical equipment, operational safety, Machinery Regulation (EU) 2023/1230.
Category of the paper: Research paper, Conceptual paper.

1. Introduction

Ensuring employees' safety during the performance of their work is one of the conditions for the efficient execution of production tasks. This situation is not changed by the introduction of automation and robotization. On the contrary, the technical equipment in use generates new hazards, requiring the implementation of solutions that limit the possibility of accidents and increase the friendliness of the working environment.

Analyses conducted in manufacturing organizations indicate that industrial development does not eliminate the risk of accidents, and that the condition of technical equipment is crucial for employee safety and health, as well as for the efficiency of ongoing operations (Górny, 2024a; 2024b). This highlights the importance of technical requirements in achieving safety in organizations that use technical equipment.

The effectiveness of implemented solutions depends on their adequacy to the nature of the existing hazards and nuisances. Situations that generate risks require the introduction of measures that minimize the negative impact of technical equipment on humans. In Industry 5.0, shaping safety cannot be limited solely to protection against existing hazards. It is necessary to ensure safe and sustainable cooperation between humans and the technical equipment in use (Xu et al., 2021; Trstenjak et al., 2025). Addressing safety issues is particularly important in areas where task execution requires close interaction between humans and technical equipment.

The change in machine requirements resulting from the entry into force of the Machinery Regulation (EU) 2023/1230 on 21 January 2027 creates the need to identify guidelines for selecting technical solutions that mitigate the consequences of machines not being adapted to workers' needs. This issue is becoming particularly significant in the context of the increasing level of mechanization of work processes. At the same time, it is essential to take into account the human-centered aspects of machine design and use. This approach is consistent with the assumptions of the Industry 5.0 concept, which emphasizes the role of humans in an environment of advanced production technologies. The appropriate selection of technical solutions should consider both technological requirements and the needs of users.

The limited knowledge of these relationships justifies the need for research in this area.

2. Fundamental assumptions of Industry 5.0

2.1. Human as a key element of the efficient functioning of Industry 5.0

The concept of Industry 5.0 assumes a shift away from a purely technology-driven approach to enterprise operations toward a human-centered model. At the core of its requirements is human collaboration with advanced technologies, including artificial intelligence (AI),

collaborative robots (cobots), and Internet-based systems (IoT). The implemented solutions analyze acquired data and automatically take actions in real time, with limited human intervention.

Many authors point out that ensuring a technical system's resilience to occurring disturbances is crucial for its functioning (Liu et al., 2014; Simba et al., 2018; Cohen, Singer, 2021). In Industry 5.0, emphasis is placed on safety and ergonomics, shaped within an automated work environment. The role of technology is to support the worker and enhance decision-making efficiency (Górny, 2023). As a result, Industry 5.0 combines technological innovation with concern for employee well-being and the stability of industrial systems, focusing on humans, sustainable development, and system resilience (Gajdzik, 2023; Wolniak, 2023).

The concept of Industry 5.0 is based on the implementation of three fundamental aspects of the development of production activities. These are presented in Table 1. The areas shaping the requirements are characterized by their relation to technical requirements. The indicated guidelines focus on the digital transformation of the economy, assuming the achievement of socio-economic prosperity, sustainable development, and human safety (Grabowska et al., 2024). This concept promotes responsible innovations that enhance the well-being of workers, consumers, society, and the environment (Nahavandi, 2019; Longo et al., 2020; Breque et al., 2021).

Table 1.
Technical requirements characterizing key areas of the conducted activity, in accordance with Industry 5.0 guidelines

Categories of requirements development	Key areas of requirements development
Human-centric	- The role of machines is to collaborate with humans (implemented through the use of cobots, i.e. collaborative robots). - The technology takes into account human limitations (machines are tailored to human needs, not vice versa). - The design of devices considers safety and ergonomics (including human limitations).
Sustainable development	- Production is characterized by reduced environmental and surrounding impact. - The activities carried out minimize the use of raw materials (they are based on the use of previously processed materials and substitute raw materials). - The production process ensures reduced energy consumption.
Resilence	- Production organization takes into account factors that may disrupt its execution. - Enterprises are characterized by autonomy in their operations, adapting to identified needs.

Source: author's own compilation based on (Grabowska et al., 2024; Breque et al., 2021; Dixson-Declève et al., 2021).

In all the areas indicated in Table 1, achieving results requires ensuring effective cooperation among the participants involved in the tasks. The use of solutions aimed at enabling human–machine interaction is one of the key areas shaping Industry 5.0 (Breque et al., 2021; Dixson-Declève et al., 2021). The problems that arise require identifying their causes and determining how to effectively eliminate or mitigate the consequences of events.

The application of proactive monitoring of employee activity in smart factories increases the level of safety, thereby enabling the detection of unusual states and emerging threats (Amade, Nwakanma, 2021).

In Industry 5.0, shaping occupational safety is highly complex due to the close interdependence between humans and technology. It requires consideration of both traditional hazards and issues arising from collaboration with robots and autonomous systems. The effective implementation of requirements is determined by taking into account the results of analyses of complex socio-technical systems, which identify all conditions resulting from human–technology interaction (Adriaensen et al., 2019). It also requires consideration of ethical principles and ergonomics, strengthening the role and position of humans, and providing them with decision-making capabilities and intuitive collaboration interfaces (Panter et al., 2024). In all these areas, humans should be ensured conditions free from hazards and burdens. The growing integration of human–technical object systems makes cybersecurity and the prevention of unauthorized interference a key issue (Cao et al., 2024).

2.2. Guidelines for the selection of technical solutions increasing the efficiency of Industry 5.0

Industry 5.0 represents a departure from the concept based exclusively on automation and robotization, which formed the framework of Industry 4.0. It is based on the application of solutions that support humans rather than replace them. At the same time, production processes are more flexible, sustainable, and resilient to disruptions. The integration of artificial intelligence (AI) into the structure of requirements necessitates consideration of ethical issues.

Technical solutions support the operator in decision-making. Humans are treated as key decision-making elements influencing processes (Sarkar, 2024). The human-centered approach shifts focus from technology development to the working environment and full use of human capabilities. Technology is intended to serve people, meaning that solutions used in production are adapted to the needs and diversity of employees. It is essential to ensure a safe working environment that supports development. Priority should be given to physical and mental health, employee well-being, and the protection of their fundamental rights, including autonomy of functioning.

The applied solutions must ensure operational efficiency, considered in relation to (Lu et al., 2021; Breque et al., 2021):

- The ability to achieve effective communication that enhances the usefulness of the ongoing dialogue, taking into account the nature and context of the transmitted content as well as the characteristics of the human recipient, ensuring the required level of efficiency.

- Ensuring effective cooperation between humans and technical equipment, requiring consideration of the human physical, cognitive, and psychological state, as well as the machine's ability to perceive variability in performed tasks. This can be addressed through solutions that account for dynamic changes in the environment and the role of humans influencing decision-making.

Taking into account human needs and expectations requires reducing the negative impact of technical equipment on their health and safety. Many of these aspects are addressed in the EU Machinery Regulation (2023/1230). It enables the use of technical devices in new industrial areas that utilize automation, computerization, and artificial intelligence. These include (Emma-Ikata, Doyle-Kent, 2022):

- In complex conditions and under time pressure, where the system indicates a possible solution that is ultimately approved by a human.
- Performing actions based on stored algorithms (human-in-the-loop), where a decision previously made by a human can be repeated by the device within defined constraints.
- Making decisions based on the current situation rather than solely on pre-established operating schemes.

Moreover, Industry 5.0 emphasizes workplace friendliness, taking into account human limitations in relation to the technical equipment being used.

3. Characteristics of the research problem and the applied methodology

The aim of the conducted study was to identify guidelines for the selection of technical solutions that influence the effective functioning of humans interacting with technical equipment. The literature analysis indicated that ensuring employee safety requires enabling efficient and intuitive use of technical equipment. Based on these assumptions, a research question was formulated, defining the objective of this study:

Research question (RQ): What characterizes solutions that determine safe interaction between humans and technical equipment used in Industry 5.0?

The answer to the research question is based on identifying key factors that determine the possibility of reducing the negative consequences of human interaction with technical equipment and supporting safe functioning in the work environment. Conditions forming the basis for effective human–technical equipment cooperation were identified. Their characteristics were linked to the essential requirements defined in the Machinery Regulation (EU) 2023/1230. The obtained results constitute a specification of requirements and enable the identification of guidelines for technical solutions.

4. Results of the conducted study

Each element of the human–technical equipment interaction system performs its assigned tasks in accordance with its capabilities. Their effect is the provision of:

- Physical safety (PHS), related to protection against collisions with technical equipment, ergonomic overload, and fatigue. It requires the application of, among others:
  - Guards and barriers protecting against moving machine parts.
  - Emergency stop systems activated when a hazard occurs, as well as sensors preventing the occurrence of hazards.
  - Ergonomic requirements taking into account the individual characteristics of users.
- Psychological safety (PSS), including the reduction of stress as well as excessive information load and time pressure. It requires, among others:
  - The use of intuitive interfaces and clear control panels.
  - Elimination of excessive information reaching users.
  - Implementation of unambiguous operating procedures.
  - Support for teamwork and training to enable efficient operation of technical equipment.
- Digital safety (data security, DS), covering the protection and securing of data monitoring technical equipment. Possible solutions include, among others:
  - Regular software updates.
  - Monitoring system performance and preventing unauthorized access.
- Ethical safety (ES), related to the transparency of applied algorithms and the ability to maintain human control and supervision (human-in-the-loop). In particular, it includes the application of:
  - Transparent decision-making algorithms in the technical equipment used.
  - Systems monitoring the compliance of technical equipment operation with the ethical principles of performed work.
- System resilience (R), including ensuring the ability to operate safely in emergency situations, achieved through, among others:
  - Rapid restoration of proper operation of technical equipment after a failure occurs.
  - Use of software resistant to overloads and operator errors.

The characteristics of the objective of the applied solutions, based on the provisions of the Machinery Regulation (EU) 2023/1230, together with guidelines for their implementation and the achieved effects, are presented in Table 2.

Table 2.
Characteristics of requirements defined in the Machinery Regulation ensuring the safe use of technical equipment, adapting machinery equipment to Industry 5.0 guidelines

Aspects of operational efficiency	Guidelines for the implementation of requirements	Achieved results
Ensuring reliable communication system performance	Effective information flow necessitates the application of appropriate communication systems and properly selected devices for transmitting information, which are regularly tested. It is necessary to ensure monitoring of operating parameters, rapid elimination of detected errors, and maintaining the continuity and reliability of communication	DS ES R
	Examples of required solutions: - Control systems must be designed and constructed in a way that prevents the occurrence of hazardous situations. - The design and construction of control systems must ensure proper supervision of the processes being carried out. - To ensure effective operation, communication means must be visible, clearly identifiable, and quickly accessible.	
Reducing the effects of human-related consequences	It is necessary to take into account the physical and psychological limitations of the operator. It is essential to ensure intuitive operation of technical equipment and to minimize overload, fatigue, and the likelihood of errors	PHS PSS ES R
	Examples of required solutions: - Technical equipment must be designed with the operator's needs in mind. - Operator discomfort, fatigue, and physical and psychological strain must be eliminated or reduced to a minimum.	
Reducing the impact of dynamic changes in the human working environment	Dynamic changes in the working environment require the implementation of solutions that adapt to the current physical and psychological conditions of the employee as well as to work organization	PHS PSS R
	Examples of required solutions: - The design and construction of equipment must take into account the need to verify the correct operation of control elements. - Control systems with self-modifying logic, intended for use at different levels of autonomy, must not generate actions exceeding their assigned tasks or required range of motion. - The design and construction of control elements must ensure that the machine can only be started as a result of an intentional operator action.	
Application of adaptive solutions supporting employees	The application of adaptive measures supporting employees requires the implementation of technologies and work methods tailored to their needs, capabilities, and limitations in conditions where hazards are present	PSS PHS ES R
	Examples of required solutions: - The design and construction of technical equipment must eliminate areas of inconvenience and burden. - The applied technical measures must be consistent with their intended purpose and must not impose excessive workload on employees.	

Source: author's own development based on the Machinery Regulation (EU) 2023/1230.

5. Discussion of results

Industry 5.0 combines the power of precision machines with human creativity and ingenuity, thereby better adapting the technical environment to human needs. The benefits achieved result from the adopted solutions. They are determined by ensuring cooperation

between people and production systems operating at an advanced technological level, which is not free from risks and burden.

The development of Industry 5.0 determines the need to implement solutions in which technology enhances rather than replaces (displaces) humans. Existing studies primarily highlight (Trstenjak et al., 2025; Wang et al., 2021; Sarkar et al., 2024):

- The synergy between the human factor and the technical conditions of task execution.
- The priority role of humans in designing production systems in line with human-centric guidelines.
- Human–robot interaction and ergonomics treated as key elements of safety.
- Ensuring employee well-being that enables maintaining productivity and motivation, which are closely linked to the company's market position.

In these conditions, humans cannot be replaced, but only their advantages can be better utilized. They can be treated as a paradigm that employs adaptive and flexible technological innovations used to support industrial development. It should be noted that the implementation of advanced technologies and tools supporting intelligent manufacturing is crucial for the efficient functioning of technical equipment.

The characteristics of solutions enabling the above benefits are presented in Table 2. The conducted synthesis indicated that their implementation allows to:

- Optimize workloads as a consequence of the rational use of employees' knowledge and skills.
- Reduce burdens generated by accidents caused by human errors during the operation of technical equipment.
- Improve task execution by introducing automation that reduces the scope of human activities and adapts work intensity to human capabilities.
- Reduce the number of failures caused by human error by decreasing human involvement in task execution.

Effective implementation of activities should take into account guidelines related to solutions supporting automation, the use of artificial intelligence, and remote execution of control and supervisory tasks. At the same time, the operating conditions of autonomous systems and their impact on generated risks must be considered.

In an industrial context, this means that applied solutions must be adapted to the needs and diversity of employees, rather than requiring them to continuously adapt to dynamically changing technological solutions (Gualtieri et al., 2021). The employee gains greater opportunities in an environment that becomes more dynamic. These activities should include reducing the impact of risks associated with the use of technical equipment. In Industry 5.0, safety refers to ensuring physical, psychological, and digital protection of the worker in a human–machine collaboration environment, while maintaining human control over the technical equipment used. It encompasses not only technical aspects but also ethical and

organizational ones that support well-being and the safe integration of intelligent production systems. Industry 5.0 enables the use of synergy between humans and autonomous machines, which must be “perceptive” and “aware” of human intentions and desires.

6. Summary

Ensuring occupational safety in Industry 5.0 is a priority. The implementation of solutions that enable safe interaction between workers and machine equipment requires recognizing the protection of humans as a paramount value, for example in relation to productivity. System performance is influenced by the use of intelligent monitoring systems, including those that detect the presence of a worker in the working zone, as well as technical equipment that automatically adapts its operation to the operator’s behavior. An important element in the selection of solutions is also the consideration of ergonomic guidelines for workplace design and the use of technologies that reduce the physical and mental burden on employees. As a result, this improves the operation of machine equipment, enhancing task performance in Industry 5.0 enterprises. These are characteristics whose identification was the objective of the conducted research.

The results of the synthesis indicate that, in order to ensure employee safety and support the development of activities aligned with Industry 5.0 guidelines, solutions provided for in the Machinery Regulation (EU) 2023/1230 may be applied, which establishes the legal framework for the use of technical equipment in the workplace. The identified features define the criteria for selecting technical equipment used in Industry 5.0 enterprises. This, in turn, facilitates and improves the selection of technical equipment by individuals responsible for the development of Industry 5.0 organizations.

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References

1. Adriaensen, A., Decré, W., Pintelon, L. (2019). Can Complexity-Thinking Methods Contribute to Improving Occupational Safety in Industry 4.0? A Review of Safety Analysis Methods and Their Concepts. *Safety*, *5(4),* 65, doi: 10.3390/safety5040065.
2. Amade, B., Nwakanma, C.I. (2021). Identifying Challenges of Internet of Things on Construction Projects Using Fuzzy Approach. *Journal of Engineering, Project, and Production Management*, *11(3),* 215-227, doi: 10.2478/jeppm-2021-0021.
3. Breque, M., De Nul, L., Petridis, A. (2021). *Industry 5.0 - Towards a sustainable, human-centric and resilient European industry.* Luxembourg: European Commission, Directorate-General for Research and Innovation, doi: 10.2777/308407.
4. Cao, H.-L., Elprama, S.A., Scholz, C., Siahaya, P., El Makrini, I., Jacobs, A., Ajoudani, A., Vanderborght, B. (2024). Designing interaction interface for supportive human-robot collaboration: A co-creation study involving factory employees. *Computers & Industrial Engineering*, *192*, 110208, doi: 10.1016/j.cie.2024.110208.
5. Cohen, Y., Singer, G. (2021). A smart process controller framework for Industry 4.0 settings. *Journal of Intelligent Manufacturing*, *32*, 1975-995, doi: 10.1007/s10845-021-01748-5.
6. Dixson-Declève, S. et al. (2021). *Industry 5.0: A Transformative Vision for Europe Governing Systemic Transformations towards a Sustainable Industry*. Luxembourg: Publications Office of the European Union, doi: 10.2777/17322.
7. Emma-Ikata, D., Doyle-Kent, M. (2022). Industry 5.0 Readiness – "Optimization of the Relationship between Humans and Robots in Manufacturing Companies in Southeast of Ireland". *IFAC-PapersOnLine*, *55(39),* 419-424, doi: 10.1016/j.ifacol.2022.12.071.
8. Gajdzik, B. (2023). Industry 5.0 as the upgrade of Industry 4.0: towards one common concept of industrial transformation. *Scientific Papers of Silesian University of Technology, Organization and Management Series*, *181*, 131-150, doi: 10.29119/1641-3466.2023.181.
9. Górny, A. (2023). Developing Industry 5.0 to Effectively Harness Production Capacities. *Management Systems in Production Engineering*, *31(4),* 456-463, doi: 10.2478/mspe-2023-0052.
10. Górny, A. (2024a). Employee safety in the conditions of Industry 4.0. *Management Systems in Production Engineering*, *32(4),* 489-497, doi: 10.2478/mspe-2024-0046.
11. Górny, A. (2024b). Industry 5.0 – A new concept of industrial development. *Zeszyty Naukowe Politechniki Poznańskiej, Seria: Organizacja i Zarządzanie*, *89*, 43-58, doi: 10.21008/j.0239-9415.2024.089.03.
12. Grabowska, S., Saniuk, S., Sługocki, W., Fahlevi, M. (2024). Identification of key research areas of Industry 5.0 based on bibliometric analysis. *Agricultural Engineering*, *28(1),* 301-320, doi:10.2478/agriceng-2024-0019.
13. Grabowska, S., Sługocki, W., Saniuk, A. (2024). Industry 5.0 – directions of business action and knowledge of technology in the context of surveys of employees of manufacturing

companies. *Scientific Papers of Silesian University of Technology, Organization and Management Series*, *202*, 139-152, doi: 10.29119/1641-3466.2024.202.9.

14. Gualtieri, L., Rauch, E., Vidoni, R. (2021). Emerging research fields in safety and ergonomics in industrial collaborative robotics: A systematic literature review. *Robotics and Computer-Integrated Manufacturing*, *67*, 101998, doi: 10.1016/j.rcim.2020.101998.
15. Liu, R.-J., Liu, G.-P., Wu, M., She, J., Nie, Z.-Y. (2014). Robust disturbance rejection in modified repetitive control system. *Systems & Control Letters*, *70*, 100-108, doi: 10.1016/j.sysconle.2014.06.001.
16. Longo, F., Padavano, A., Umbrello, S. (2020). Value-oriented and ethical technology engineering in Industry 5.0: a human-centric perspective for the design of the factory of the future. *Applied Sciences*, *10(12),* 4182, doi: 10.3390/app10124182.
17. Lu, Y., Adrados, J.S., Chand, S.S., Wang, L. (2021). Humans are not machines – anthropocentric human–machine symbiosis for ultra-flexible smart manufacturing. *Engineering*, *7(6),* 734-737, doi: 10.1016/j.eng.2020.09.018.
18. Nahavandi, S. (2019). Industry 5.0 - a human-centric solution. *Sustainability*, *11(16),* 4371, doi: 10.3390/su11164371.
19. Panter, L., Leder, R., Keiser, D., Freitag, M. (2024). Requirements for Human-Machine-Interaction Applications in Production and Logistics within Industry 5.0 – A Case Study Approach. *Procedia Computer Science*, *232*, 1164-1171, doi: 10.1016/j.procs.2024.01.114
20. Rozporządzenie Parlamentu Europejskiego i Rady (UE) 2023/1230 z dnia 14 czerwca 2023 r. w sprawie maszyn oraz w sprawie uchylenia dyrektywy 2006/42/WE Parlamentu Europejskiego i Rady i dyrektywy Rady 73/361/EWG; Dz.U., L 165, z 29.6.2023 r., pp. 1-102; http://data.europa.eu/eli/reg/2023/1230/2023-06-29.
21. Sarkar, B.D., Shardeo, V., Dwivedi, A., Pamucar, D.S.S. (2024). Digital transition from Industry 4.0 to Industry 5.0 in smart manufacturing: A framework for sustainable future. *Technology in Society*, *78*, 102649, doi: 10.1016/j.techsoc.2024.102649.
22. Simba, K.R., Bui, B.D., Msukwa, M.R., Uchiyama, N. (2018). Robust iterative learning contouring controller with disturbance observer for machine tool feed drives. *ISA Transactions*, *75*, 207-215, doi: 10.1016/j.isatra.2018.02.011.
23. Trstenjak, M., Benešova, A., Opetuk, T., Cajner, H. (2025). Human Factors and Ergonomics in Industry 5.0 - A Systematic Literature Review. *Applied Sciences*, *15(4),* 2123, doi: 10.3390/app15042123.
24. Wolniak, R. (2023). Industry 5.0 – characteristic, main principles, advantages and disadvantages. *Scientific Papers of Silesian University of Technology, Organization and Management Series*, *170*, 663-678, doi: 10.29119/1641-3466.2023.170.40.
25. Xu, X., Lu, Y., Vogel-Heuser, B., Wang, L. (2021). Industry 4.0 and Industry 5.0 – Inception, conception and perception. *Journal of Manufacturing Systems*, *61*, 530-534, doi: 10.1016/j.jmsy.2021.10.006.

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EXPERIENCING ART IN THE WORKPLACE VS. EMPLOYER BRANDING AND HUMAN CAPITAL

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Purpose: The research strategy employed is a critical analysis of source literature in the fields of human resource management, employer branding, and the art market. The research methods utilized in this article also include the diagnosis of the current state and prospects of using art in human capital management and its impact on the employer brand, as well as the method of synthesis regarding the construction of conclusions in both the epistemological and pragmatic spheres.
Methodology: The study adopts a qualitative, conceptual approach focused on the interpretation of meanings. It posits that phenomena such as employee aesthetic experience and employer branding require a humanistic lens. The research integrates perspectives from cultural economics, management sciences, and occupational psychology.
Findings: The results indicate that experiencing art in the workplace strengthens the humanistic element in HRM and employer branding by building a unique employee experience based on cultural and sensory values. This facilitates: the creation of a positive employer image, increased employee engagement, the development of soft skills, and the shaping of organizational culture.
Research limitations: The issue is broad and multifaceted; this article addresses only the primary problems regarding the impact of art on organizational processes. Due to technical limitations, the focus remains on a conceptual model. Future research should include empirical verification of the proposed relationships.
Social implications: The article offers an innovative proposal for executives, HR managers, and employer branding specialists. Introducing art into organizational spaces can be an effective tool for improving the quality of life for employees and fostering a more culturally aware society.
Originality/value: The article addresses an original and rarely explored topic. Its uniqueness lies in the interdisciplinary treatment of human capital management processes. Treating art as a strategic element of employer branding remains a pioneer niche in Poland, bridging the gap between the economics of culture and management sciences.
Keywords: art banking, employer branding, human capital, art market.
Category of the paper: Conceptual paper, literature review.

1. Introduction

This article addresses the issue of experiencing art through the introduction of its visual forms (including paintings, photographs, sculptures, and artistic installations) into the corporate environment. The existing body of literature emphasizes that, in the contemporary world, competitive advantage is increasingly less derived solely from financial or technological capital, and more frequently from the quality of employees' competencies, organizational culture, and employer reputation. Intangible resources are significantly more difficult to imitate than technology or financial capital and thus constitute a more sustainable foundation for a firm's success (Barney, 1991).

The paradigm of humanistic human resource management, drawing on the achievements of work psychology, organizational sociology, and studies on values in business, provides the theoretical framework for this paper. An in-depth analysis of the impact of art on employees allows art to be understood not merely as an alternative form of capital investment, but as a component of employer branding strategy and human capital development. In this context, investment in artworks (art banking) may be conceived as a deliberate and strategically designed element of the work environment, influencing organizational relationships, employee motivation, and development. Through art, organizations can enhance value creation capabilities and improve performance outcomes; consequently, art is increasingly employed as a tool for employee development and organizational infrastructure enhancement. Art stimulates creativity, fosters new ways of thinking, and supports the development of imagination and problem-solving abilities (Schiuma, 2011). Contemporary organizations also utilize art as a source of inspiration for innovation and new management models (Carlucci, Schiuma, 2018). The main research question is as follows: does the integration of art into organizational space influence the experience of work, employer branding, and human capital.

2. Literature Review

The experience of art in the workplace is closely linked to the aesthetic dimension of organizational life, which encompasses sensory experiences, images, and symbols shaping the perception of work (Strati, 2019). As noted by B. Fryzel and A. Marcinkowski, art enables a deeper understanding of organizations and allows their internal dynamics to be interpreted in new and unexpected ways, thereby shaping organizational culture and employee experience (Fryzel, Marcinkowski, 2024). The concept of introducing art into the workplace frames it simultaneously as an aesthetic and financial asset requiring professional management.

The deliberate and systematic use of art in financial institutions and enterprises is closely associated with the creation of corporate art collections and the concept of art banking.

In its narrow sense, art banking refers to a financial service consisting of investment advisory in artworks as an alternative asset class (Baumol, 1986, pp. 10-12). From an institutional perspective, art banking is understood as a segment of banking and financial services that integrates private banking with art advisory and cultural patronage (Velthuis, 2014, p. 58). It should therefore be treated as a private banking service encompassing, among others, investment advisory, collection strategy development, valuation, auction representation, negotiation, acquisition financing, insurance, and collection management[1].

For the purposes of this article, an expanded – organizational - definition is adopted. In this view, art banking is treated as an investment practice of economic entities (art investment), primarily enterprises, consisting in the acquisition and management of artworks for the purposes of asset diversification, wealth accumulation, and the implementation of organizational image strategies. This perspective allows the analysis to extend beyond the banking sector and include activities undertaken by other economic actors (Putnam, 2009; McAndrew, 2016; Gerlis, 2014). Art banking thus constitutes a form of intermediation between the world of finance and the world of art, enabling the transformation of economic capital into symbolic and cultural capital (Bourdieu, 1993, p. 75). It also serves as a tool for building organizational value by supporting reputation, employer branding, and the development of human capital through engagement with art and high culture (Schiuma, 2011, p. 102).

This perspective is grounded in the assumption that art is not neutral; every artwork carries a specific axiological message, expressing values, judgments, attitudes, and preferences of its creator. One of the most intriguing aspects of art banking is the subtle - often subconscious - shaping of employees' aesthetic perception, understood as the experience of art in the workplace. A. Berleant (1991) conceptualizes aesthetic experience as an active, embodied relationship between an individual and their environment, in which perception, emotion, and action are intertwined within a participatory process. In the context of work, this implies the possibility of aesthetically experiencing organizational space or engaging with art within the work environment. A. Csikszentmihalyi (1990), in turn, describes engagement with art as an experience leading to a state of deep involvement, where perception, emotion, and concentration combine to produce an intense sense of meaning and satisfaction—an effect that, in the workplace, may foster employee creativity and reflection.

In light of the above, alternative investments such as the acquisition of artworks play a fundamental role in human capital management and constitute an element of gaining competitive advantage. Human capital may be defined narrowly - as the sum of employees competencies and knowledge - or more broadly, within a relational and social framework.

[1] An interpretation consistent with the market definition, according to which art banking refers to comprehensive services for art market clients, including the purchase, sale, appraisal, storage, and insurance of works of art (McAndrew, 2010, p. 25).

In this article, it is understood as a dynamic set of individual characteristics influencing the ability to perform assigned tasks: "it encompasses a set of human talents and predispositions, features of social personality, visions of life and professional career, beliefs and opinions, professional knowledge, the ability to apply knowledge to solve tasks and problems, algorithms of creative action, and simulation capabilities" (Doktór, Konecki, Warzywoda-Kruszyńska, 2003, p. 14).

A related concept is intellectual capital, treated as an intangible asset and a generator of future profits detached from a strictly financial base. Its components include brand, trademarks, organizational culture, employees' responsiveness across diverse situations, patents, ideas, administrative and IT systems, relationships with clients and suppliers, reputation, and corporate image (Sveiby, 1997, pp. 73-97). Consequently, employees' professional skills, creativity, ideas, and responsiveness to change provide a competitive advantage grounded in values that are inalienable, authentic, unique, and non - transferable.

This logic of value creation based on uniqueness is also embedded in the concept of employer branding. It is commonly understood as a set of deliberate actions aimed at building the image of a company as an ideal employer - among employees, job candidates, business partners, clients, and other key stakeholders (Kozłowska, 2012, pp. 21-27). In practice, employer branding includes, among others, the creation of an attractive work environment, internal and external communication, the development of positive employee experiences (based on engagement, loyalty, and advocacy of the organization as an attractive workplace), marketing activities aligned with the company's vision and mission, as well as analysis and measurement of outcomes. Sułkowski (2012, p. 13) treats employer branding as an element of organizational strategy involving the shaping of an organization's reputation as an employer through activities in the areas of organizational culture, communication, and human resource management.

Therefore, this concept should not be reduced to activities targeting the external labour market, as the employer brand is primarily formed within the organization through every day, lived experiences. In this context, the introduction of art into organizational space can be seen as a process that strengthens employer branding. Today, in order to attract and retain valuable employees, organizations increasingly compete through non-financial factors, and art banking may constitute one such strategic element. It aligns with a broader discourse emphasizing the subjectivity of employees as the primary and most immediate stakeholders of the organization.

The role of art in shaping employer branding is closely connected with highlighting the distinctiveness of organizational culture and intersects with the concept of art branding. This term refers to all activities related to promoting a company's brand through broadly understood art. As defined by Gałązkiewicz (2016), "art branding is the conscious use of art in marketing communication, aimed at creating unique experiences for engaged audiences and strengthening brand image through a veil of artistic values". It is a process of co-creating a brand by leveraging the cultural capital of art in order to manage corporate image and

construct its meaning. This trend manifests itself, among others, in artist-designed and artist-endorsed products, as well as in the creation of corporate art collections.

3. Methodology

The profound significance of the impact of experiencing art in the workplace on organizational culture aligns with modern management approaches. It is reflected in the notion (Strati, 2010) that art is not merely an accessory, decoration, or demonstration of prestige, but rather a carrier of identity, and that spatial design reveals more about a company than its official missions and visions. Space influences interactions: an open, artistic environment fosters collaboration, whereas a rigid and characterless one formalizes relationships. A beautiful or inspiring work environment enhances employee engagement and the perceived meaningfulness of work.

The literature on environmental psychology and workplace design emphasizes that the workspace is neither axiologically nor psychologically neutral rather, it actively impacts stress levels, motivation, and overall well-being. When appropriately configured, it yields numerous benefits, i.a. "provides a sense of security and stimulation in experiencing everyday life, connects individuals with others, religion, and culture through abstract symbols, values, and beliefs, creates a milieu that merges the past and present life experiences of individuals and human groups, sustains identity, serves as a medium for the developmental behaviors of the individual, and maintains self-esteem during developmental transitions (e.g., aging) and life changes" (Bańka, 2014, p. 165).

A corporate art collection constitutes a curated body of artworks - ranging from paintings and sculptures to multimedia installations - acquired and exhibited by a company. Entities with a higher quality of corporate governance are more extensively engaged in art-based initiatives and demonstrate a greater propensity to support the preservation of cultural heritage (Campa, Zijlmans, 2019, pp. 81-93). Over the past century, many of the world's largest corporations have amassed significant art collections that serve not merely as aesthetic enhancements of space, but as profitable investments that cultivate distinct organizational cultures, thereby differentiating them from competitors.

Financial institutions are prominent actors in art banking, a phenomenon with historical roots in the patronage of bankers and their aspiration to elevate their social status through a privileged relationship with art. In contemporary times, this role is increasingly being assumed by corporate enterprises. The genesis of modern corporate collections dates back to the 1950s, with David Rockefeller widely regarded as their founding father. According to him, from an economic standpoint, involvement in the arts can mean direct and tangible benefits.

It can provide a company with extensive publicity and advertising, a better public reputation, and an improved corporate image. It can build better customer relations, a readier acceptance of company products, and a superior appraisal of their quality. Promotion of the arts can improve employee morale and help attract qualified personnel (English, 2007). It is posited that if a collection is dominated by innovative and abstract works acquired from emerging artists, it attests to the company's modernity, its forward-looking courage, and its appreciation for employee creativity. Conversely, accumulating classical works from bygone eras underscores stability, traditionalism, and affluence. Furthermore, providing financial support to artists serves as a testament to philanthropy and corporate social responsibility (CSR).

In light of the above, art banking - understood sensu stricto as corporate art collections - fulfills a profoundly important function that extends beyond mere investment. It influences the aesthetic experiences of employees (through psychological, social, and cognitive mechanisms), which translates into the development of human capital. This, in turn, enhances employer branding, ultimately leading to an increase in organizational value and generating capacity for subsequent reinvestment in art. This cyclical mechanism can be interpreted as a model of the circular impact of culture and art on organizational development.

The proposed model demonstrates that art in the workplace constitutes an investment in strategic intangible assets that enhance firm value. The transformation mechanism is grounded in human action, which may be conceptualized as a sequence: art → perception → emotions → behaviours. The model assumes that this process unfolds positively within a supportive culture of reception, where aesthetic experience does not evoke dissonance or resistance. It further presupposes that the organization has a well-defined strategy for investing in artworks, implements forms of non-financial reporting, and emphasizes employee involvement in these processes.

The developed model aligns with the humanistic approach to human resource management, which emphasizes that HR strategies should not be dominated by economic indicators alone, but rather by the individual and their lived experiences. This paradigm is closely linked to the growing expectations of employees toward employers, the increasing awareness of employee subjectivity, the existential dimension of work (extending beyond purely economic considerations), and the recognition that organizational values have a tangible impact on employee well-being and engagement.

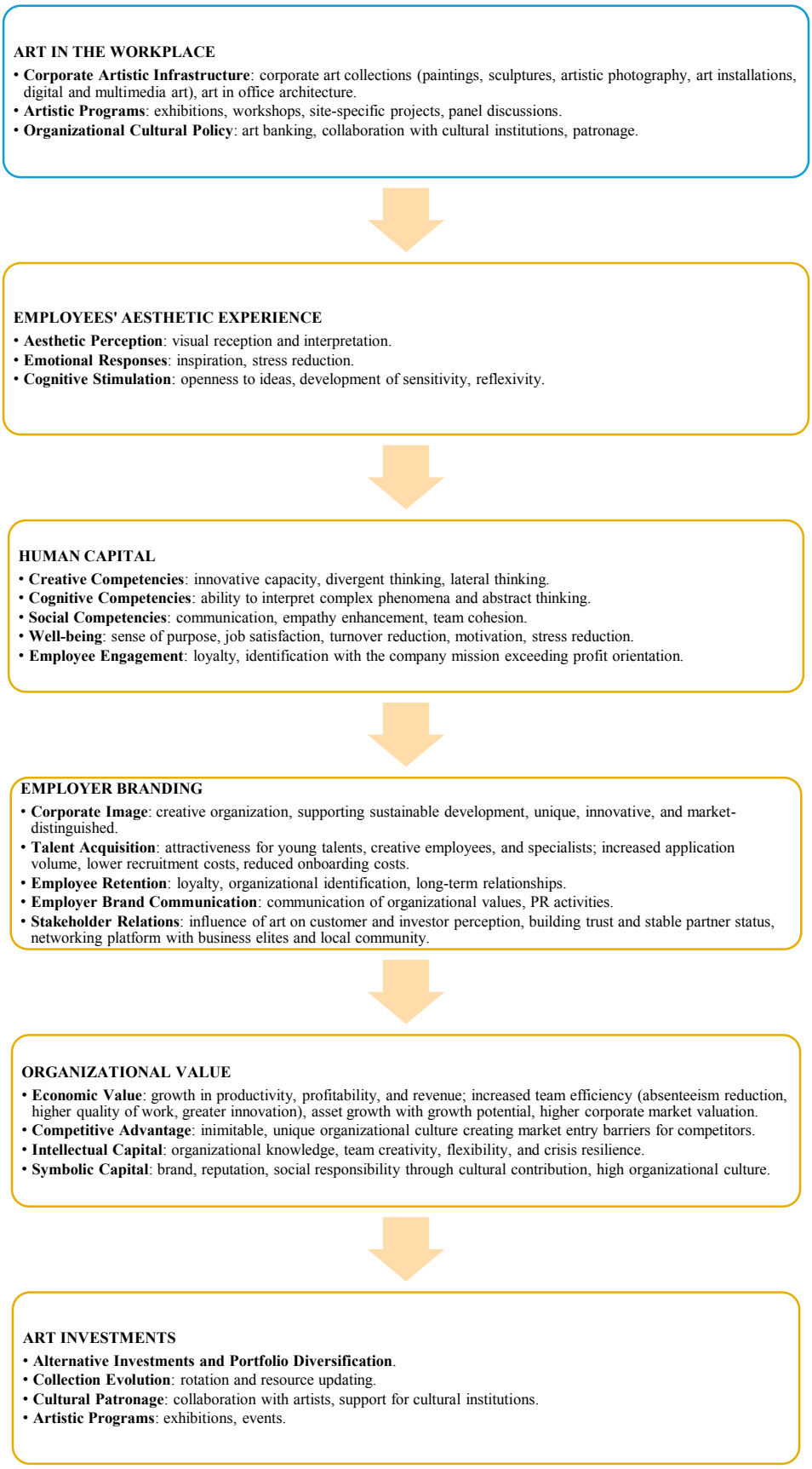

Figure 1. Model of the impact of experiencing art in the workplace on human capital, employer branding, and organizational value.

Source: Own elaboration.

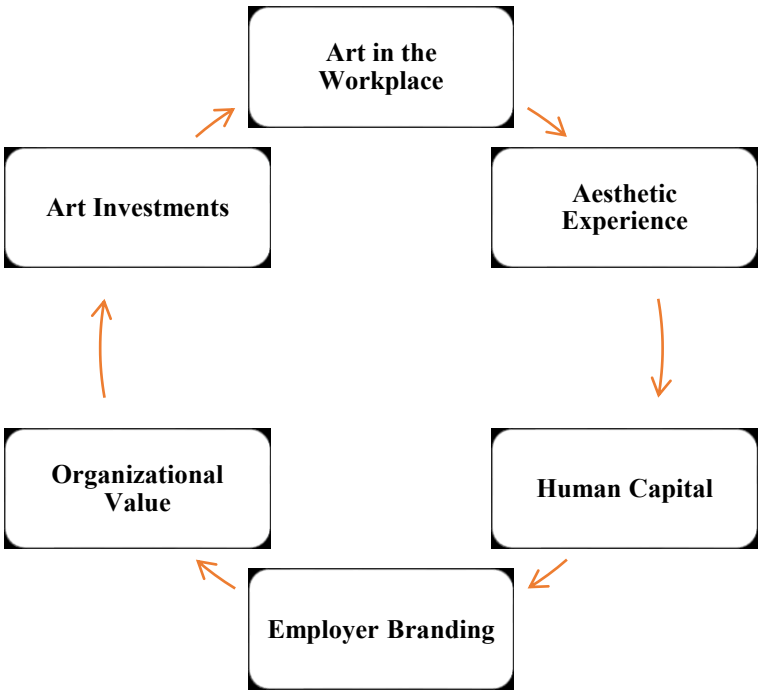

Figure 2. A model of the role of art in the workplace.

Source: Own elaboration.

A particularly insightful perspective in the literature is offered by M. Kostera, who argues that organizational management should be understood in the context of its interconnections with emotions, symbols, and metaphors. She demonstrates that organizations are not merely formal structures, but also "lived worlds," in which meaning, symbolism, and emotion play roles as significant as procedures and formal regulations (Kostera, 2023). In a turbulent environment, managers increasingly require innovative, original, and experimental tools. The incorporation of art experiences into the workplace - among others through art banking - responds to the need for higher-order values, directly influencing human capital, employer prestige, and, consequently, employer branding. Art, when integrated with business, constitutes a new "territory" of innovation within management systems (Schiuma, 2011).

To synthesize the discussion, a SWOT analysis was employed. In the case of the role of art in the workplace, strengths and opportunities appear to dominate. However, the inclusion of limitations is methodologically justified, as it prevents a one-sided interpretation of the phenomenon under study and enables the development of a credible model for managerial practice.

Table 1.
SWOT Analysis- The Role of Art in the Workplace

Strengths	Weaknesses
1. Strengthening Organizational Culture • visualization of values - communicates the organization's mission and aspirations within the physical space, making them more accessible and tangible to employees, • community building - creates a platform for dialogue beyond formal organizational roles, • humanization - enables movement beyond rigid, formal frameworks by introducing authenticity and emotional engagement, • manifestation of national/local identity - signals cultural identity through investment in works by domestic artists (particularly in international branches). **2. Impact on Human Capital** • well-being - reduces stress and supports psychological well-being, particularly in high-pressure environments, • stimulation of divergent thinking - acts as a catalyst for generating non-standard solutions to complex problems, • counteracting sensory monotony - introduces moments of reflection and cognitive pause • development of soft skills - such as empathy and sensitivity. **3. Impact on Employer Branding and CSR** • coherent employer branding narrative - becomes a key differentiator in recruitment processes, • support for csr initiatives - through genuine engagement in the development of culture and the artistic environment, • communication of the non-economic dimension of work - signals that the workplace is also a space for personal development, • strengthening stakeholder relationships, • use of art collections to build organizational prestige among employees, contributing to reduced turnover. **4. Economic and Investment Value** • portfolio diversification and risk mitigation, • protection of capital against depreciation over time, • enhancement of brand value through associations with high culture and luxury, • cost optimization in spatial design - artworks may appreciate in value and are not subject to depreciation.	**1. Cultural and Communication Constraints** • cognitive dissonance and alienation – the risk that art may be misunderstood, generating strong emotions and distancing rather than integration, • perception of misaligned priorities - investments in art may be viewed as elitist or decorative, particularly when contrasted with salaries or employee benefits, potentially lowering morale, • brand inconsistency - risk of selecting artworks that conflict with organizational values, • weak feedback systems - lack of mechanisms enabling employees to express opinions. **2. Economic and Managerial Constraints** • budget limitations - high entry and maintenance costs of art collections, • lack of professional curation and decision-maker subjectivity - e.g., decisions driven by personal taste of executives, • infrastructure limitations - constraints related to physical space, • insufficient managerial competencies - difficulties in parameterization and lack of established methodologies for measuring return on art investments, complicating expenditure justification.

Cont. table 1.

Opportunities	Threats
1. Development of External Relationships • use of art collections as relational platforms for clients, business partners, and local communities, • resilience to reputational crises - building "trust capital," for example through cultural patronage, • enhancement of market prestige - opportunities to receive recognition, e.g., as a patron of the arts. **2. Internationalization and Cross - Cultural Communication** • universality - a non-verbal tool integrating geographically dispersed teams and overcoming cultural and linguistic barriers, • consistency of corporate image - development of a unified aesthetic standard, • inclusivity - showcasing works by artists from diverse, underrepresented, or minority backgrounds, • strengthening the position of a global actor within the circulation of culture and new ideas. **3. Development of New Forms of Organizational Culture Management** • adoption of contemporary management trends - including well-being strategies, regenerative spaces, and responsiveness to neurodiversity, • strengthening the image of the organization as an ethical leader.	**1. Cultural and Organizational Risk** • reputational risk – art may be perceived as an attempt to impose ideological perspectives or as a form of symbolic manipulation diverting attention from ethical or environmental issues. **2. Political and Ideological Risk** • worldview polarization – potential conflicts among stakeholders with differing beliefs, including protests by religious or social groups against specific artistic content, • regulatory instability – including tax or safety (e.g., fire protection) regulations. **3. Economic and Market Risk** • decline in collection value and reduced capital liquidity, • risk of vandalism or unforeseen events, • competitive pressure – accusations of imitating employer branding strategies.

Source: Own elaboration.

The presented SWOT analysis clearly indicates the growing role that art may play in strengthening employer branding, human capital, and asset management. These conclusions are reflected in the behaviour of global leaders, who for many years have diversified their investment portfolios by incorporating assets classified within the segment of alternative investments. In Poland, such activities remain in an early stage of development, and the integration of art with economic interests and human capital development is still relatively uncommon. An intangible benefit would be greater media visibility and enhanced public exposure. Companies could emphasize their commitment to preserving cultural values, increase the transparency of their social initiatives, and reinforce the credibility of their long-term strategic direction—factors that foster trust and contribute to a more favourable brand image and the perception of a reliable partner.

4. Conclusion

In a contemporary world increasingly dominated by algorithms and economic indicators, a humanistic interpretation of art in the workplace may constitute a significant component of employer branding strategies and human capital development. Art should be understood not only as an alternative investment but also as an active element of organizational culture and a compelling field of observation.

These considerations led to the development of an original model of experiencing art in the workplace, designed to support the formulation of investment and organizational strategies. The model illustrates the relationships between the experience of art, human capital, employer branding, and, consequently, changes in corporate value. This, in turn, enables the reconstruction of the process, as it leads to the possibility of reinvesting in art. The multidimensional consequences of introducing art into corporate spaces were presented in the SWOT analysis.

The main research question - whether incorporating art into organizational space influences the work experience, employer branding, and human capital - has been positively verified. This dissertation demonstrates that the actual potential of art becomes evident when viewed through the lens of management strategy selection. However, this approach is subject to criticism due to ethical and organizational tensions and risks. Concerns include the reduction of art to a marketing function, the loss of its autonomy, its instrumental use in subtly shaping desired employee attitudes, and inconsistencies between declared corporate values and actual practices, which may lead to disengagement and cynicism.

This study has limitations of which the author is fully aware. The methodology presented does not exhaust the spectrum of possible research approaches. Empirical studies were not included due to constraints; they are currently being developed and will be presented in subsequent publications.

The work deepens the understanding of the examined area and provides valuable insights for future research on this topic. The findings may be utilized by managers, executives, and specialists.

References

1. Bańka, A. (2014). Przywiązanie do miejsca i jego znaczenie w kontekście współczesnych zagrożeń cywilizacyjnych. Tom 2. Społeczna psychologia stosowana, In: K. Popiołek, A. Bańka, K. Balawajder (Eds.), *Człowiek w obliczu zagrożeń współczesnej cywilizacji* (pp. 158-169), Poznań: Stowarzyszenie Psychologia i Architektura.
2. Bańka, A. (2018). *Psychologia środowiskowa jakości życia i innowacji społecznych.* Poznań: Stowarzyszenie Psychologia i Architektura.
3. Barcik, M. *Największe korporacyjne kolekcje dzieł sztuki.* Retrieved from: https://rynekisztuka.pl/2014/05/16/najwieksze-korporacyjne-kolekcje-dziel-sztuki, 10.02.2026.
4. Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management, 17*(1), 99-120.
5. Baumol, W. (1986). Unnatural value: or art investment as floating crap game. *American Economic Review*, *76*(2), 10-14.
6. Berleant, A. (1991). *Art and Engagement*. Philadelphia: Temple University Press.
7. Bourdieu, P. (1993). *The field of cultural production.* New York: Columbia University Press.
8. Campa, D., Zijlmans, E. (2018). Art-based initiatives and corporate governance of financial institutions: European evidence following the revised OECD corporate governance framework. *Poetics, 72*, 81-93.
9. Carlucci, D., Schiuma, G., (2018). *The Power of the Arts in Business*. Amsterdam: Elsevier.
10. Csikszentmihalyi, M., Robinson, R. (1990). *The Art of Seeing: An Interpretation of the Aesthetic Encounter*. Los Angeles: J. Paul Getty Museum.
11. Davis, S., McIntosh, D. (2005). *The Art of Business: Make All Your Work a Work of Art.* San Francisco: Berrett-Koehler.
12. Doktór, K., Konecki, K., Warzywoda-Kruszyńska, W. (eds.) (2003). *Praca, gospodarka, społeczeństwa. Studia i szkice socjologiczne dedykowane Profesor Jolancie Kulpińskiej*, Łódź: Wydawnictwo UŁ.
13. Dziawgo, L. (2005). *Private banking. Istota - Koncepcja – Funkcjonowanie.* Toruń: Wydawnictwo naukowe Uniwersytetu Mikołaja Kopernika w Toruniu.
14. English, T. (2007). *Hans Haacke, or the museum as degenerate utopia*. Retrieved from: https://intertheory.org/english.htm?utm_source=chatgpt.com, 10.02.2026.
15. Fryzel, B., Marcinkowski, A. (2024). *Organizational Aesthetics: Artful Visual Representations of Business and Organizations*. London: Routledge.
16. Gałązkiewicz, I. (2016). *Art branding.* Warszawa: Słowa i Myśli.
17. Gerlis, M. (2014). *Art as an Investment? A Survey of Comparative Assets*. London: Lund Humphries.

18. Kostera, M. (2023). *Antropologia organizacji. Metodologia badań terenowych.* Warszawa: PWN.
19. Kozłowska, A. (2012). *Employer branding - budowanie wizerunku pracodawcy*. Warszawa: Oficyna Wydawnicza SGH.
20. Lev, B. (2001). *Intangibles: management, measurement and reporting*. Washington: Brookings Institution Press.
21. McAndrew, C. (2010). *Fine art and high finance: Expert Advice on the Economics of Ownership*. New York: John Wiley & Sons.
22. McAndrew, C. (2016). *The Art Market 2016. Basel: Art Basel & UBS*. Retrieved from: https://www.artbasel.com/About/Initiatives/The-Art-Market, 10.02.2026.
23. Putnam, J. (2009). *Art and Corporate Identity*. London: Lund Humphries.
24. Sarzyński, P. *Strategia wymiany vol. 2 - Kolekcje korporacyjne w Polsce.* Retrieved from: https://uncommonground.pl/strategia-wymiany-vol-2-kolekcje-korporacyjne-w-polsce, 10.02.2026.
25. Schiuma, G. (2011). *The value of arts for business*. Cambridge: Cambridge University Press.
26. Strati, A. (2019). *Organizational Theory and Aesthetic Philosophies*. London: Routledge.
27. Strati, A. *Esthetic understanding of work and organizational life: approaches and research developments*.
28. Sułkowski, Ł. (2013). *Kultura organizacyjna a zarządzanie*. Warszawa: Difin.
29. Sveiby, K. (1997). The intangible assets monitor. *Journal of Human Resource Costing & Accounting*, *2(1),* 73-97.
30. Sztompka, P. (2007). *Zaufanie. Fundament społeczeństwa.* Kraków: Znak.
31. Velthuis, O. (2007). *Talking prices: symbolic meanings of prices on the market for contemporary art.* Princeton: Princeton University Press.

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SOCIAL CAPITAL 4.0: RELATIONAL CHALLENGES IN THE DIGITALIZATION AND ARTIFICIAL INTELLIGENCE ERA

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Purpose: The aim of the article is to determine the role of social capital 4.0 as an economic resource in micro and small enterprises operating in conditions of growing geopolitical tensions, market asymmetries and accelerated development of digital technologies, in particular artificial intelligence.
Methodology: The findings derive from an ongoing multi-stage study on social capital in Poland (since 2023). The theoretical part is supported by a critical analysis of the relevant literature, while the empirical part is conducted using the CAWI method on a sample of 360 respondents in a group of micro and small enterprises.
Findings: In conditions of increasing asymmetries, the role of social capital is undergoing a significant redefinition. In this context, it is no longer merely a complementary soft resource of enterprises but is beginning to serve as a strategic catalyst for adaptation to a changing environment. Its importance is particularly evident in the ability of market entities to maintain continuity and stabilize economic processes in a turbulent environment. Research indicates that the conditions for shaping social capital are changing; it no longer arises solely offline, and increasingly, relationships established virtually can strengthen its foundations and expand networks. Therefore, the assumption is made that "social capital 4.0" is a hybrid of online and offline relationships, which implies new challenges and creates new opportunities, e.g. reducing the problem of inclusivity, but also threats, such as digital illiteracy, trust issues, and the credibility of relationships established in the virtual world.
Research limitations: The research conducted, due to the multi-threaded nature of the issues discussed, imposes limitations as to the level of detail of the presented problems, while at the same time opening the possibility of their deeper exploration in subsequent stages of the analyses.
Originality: The originality of this study lies in introducing a hybrid perspective on social capital 4.0 as a strategic intangible resource. Micro- and small enterprises increasingly use this resource to expand their networks of business partners and improve their access to new markets.
Keywords: digitalization, micro and small enterprises, relationships, resources, management processes.
Category of the paper: Research paper.

1. Introduction

Contemporary economic processes are being implemented under conditions of deepening global asymmetries, encompassing the political, technological, and economic spheres, which generates a state of permanent uncertainty in the functioning of market entities. Due to limited financial and organizational resources, micro and small enterprises are more often exposed than other entities to the uncertainty associated with their business activities. In such conditions, social capital can become a key mechanism supporting economic processes. Currently, social capital is undergoing a transformation from an offline relationship model to a hybrid model (the author's approach, social capital 4.0), which is built on the foundations of relationships established both in real-world interactions between entities and in the virtual world.

Social capital 4.0, considered a soft resource at the entrepreneur's disposal, is capital built on the foundations of trust, relationships, credibility, and mutual trust. What distinguishes it from previous definitions known from the literature is the space of established relationships, the creation, construction, and maintenance of which increasingly take place in the virtual world, and increasingly often remain there. Artificial Intelligence (AI) is playing an increasingly important role in building social capital 4.0. It can support processes that have traditionally been time-consuming and burdened by information asymmetry, for example, by supporting entrepreneurs in searching for information about potential business partners not only on a local scale but, above all, on a global scale. AI suggests various scenarios for establishing business relationships and implementing tools that can be used to build relationships (such as introducing real-time translations, which facilitate communication between entities representing cultural diversity). These defined AI functions in supporting relational processes among micro and small business entrepreneurs imply a number of benefits, including reduced transaction costs and increasing the reach of the smallest market entities. In this study, 39% of respondents confirmed the importance of AI in establishing relationships in the virtual world.

It should also be noted that the use of artificial intelligence may pose a certain threat to building social capital (e.g., by shifting the responsibility for initiating contacts to technology, which may lead to a gradual loss of relational skills among entrepreneurs). It is important to remember that AI does not replace relationships, does not build social capital, and cannot be treated as an entity on which entrepreneurs' decisions depend. Artificial intelligence should support the formation of social capital among the smallest market entities by strengthening entrepreneurs' relational skills. It should serve as a tool for establishing and expanding relational networks. However, maintaining long-term contacts should take place offline, based on a solid foundation of trust and credibility with relational partners who are aware of the role social capital plays in economic processes. Entrepreneurs should strive for the sustainability of social capital by collaborating with other entities and using it as a resource for their company to

achieve a competitive advantage. Based on the above premises, the main thesis of the article was formulated, according to which social capital 4.0 is of a hybrid nature, combining relationships established offline and online, and is one of the key economic resources of micro and small enterprises operating in conditions of growing geopolitical uncertainty and accelerated digital transformation, in particular related to the development of artificial intelligence.

Despite the growing number of studies on social capital and digital transformation, there is still a research gap regarding the measurement of Social Capital 4.0 at the enterprise level.

In particular, the literature lacks empirical studies examining how artificial intelligence affects the development of social capital, with a particular focus on bonding and bridging social capital. In this regard, the present study contributes to a fuller understanding of the role of AI in strengthening hybrid forms of social capital within the group of surveyed enterprises.

2. Methods

The aim of this article is to define the role of social capital 4.0 as an economic resource in micro and small enterprises operating in conditions of growing geopolitical tensions, market asymmetries and accelerated development of digital technologies, in particular artificial intelligence. The research is focused on social capital 4.0 essence, advantages, and limitations in contemporary economic processes, with particular emphasis on the group of micro and small enterprises for which social capital may prove to be one of the few opportunities, or the only chance, for market survival in an era of increasing political, technological, and economic asymmetries. Based on this, the following research question was formulated: How are contemporary business relationships established and what is the role of artificial intelligence in initiating them? The study was conducted as part of a broader research project on the role of social capital in micro- and small-scale enterprises in Poland, ongoing since 2023. The theoretical part of the study was based on a critical analysis of the relevant literature, while the empirical part was conducted using a quantitative approach. The study employed a diagnostic survey method, employing a questionnaire technique. Purposive sampling was employed. The research sample consisted of 360 respondents representing micro- and small enterprises operating in Poland. The surveyed enterprises represented diverse sectors, locations, and economic conditions. Empirical data were collected using CAWI (Computer-Assisted Web Interview) technique. The collected empirical data was statistically analyzed using SPSS software. The analysis included descriptive statistics and correlation analysis.

The adopted methodology allowed for the identification of the processes of social capital formation and an assessment of the role of artificial intelligence in supporting its development in micro- and small-scale enterprises.

3. The role of social capital in the era of digitalization and artificial intelligence- literature review

Social capital is not a new concept. Since the dawn of time, members of communities have instinctively sensed the need for collective action. Collaboration has enabled people to build communities and bond social structures, contributing over time to the multiplication of benefits, including economic and social ones.

In contemporary economies, characterized by increasingly severe market asymmetries, social capital is perceived by many authors as a resource that allows economic entities to overcome the limitations created by these asymmetries. (Bourdieu, 1986, p. 248; Coleman, 1998, p. 109; Fukuyama, 2001, pp. 7-10). Contemporary literature on the subject offers a wide range of definitional analyses that reduce social capital to a soft resource that an economic entity uses (as with other resources) to achieve a set of self-defined goals that would be difficult or even impossible to achieve in a situation of low or absent social capital. Therefore, social capital is "a set of resources that an actor can mobilize and derive benefits from his (the actor's) embeddedness in specific networks of relationships with other actors" (Esser, 2008, p. 23). Against this background, C. Trigilia's definition also seems justified. He states that: "Social capital can be understood as a set of social connections that an individual or collective entity can utilize at any time. Thanks to the availability of this capital, cognitive resources such as information and normative resources such as trust enable actors to achieve goals that would otherwise be impossible to achieve or would be achieved at greater cost" (Trigilia, 2001, p. 430).

Theoretically, social capital can imply a number of advantages for economic entities. It can strengthen competitive position by: reducing transaction costs, strengthening trust and credibility among business partners, developing collective problem-solving skills, and acting to achieve individual and group goals. At the same time, the literature on the subject emphasizes the negative effects of the formation of social capital, which can lead to exclusionary mechanisms, such as the closure of relational networks and limited access to resources from outside the group, the pursuit of particular individual interests, and the avoidance of the costs of reciprocity, which are an element of creating social capital (e.g., helping other entities) (Table 1).

Table 1.
Advantages and disadvantages of social capital in the traditional approach - an example of micro and small enterprises

Advantages	Disadvantages
•Reduces transaction costs and helps achieve individual and group goals •Strengthens human capital – individuals acquire new skills and experiences. •Provides access to resources belonging to business partners. •Contributes to mutual trust and reliability among contractors. •Facilitates the resolution of collective action dilemmas. •Promotes long-term investments. •Increases overall efficiency and market competitiveness.	•Enables individuals to pursue "unclear interests" under the banner of the common good. •Imposes conformism and limits objectivity, which leads to reduced individual autonomy and forces independent individuals to either accept group norms or leave the group. •The "freelancer" problem – entities are unwilling to share in the costs of creating the social capital they benefit from, hoping that someone else will bear these costs. •Contributes to the creation of negative social capital – for example, closed organizations focused on pursuing the interests of their own members benefit from internal social capital (the formation of interest groups). •Limits access to resources for entities outside the group. •Individual success can be perceived as a threat to group cohesion.

Source: own study based on: Grabowska-Powaga, 2019, pp. 168-172.

A fundamental element of building social capital is relationships, which, strengthened by mutual trust, mutual assistance, and the credibility of entities, create relational networks. Social capital is rooted in dense and enduring relational networks that enable the flow of information and access to resources, consolidate the framework for cooperation, and build mutual trust.

The contemporary conditions for establishing relationships, including in the virtual world, have prompted the need to redefine social capital. Currently, social capital is changing its face and the conditions for its creation, shifting from an offline model to a hybrid model. Social capital 4.0 is capital emerging in times of technological challenges related to the galloping development of automation, digitization, and the increasingly prevalent use of artificial intelligence in economic processes. This means that social capital 4.0 is no longer solely capital built among entities that engage in direct relational interaction, but is also built virtually.

Digital transformation encompasses not only the execution of final market transactions, which are transferred online, but also encompasses the process of shaping relationships between businesses, which determine their course and sustainability. The research shows that 67% of respondents establish business relationships hybridly, i.e., both in-person and online, 31% adhere to the traditional model of establishing contacts, and 2% of respondents exclusively online (Figure 1).

Like traditional social capital, its model formed online can take on both positive and negative dimensions (Smith, Smith, Shaw, 2017, pp. 18-34; Lee, Hallak, 2020, pp. 1-14).

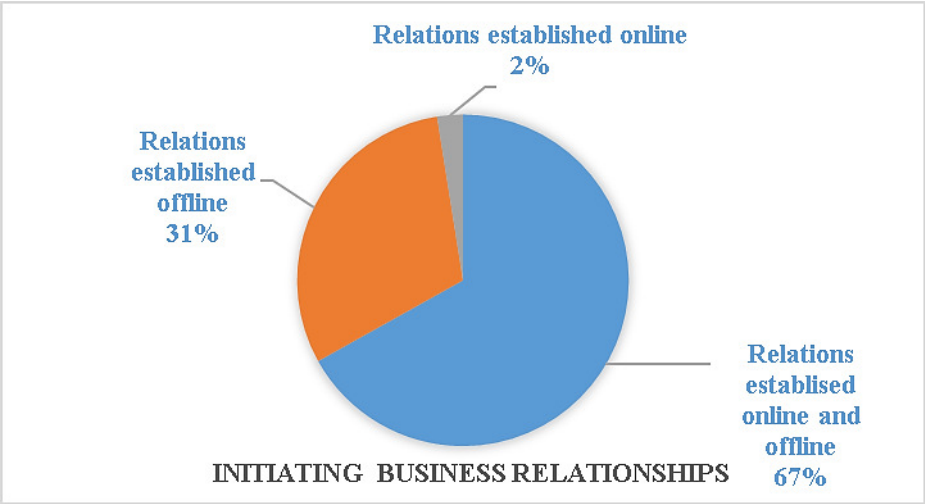

Figure 1. Ways to establish business relationships.

Source: own study.

The key advantages of social capital formed in the digital space include increased access to potential business partners and a broadened range of relationships, which leads to the reduction of temporal and spatial barriers. Social capital developed through online interactions also fosters greater inclusivity, creating opportunities for participation in relational networks for entities with limited resources and less potential for building relationships in traditional market conditions.

Social capital also fosters innovation in micro and small enterprises, enabling them to access diverse technological resources and knowledge through relationships with other economic entities (van Tran, van Ngoyen, Dinh, Huynh, van Ma, 2024, pp. 2-4).

Virtually established relationships, which form the foundation of online social capital, enable the crossing of closed networks and the establishment of contacts with market entities whose acquisition in traditional settings would require greater time, cost, and organizational effort. Network transparency, in turn, is an important advantage that strengthens social capital, especially in the context of bonding capital. By analyzing business profiles, it is possible to identify common areas of interest among entities, which will further strengthen the relational networks established between them. Digital infrastructure also facilitates monitoring competitors, accessing qualified capital, and increasing the credibility of relational parties.

At the same time, social capital built in the digital space can pose certain technological or ethical threats, such as data leakage or the persistence of information itself, whose digital footprint often becomes a business's trademark. Every online activity is subject to the assessment of followers, which can lead to negative opinions regarding the reliability of market entities. Mistakes made remain online and can cast doubt on the credibility of entities and the development of trust.

The disadvantages of online social capital also include the blurring of the boundaries between the professional and private spheres. As with offline social capital, a negative feature is the imposition of conformity and the limitation of objectivity on entities that enter into

asymmetric business relationships. Excessive involvement in online relationships can also pose a threat, which can lead to constant reassessment and failure to adhere to the company's specific strategic goals.

Another threat may be the disintegration of relationships built offline due to increased activity in establishing relationships in the virtual world. The model of social capital built in the digital environment particularly favors the strengthening of bridging social capital, while in the offline model, bonding capital remains the dominant form (Woolcock, 1998, p. 172). From the perspective of social capital developed online, the growing importance of bridging capital may come at the expense of the durability and cohesion of relationships characteristic of bonding capital (Table 2).

Table 2.
Advantages and disadvantages of online social capital – an example of micro and small enterprises

Advantages	Disadvantages
•Trust can be initiated online if there is consistent, repeatable, and transparent communication. •Digital relationships are often the only point of contact; are real, but not a substitute. •Online relationships foster inclusiveness and enable market entry for entities with significantly fewer resources (e.g., micro-enterprises from the periphery with limited capital or without PR departments). •Reducing time and space barriers by increasing the reach and effectiveness of established online relationships, faster communication, and increasing the availability of business partners. •Reducing communication barriers (diverse networks facilitate effective knowledge sharing). •Transforming the relational model from offline to hybrid. •Strengthening bridging capital supported by algorithms that suggest new contacts. •Network transparency, which can contribute to strengthening bonding capital (analysis of business profiles helps identify common areas of interest among interacting entities). •Accessibility (the ability to establish relationships in geographically distant locations). •Lack of preliminary assessment of the parties entering into relationships, which reduces anxiety and uncertainty regarding new relationships. •Ease of and convenience - establishing relationships online does not require relocation and does not imply time constraints, •Anonymity of relationship pages, •Support for innovation, and thus the company's adaptation to changing market conditions, •Tangible market benefits (access to qualified human capital, monitoring competitive activities), •Building legitimacy through professional digital profiles, increasing the credibility of relationship pages, •Increased efficiency in times of crisis.	•Technological and ethical threats related to data leaks, •The persistence of archived information that casts a shadow over the professionalism of entrepreneurs can hinder credibility and reliability, and thus the building of trust between the parties to the relationship, •Blurring the boundaries between the professional and private spheres during online relationships, •Imposing mental conformism or limiting objectivity (similar to offline social capital), •Excessive involvement in online relationships can lead to constant reassessment rather than adherence to the business goals defined in the company's strategy, •Risk of negative evaluation – every virtual activity is subject to evaluation and verification of reliability, accuracy, etc., •Lack of experience in confronting real relationships makes it difficult to build deep trust solely online, • Superficiality of online relationships, •Technological asymmetries (digital illiteracy), •The impermanence of online relationships that are not maintained interpersonally, •Limited credibility and trust in the relationship parties that are not subject to real verification, •Lack of certainty regarding the other party to the relationship, •The risk of fraud by the other party to the relationship and manipulation of information.

Source: own study based on: Smith, Smith, Shaw, 2017; Lee, Hallak, 2020, pp. 1-14; van Tran, van Ngoyenm, T. Pinh, 2024, pp. 2-4; Bylok, 2024, pp. 1580-1581; Annamalah et al., 2023, pp. 5-6.

As research shows, the hybrid nature of social capital 4.0 creates new opportunities for economic entities, but also presents numerous drawbacks. Another challenge currently faced by entities establishing relationships is the role of artificial intelligence in shaping relationships between entities and the role it can play in building social capital.

4. New relational challenges among entrepreneurs in the era of artificial intelligence on the basis of an example of micro and small enterprises- results and discussion

Research results indicate that 97% of entrepreneurs use artificial intelligence in their business operations. AI tools are most frequently used for searching for information (90.3%), user manuals (67%), and finding best practices to solve company business problems (57%) (Figure 2).

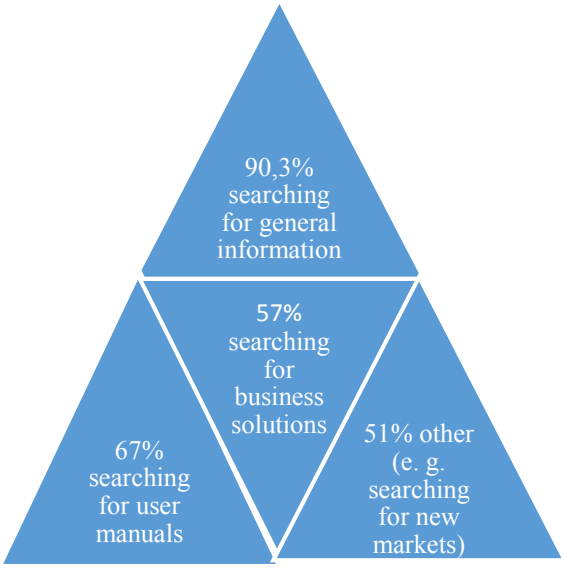

Figure 2. The goals of using artificial intelligence in business.

Source: own study.

According to research, 39% of entrepreneurs agree with the growing role of artificial intelligence in establishing new business relationships (Figure 3).

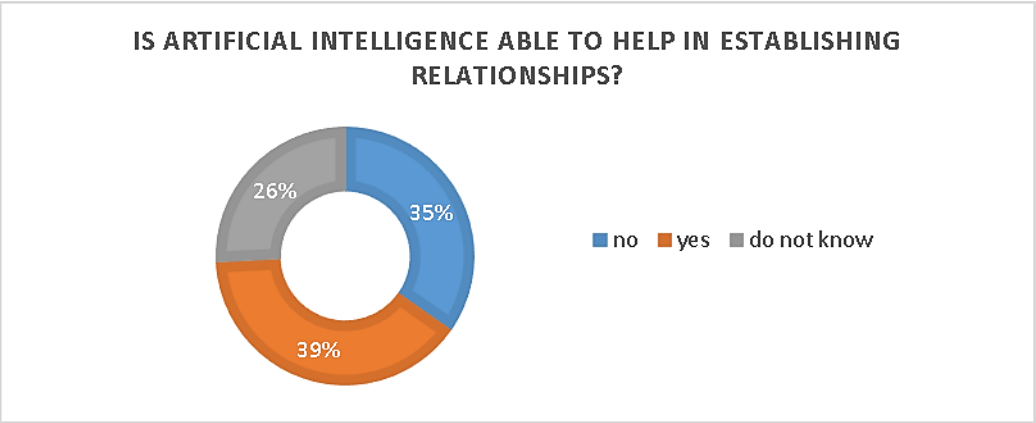

Figure 3. The impact of artificial intelligence on establishing relationships.

Source: own study.

According to respondents, the role of artificial intelligence is not limited solely to searching for new business partners (21% of responses), but AI can also simplify the establishment of relationships by, among other things, assisting in communication, e.g., language translation (71% of responses), preparing proposals for introducing a new model of cooperation between entities (37.1% of responses), or resolving conflict situations (25.8% of responses) (Figure 4).

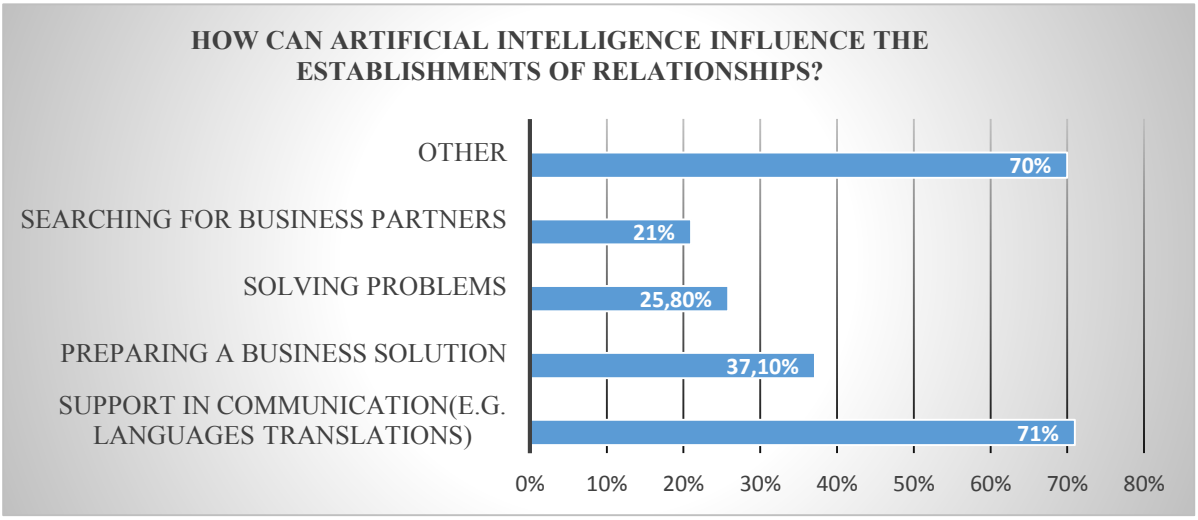

Figure 4. The role of artificial intelligence in establishing relationships.

Source: own study.

The application of artificial intelligence in relational processes and in building social capital is ambivalent, generating both new opportunities and specific risks of a social, organizational, and technological nature. Artificial intelligence does not replace relationships but can act as a relational catalyst. The use of artificial intelligence reduces transaction costs and supports the relational capabilities of entrepreneurs, especially in the smallest entities, where social capital is built by an individual (the business owner) rather than an entire team. There is also a significant, real risk, which is already materializing, that businesses will transfer relational activity from other market participants to artificial intelligence systems, which, thanks to their

availability, will become the preferred source of support in situations requiring rapid decision-making. This is tempting because it allows for time savings and decision optimization, in which entrepreneurs are often left alone. Analysis of the research results allows us to identify the paradoxes accompanying the implementation of artificial intelligence in the processes of building relationships and developing social capital 4.0. First, artificial intelligence, which was intended to strengthen the competitiveness of micro and small enterprises, may standardize them by introducing similar patterns of established business relationships. Second, delegating relationships to technology may lead to a long-term loss of empathy, negotiation skills, and relational intuition. Third, the risk of instrumentalizing relationships established schematically to optimize benefits may strip them of norms of reciprocity and obligation (Table 3).

Table 3.
Advantages and disadvantages of building relationships with the support of artificial intelligence

Advantages	Disadvantages
•Helps initiate relationships and reduce barriers to entry (reducing fear and tension before contact with an unknown business partner). •Strengthens relational competencies through negotiation and conflict resolution, particularly important for companies where social capital is closely linked to the owner. •Aids in relationship analysis and relational learning. •Reduces transaction costs and helps build social capital.	•The risk of transferring relationships to technology. •A weakening of affective trust based on personal experience; trust becomes an instrument rather than a value. •A weakening of entrepreneurs' relational competences. •Power asymmetry - entrepreneurs lose control over the selection of business partners. •Homogenization of business relationships; relationships lose authenticity or entrepreneurs' style disappears. •The risk of standardization of patterns for establishing business relationships.

Source: own study.

Artificial intelligence can therefore support the building of social capital among entrepreneurs, but only if it serves as a tool supporting relationships and provides infrastructural support. It cannot be treated as a substitute for relationships between entities. If entrepreneurs limit real relationships and stop investing independently in social networks, this may bring tangible results in the short term, translating into business efficiency (e.g., due to faster decision-making), but in the long term, their ability to collaborate and resilience to crisis situations will weaken. If entrepreneurs fail to independently cultivate relationships with business partners and focus on leveraging technology to optimize decisions, there is a risk of eroding relational capabilities, weakening the quality of relationships, diminishing trust, and deteriorating cooperation between entities. This could ultimately lead to a long-term loss of the ability to build social capital.

5. Summary

Social capital 4.0 is increasingly perceived by economic entities, faced with various constraints in times of increasing market asymmetries, as a resource that, through optimal management, can become an economic resource that allows them to survive crisis situations. It is increasingly rarely treated as solely the result of the intuition of entrepreneurs seeking to expand their relational networks and, through them, reach various markets. The greatest advantage of social capital 4.0 is the hybrid nature of relationships formed both online and offline. Therefore, relationships formed online do not replace its traditional role but rather expand its possibilities. It is worth noting that social capital 4.0, which arises through the initiation of online relationships, increasingly strengthens bridging capital, which is actually more difficult to establish than bonding capital. Online relationships can provide a real and economically significant foundation for building social capital, especially for the smallest businesses (micro and small enterprises), provided they are long-lasting, based on trust, and can be strengthened by digital technologies. Artificial intelligence can support the development of social capital in micro and small enterprises, but only if it serves as a tool supporting the formation of relationships, not as a substitute for them. AI can act as a relational catalyst or contribute to reducing the problem of inclusiveness among the smallest businesses. It helps companies that lack sufficient resources to expand their relational networks and thus reach distant markets by filtering databases of potential business partners, thereby reducing the transaction costs of establishing such relationships.

In summary, the obtained research results confirm the growing importance of social capital 4.0 in micro and small enterprises. Based on these results, it seems reasonable to conclude that social capital 4.0, combined with the use of artificial intelligence, allows this resource to be considered a significant adaptive mechanism for the smallest market entities in conditions of increasing political, technological, and market asymmetries. Based on the above premises, the thesis presented in the introduction has been proven and the aim of the article can be considered achieved.

References

1. Annamalah, S., Pertheban, T.R., Paraman, P., Shamsudin, F., Ahmed, S., Baharudin, K, Dass, R., Sentosa, I., Logeswaran, K., Raman, A.M, Hoo, W.C., Singh, P. (2023). The role of open innovation and a normalizing mechanism of social capital in the tourism industry. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*, 1-18.
2. Bourdieu, P. (1986). The Forms of Capital. In: J.G. Richardson (ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258). New York: Greenwood Press.
3. Bylok, F. (2024). Social capital as a facilitator of knowledge sharing in innovative companies. *Procedia Computer Science*, *246*, 1580-1588.
4. Coleman, J.S. (1998): Social Capital in the Creation of Human Capital. *American Journal of Sociology*, *94.* Supplement: Organizations and Institutions: Sociological and Economic Approaches to the Analysis of Social Structure. The University Chicago Press, 95-120.
5. Dien Van Tran, Phuong Van Nguyen, Nhi Tran Thao Dinh, Thang Nam Huynh, Khanh Van Ma (2024). Exploring the impact of social capital on business performance: The role of dynamic capabilities, open innovation and government support. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*, 2-12.
6. Esser, H. (2008). The Two Meanings of Social Capital, In: D. Castiglione, J. van Deth, G. Wolleb (eds.), *The Handbook of Social Capital* (pp. 22-49). Oxford: Oxford University Press.
7. Fukuyama, F. (2001). Social Capital, Civil Society and Development. *Third Word Quaterly*, *1*, 7-20.
8. Grabowska-Powaga, A. (2019). *Kapitał społeczny a gospodarowanie – Aspekty teoretyczne i empiryczne.* Warszawa: CeDeWu.
9. Lee, C, Hallak, R. (2020). Investigating the effects of offline and online social capital on tourism SME performance: A mixed-methods study of New Zealand entrepreneurs. *Tourism Management*, *80*, 2-14.
10. Smith, C., Smith, J.B., Shaw, E. (2017). Embrancing digital networks: Entrepreneurs' social capital online. *Journal of Business Venturing*, *32*(1), 18-34.
11. Trigilia, C. (2001). Social Capital and Local Development. *European Journal of Social Theory*, *4*(4), 427-442.
12. Woolcock, M. (1998). Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework. *Theory and Society*, *27*(2), 151-208.

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SUPPORTING NEURODIVERGENT STUDENTS IN EUROPEAN UNION HIGHER EDUCATION: AN ANALYSIS OF SELECTED UNIVERSITIES

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Purpose: The aim of this study is to analyse how selected European Union universities listed in the Times Higher Education Rankings support neurodivergent students and to identify examples of effective inclusive practices and remaining gaps in provision.
Design/methodology/approach: This comparative qualitative study analyzed documents from 27 top-ranked EU universities. Websites, support pages, portals, and policies were coded into 14 support categories via matrix.
Findings: Results indicate strong convergence around core individualized accommodations such as extended exam time, flexible deadlines, psychological counselling, mediation with lecturers, and peer mentoring, all designed to maintain academic standards while addressing neurodivergent students' needs.
Research limitations/implications: Limitations include reliance on publicly available documents, potentially missing internal practices. Future studies should incorporate student/staff surveys, longitudinal tracking of support efficacy, and cross-national policy comparisons to address neurodiversity beyond disability certification.
Practical implications: Support remains tied mainly to formal disability status, excluding many neurodivergent students without diagnoses. Universities should extend policies beyond traditional disability and embed neurodiversity‑informed support into mainstream practice.
Social implications: This study raises awareness of neurodivergent support gaps, promoting inclusive attitudes and transparent university policies. It informs EU education policy for equitable access, improving quality of life and workforce integration.
Originality/value: This paper provides the first comparative analysis of neurodivergent support in 27 top EU universities. It identifies transparency gaps and policy limitations.
Keywords: Neurodiversity, Neurodivergent students, Higher education.
Category of the paper: Research paper.

1. Introduction and Background

For many years, scholars and scientists have been intrigued by the diverse ways in which human cognition operates. Research into brain function has sought to elucidate the underlying causes of cognitive variability among individuals. A significant area of focus within this domain is neurodivergence, which examines the spectrum of neurological differences. Studying neurodivergence enhances our understanding and appreciation of the unique cognitive profiles that characterize each individual.

Neurodivergence and neurodiversity are new terms to describe how a person might think or function. Scientists like Sutton, Scott and Deemer (2025) argue that the word neurodivergence may be applied to every person in the world as nobody's brain works the same. By this definition, everybody's brain works differently, thus no one in the human race sees the world the same.

Traditionally, neurodiversity is a word for people with neurodevelopmental disorders. Neurodivergence is an umbrella term that refers to variations in the way people's brains function, affecting how they think, learn, and interact with the world. It includes a range of conditions such as ADHD, autism, dyslexia, dyspraxia, dysgraphia, dyscalculia, Tourette's syndrome, epilepsy, and mental health challenges like depression and bipolar disorder, as well as neurological conditions like Alzheimer's disease (Mcgee, 2012). These differences are not disorders but natural variations in human neurology that contribute to diverse ways of experiencing and understanding life.

Regarding the etymological background, Walker (2014) distinguishes two main concepts related to neurodiversity: the "neurodiversity paradigm", which is a theoretical perspective recognizing neurological differences as natural variations within the human population, and the "neurodiversity movement", an activist effort aimed at promoting the rights and well-being of neurodivergent individuals.

Walker (2014) considers that neurodivergent, refers to individuals whose brain functions differ significantly from what society generally considers "normal". It is a broad term encompassing various ways in which people's neurological functioning can vary. On the other hand, Singer (1999) points out that neurodiversity is seen as a social category that underpins a framework for social justice. This viewpoint emphasizes neurological diversity as a political identity that reveals power disparities among individuals based on their neurological differences, much like how society organizes people by class, gender, or ethnicity.

Since there are no comprehensive definitions of neurodiversity or neurodivergence, the term neurotypicality which relies on these concepts also lacks a clear and agreed-upon definition. Viewed through the lens of the medical model, neurotypicality is described as the condition of an individual who is medically and psychologically healthy, exhibiting typical patterns of

neurodevelopment. This term is often used in contrast to individuals who experience atypical developmental trajectories, such as those with autism (Perszyk, 2013).

Overall, collective understandings of neurodiversity have changed a lot over the past 30 years and can be difficult to fully grasp without knowledge of their historical background. The concept is still evolving and continues to develop over time. Research estimates that approximately 15–20% of the global population is neurodivergent. This indicates that one in five people worldwide has a brain that operates differently from the neurotypical majority, including conditions such as autism, ADHD, dyslexia, and dyspraxia (Doyle, 2020).

2. Literature Review

The growing body of scholarship on neurodiversity in higher education underscores the multifaceted challenges faced by neurodivergent students and the institutional strategies required to foster inclusion. Pigato (2023) emphasizes the importance of training academic staff to better understand the needs of neurodivergent learners, such as autistic students and those with ADHD, and to implement concrete pedagogical adjustments including lecture recordings and flexible assessment formats. Crucially, Pigato highlights the necessity of involving neurodivergent students in the design of institutional change, thereby positioning them not only as recipients of support but as active contributors to inclusive practices.

Complementing this perspective, Hamilton and Petty (2023) propose a "compassionate pedagogy" rooted in Universal Design for Learning (UDL). Their conceptual analysis suggests that attention to emotional well-being, recognition of students' strengths, and flexible access to learning materials constitute foundational strategies for reducing barriers in higher education. The emphasis on UDL resonates with broader debates in the field, which call for systemic rather than ad hoc approaches to inclusion.

Research conducted outside Europe provides valuable insights into global trends and adaptable solutions for supporting neurodivergent students. A notable example is the study by Taneja, Viswanathan, and Rajan (2022), which examines initiatives in Indian higher education aimed at assisting students with autism, ADHD, and other forms of neurodivergence.

Indian universities have introduced dedicated support centers, faculty training, flexible assessment methods, and personalized learning pathways. The use of assistive technologies, such as mobile apps and alternative communication tools, plays a key role in enhancing learning and social participation. Collaboration with NGOs, strengthens the responsiveness and effectiveness of these measures.

These findings offer a useful point of comparison for European institutions, including those in Poland, by highlighting areas where current support may fall short. Particularly noteworthy are India's cost-effective innovations and the emphasis on including neurodivergent students in decision-making - an approach still underdeveloped in many European contexts.

At the same time, empirical studies focusing on specific conditions underline the academic risks associated with insufficient support. Henning, Summerfeldt, and Parker (2022) show that inattentive symptoms of ADHD strongly predict lower academic performance and higher dropout rates, while Doyle et al. (2021) detail the institutional and pedagogical barriers encountered by students with ADHD in Ireland. Both studies advocate for coaching, flexible assessment methods, and awareness-raising initiatives as effective forms of intervention. Relatedly, Jean et al. (2021) demonstrate the association between ADHD symptoms and increased stimulant use among French students, stressing the need for preventive screening and targeted assistance at the university level.

The mental health dimension of neurodivergence is also a recurring theme in recent scholarship. McKenney et al. (2022) report that low satisfaction with social connectedness among neurodiverse first-year students is associated with higher levels of depression and anxiety, thereby highlighting the centrality of inclusive social environments for academic adjustment and well-being. Bayeh and Ryder (2023) extend this discussion by exploring the intersection of neurodiversity and minority status among Canadian students, arguing that effective support requires system-level policies, institutional commitment to inclusive teaching, and collaboration between students, staff, and administrators.

A number of studies directly address faculty training as a critical mechanism for advancing inclusive education. Bolourian, Zeedyk, and Brown (2023) evaluate the NeuroPREP program, designed to strengthen faculty competence in supporting neurodivergent students. Their findings suggest that targeted, evidence-based training developed in consultation with neurodivergent stakeholders is a necessary precondition for institutional transformation. Such perspectives are consistent with Seale et al. (2015), who argue that inclusive digital and pedagogical practices depend on the alignment of staff awareness, institutional resources, and student participation.

Finally, the Finnish case study It Was Like Offering a Band-Aid for a Fracture (2022) illustrates systemic barriers to accessing support services through the lens of families of neurodivergent children. Although focused on primary and secondary education, its findings resonate strongly with the higher education sector. Key barriers including insufficient information, lack of professional expertise, bureaucratic obstacles, and rigid eligibility criteria mirror many of the challenges faced by university students. The study underscores the need for transparent communication, streamlined administrative procedures, and institution-wide policies to guarantee equity of access.

3. Methodology

In order to map the availability and forms of support for neurodivergent students across the European Union, we conducted a systematic review of information provided by higher education institutions in 25 member states. The selection of universities for analysis was based on the Times Higher Education World University Rankings 2025, which ensured the inclusion of leading institutions across the EU and facilitated cross-country comparability (Times Higher Education, 2025). The data collection process consisted of two complementary stages. First, we performed a structured examination of official university websites and publicly available resources, following established approaches to document analysis in educational research (Bowen, 2009; Scott, Morrison, 2019). This approach is particularly suitable for studies of accessibility and inclusion in higher education, where institutional policies and services are often communicated through online materials (Tight, 2012; Hockings, 2010). Particular attention was paid to the presence of dedicated offices, units, or services offering assistance to neurodivergent students, as previous studies have shown that institutional support structures are key determinants of academic inclusion and success for students with disabilities (Fuller, Healey, Bradley, Hall, 2004; Madriaga, 2010). During this stage, we documented whether such support offices existed, what types of accommodations or services were explicitly described, and the extent to which students could apply for or request specific forms of assistance. However, official sources may not fully reflect informal practices, internal procedures, or undocumented support mechanisms.

Secondly, in cases where relevant information was not retrievable through institutional webpages or publicly accessible documents, we contacted the respective institutions directly via email to request clarification regarding the availability and modalities of support. This methodological step aligns with best practices in international comparative research, where desk research is frequently supplemented with direct institutional inquiry to address information gaps and to validate findings (Teichler, 2014; Creswell, Plano Clark, 2018). The combination of document analysis and direct communication allowed us to gather both explicit, publicly available information and contextualized insights into institutional practices. Such triangulation not only enhances the reliability of the data but also reflects broader methodological trends in the study of higher education and disability services (Seale, Georgeson, Mamas, Swain, 2015). Ultimately, this dual strategy ensured the construction of a comprehensive and comparable dataset covering both documented provisions and information obtained through direct institutional communication.

Following the outlined methodological approach, the subsequent table presents a synthesized overview of available support and information for neurodivergent students across selected top-ranked European universities, as identified through the Times Higher Education World University Rankings 2025. This tabular representation organizes data by institution,

highlighting both the breadth of documented provisions, ranging from dedicated disability offices and exam accommodations to peer mentoring and assistive technologies and any identified gaps in publicly accessible or institutionally confirmed resources. By consolidating these findings into a clear, comparative format, the table facilitates a systematic analysis of institutional inclusivity practices, enabling researchers and policymakers to discern patterns, strengths, and areas for enhancement in supporting neurodivergent learners within EU higher education contexts.

4. Our findings

The table beneath (table 1) presents a comparative matrix documenting accessibility support services for neurodivergent and disable students across 27 European universities, organized by 14 predefined categories derived from institutional policies and practices. The identified categories of disability support across European universities include dedicated staff or teams, consultation and procedural options, exam and assessment adaptations, individual support plans, peer or mentoring programs, psychological and counseling services, assistive technologies and equipment, accessible materials and lectures, infrastructure and environmental adaptations, financial or scholarship support, staff training and awareness, safety and anti-discrimination policies, specialized support for specific groups, and additional student life supports. Categories were coded with an X only when institutional documentation explicitly mentioned the specific service (e.g., "disability office" for A, "extra exam time" for C).

The compiled data provide a comparative overview of institutional approaches to supporting neurodivergent students, capturing both formally communicated provisions and practices identified through institutional contact. Together, these findings offer insight into the scope and visibility of support structures across the examined higher education contexts.

Table 1.
Mapping Neurodivergent Accommodations Across 25 Top-Ranked Universitie

University	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***I***	***J***	***K***	***L***	***M***	***N***
KU Leuven	X		X	X	X	X	X	X	X			X		X
Medical University of Sofia	No information provided													
Charles University	X		X	X	X	X	X	X	X			X		
University of Copenhagen	X		X	X	X	X	X	X	X		X	X		
Technical University of Munich	X		X	X		X	X	X	X			X		
University of Tartu	X		X	X	X	X	X	X	X	X		X		
Trinity College Dublin	X	X	X	X	X	X	X	X	X	X	X	X	X	X
National and Kapodistrian University of Athens	X	X	X	X	X	X	X	X	X	X	X	X		X
University of Barcelona			X	X	X	X	X	X	X	X	X	X		X
Paris Sciences et Lettres University	X		X	X	X	X	X	X	X		X		X	X
University of Split	X		X	X	X	X	X	X	X	X	X	X		
University of Bologna	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Cont. table 1.

University of Cyprus		X	X	X	X	X	X	X	X	X	X	X	X	X
Riga Technical University	X	X		X	X	X	X	X		X	X	X		X
Lithuanian University of Health Sciences	X		X	X		X	X		X	X	X		X	X
University of Luxembourg	X	X	X	X		X	X		X	X	X		X	X
Semmelweis University	No information provided													
University of Malta	X	X	X	X	X	X		X	X	X		X	X	X
Delft University of Technology	X	X	X		X	X	X			X	X		X	X
University of Vienna	X	X	X	X	X	X	X			X		X	X	X
Wrocław Medical University	X	X	X	X		X	X	X	X	X	X	X	X	X
University	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***I***	***J***	***K***	***L***	***M***	***N***
Uniwersytet im. Adama Mickiewicza w Poznaniu			X			X	X			X		X	X	X
University of Coimbra		X	X	X	X	X	X	X	X	X	X	X	X	X
Bucharest University of Economic Studies	X	X	X			X		X	X		X		X	X
University of Ljubljana			X	X	X	X			X	X		X		X
University of Žilina			X	X										X
University of Helsinki	X		X	X	X	X	X	X	X		X	X		

Notes: A - Dedicated Teams and Coordinators, B - Consultations and Procedural Options, C - Exam and Assessment Adaptations, D - Individual Support Plans, E - Peer and Mentoring Programs, F - Psychological and Counseling Services, G - Assistive Technologies and Equipment, H - Accessible Materials and Lectures, I - Infrastructure and Environmental Adaptations, J - Financial and Scholarship Support, K - Staff Training and Awareness, L - Safety, Anti-Discrimination, and Policies, M - Specialized Support for Specific Groups, N - Additional Student Life Supports.

Source: compiled by the author.

5. Discussion

This analysis of disability support services across European universities reveals a strong consensus on core accommodations for neurodivergent students, including those with dyslexia, autism, and ADHD, prioritizing individualized plans that maintain academic integrity. The most frequently repeated adjustments across European universities for students with disabilities, particularly neurodivergent ones like dyslexia or autism, emphasize individualized accommodations without lowering standards. These appear in descriptions from over 20 institutions, with some phrasings varying (e.g., "extra time" vs. "additional exam time") but clearly overlapping in intent. Psychological counseling (remote/individual/group) and mediation with lecturers recur often for neuroatypical students, alongside peer mentoring programs. Flexible deadlines, reduced attendance, and priority housing appear consistently but less dominantly. These align with psycho-pedagogical supports for neurodivergent students, including autism and dyslexia, as researched in Polish and European contexts.

5.1. Limitations

While most universities offer support programs for neurodivergent students, such as coaching, mentoring, and transition services, national and international laws complicate access. National and international laws regulate support for people with disabilities by categorizing types of disability, granting specific rights, and incentivizing employer hiring, but they do not address neurodiversity directly.

As highlighted by Tomczak (2025) in the context of the labor market, many neurodivergent individuals choose not to pursue formal disability certification, which limits their access to accommodations and protections. This mirrors the situation at universities, where students without official recognition of disability may also miss out on necessary support, despite experiencing cognitive or sensory differences.

Banasik et al. (2025) also points out that neurodivergent people can be divided into three groups: those who are neurodivergent but do not have an official disability certification, those who have a recognized disability but are not neurodivergent, and those who are both neurodivergent and have a disability certification. Some in the last group seek certification to access benefits, while others choose not to. Current laws and university programs mostly address people with recognized disabilities, which creates gaps for neurodivergent individuals without certification or those who decline the disability status. This means many neurodivergent students, such as those with ADHD or dyslexia, might not get the support they need because they are not officially recognized as disabled. Therefore, authors stress the importance of broadening policies and support programs beyond just disability status to include all neurodivergent individuals.

6. Conclusion

Support for neurodivergent and disabled students in European higher education remains uneven and often insufficiently transparent. The comparative document analysis of 27 universities revealed a broad spectrum of formally declared provisions, ranging from exam adaptations, individual support plans, and assistive technologies to counseling, staff training, and dedicated support roles. At the same time, the complete absence of accessible information for several institutions underscores persistent gaps in how support is communicated, documented, and made visible to prospective and current students. These findings suggest that, beyond developing services themselves, universities should strengthen the clarity, accessibility, and neurodiversity-sensitive framing of their policies and resources. Improving transparency and standardizing terminology across institutions could significantly enhance equity of access and provide a more reliable basis for future research and policy development in inclusive higher education.

References

1. Banasik, P., Stankiewicz, K., Tomczak, M.T., Sienkiewicz, Ł. (2025). *Analysis of legal regulations on neurodivergent people in the labor market [Raport]*. Wydział Zarządzania i Ekonomii, Politechnika Gdańska.
2. Bayeh, R., Ryder, A.G. (2023). Neurodiversity, minority status, and mental health: A quantitative study on the experiences of culturally diverse university students in Canada. *Journal of Diversity in Higher Education. Advance online publication*. https://doi.org/10.1037/dhe0000584
3. Bolourian, Y., Zeedyk, S.M., Brown, H. (2023). Faculty training in neurodiversity: Stakeholder feedback on social validity and perceived effectiveness. *Journal of Autism and Developmental Disorders, 53(3),* 1125-1139. https://doi.org/10.1007/s10803-021-05254-y
4. Bowen, G.A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9(2),* 27-40. https://doi.org/10.3316/QRJ0902027
5. Creswell, J.W., Plano Clark, V.L. (2018). *Designing and conducting mixed methods research (3rd ed.).* Sage. https://doi.org/10.4135/9781506335193
6. Doyle, N. (2020). Neurodiversity at work: a biopsychosocial model and the impact on working adults. *British medical bulletin, 135(1),* 108-125. https://doi.org/10.1093/bmb/ldaa021
7. Doyle, A., Healy, O., Paterson, J., Lewis, K., Treanor, D. (2021). What does an ADHD-friendly university look like? A case study from Ireland. *Journal of Attention Disorders, 25(14),* 2071-2084. https://doi.org/10.1177/1087054720939429
8. Fuller, M., Healey, M., Bradley, A., Hall, T. (2004). Barriers to learning: A systematic study of the experience of disabled students in one university. *Studies in Higher Education, 29(3),* 303-318. https://doi.org/10.1080/03075070410001682592
9. Hamilton, L.G., Petty, S. (2023). Compassionate pedagogy for neurodiversity in higher education: A conceptual analysis. *Teaching in Higher Education*, *28(5),* 709-723. https://doi.org/10.1080/13562517.2021.2002826
10. Henning, C., Summerfeldt, L.J., Parker, J.D.A. (2022). ADHD and academic success in university students: The important role of impaired attention. *Journal of Attention Disorders*, *26(7),* 977-988. https://doi.org/10.1177/1087054720972771
11. Hockings, C. (2010). *Inclusive Learning and Teaching in Higher Education: A Synthesis of Research.* York: Higher Education Academy.
12. It Was Like Offering a Band-Aid for a Fracture (2022). Parental experiences of barriers to services for neurodivergent children in Finland. *Scandinavian Journal of Disability Research, 24(1),* 1-15. https://doi.org/10.16993/sjdr.835
13. Jean, F.A.M., Moulin, F., Schwartz, A.N., Castel, L., Montagni, I., Macalli, M., Notredame, C.-E., Côté, S.M., Galéra, C. (2021). Association between ADHD symptoms and illicit

stimulant use following 1 year among French university students of the i-Share cohort. *Journal of Attention Disorders, 25(9),* 1226-1237. https://doi.org/10.1177/1087054720921053

14. Kapp, S.K. (2020). Introduction. In: S. Kapp (ed.), *Autistic community and the neurodiversity movement: Stories from the frontline* (pp. 1-19). Palgrave Macmillan.
15. Madriaga, M. (2010). 'I avoid pubs and the student union like the plague': Students with Asperger syndrome and their negotiation of university spaces. *Children's Geographies, 8(1),* 39-50. https://doi.org/10.1080/14733280903500166
16. Mcgee, M. (2012). Neurodiversity. *Contexts, 11(3),* 12-13.
17. McKenney, E.E. et al. (2022). Satisfaction with social connectedness is associated with depression and anxiety symptoms in neurodiverse first-semester college students. *Journal of American College Health, 70(7),* 2117-2125. https://doi.org/10.1080/07448481.2021.1902106
18. Perszyk, D. (2013). Neurotypical. In: F.R. Volkmar (Ed.), *Encyclopedia of autism spectrum disorders.* New York: Springer.
19. Pigato, G. (2023). Contributing to an inclusive education for neurodivergent students: Sharing reflections, practices, and experiences. *European Journal of Special Needs Education, 38(2),* 224-238. https://doi.org/10.1080/08856257.2021.2001172
20. Russell, G. (2020). Critiques of the Neurodiversity Movement. In: S. Kapp (ed.), *Autistic Community and the Neurodiversity Movement.* Singapore: Palgrave Macmillan. https://doi.org/10.1007/978-981-13-8437-0_21
21. Scott, D., Morrison, M. (2019). *Key ideas in educational research*. Bloomsbury. https://doi.org/10.5040/9781350061718
22. Seale, J., Georgeson, J., Mamas, C., Swain, J. (2015). Not the right kind of 'digital capital'? An examination of the complex relationship between disabled students, their technologies and higher education institutions. *Computers & Education, 82*, 118-128. https://doi.org/10.1016/j.compedu.2014.11.007
23. Singer, J. (1999). "Why Can't You Be Normal for Once in Your Life?" from a "Problem with No Name" to the Emergence of a New Category of Difference. In: M. Corker, S. French (Eds.), *Disability Discourse* (pp. 59-67). *Open University Press.*
24. Sutton, E., Scott, S., Deemer, P. (2025). Neurodivergence – An exploration of challenges and opportunities within the United Kingdom's clinical academic health and care professionals workforce. *Neurodiversity, 3*, 1-7. https://doi.org/10.1177/27546330251328411
25. Taneja, D., Viswanathan, P., Rajan, S.V. (2022). Being neurodivergent in academia: Navigating neurodiversity in higher education in India. *Higher Education for the Future*, *9(1),* 81-96. https://doi.org/10.1177/23476311211060587

26. Teichler, U. (2014). Opportunities and problems of comparative higher education research: The daily life of research. *Higher Education, 67(4),* 393-408. https://doi.org/10.1007/s10734-013-9682-0
27. Tight, M. (2012). Researching higher education. *Open University Press.*
28. Times Higher Education (2025). *World University Rankings 2025*. Retrieved from: https://www.timeshighereducation.com, 10.03.2026.
29. Walker, N. (2014). *Neurodiversity: Some basic terms and definitions. Neurocosmopolitanism: Dr. Nick Walker's Notes on neurodiversity, autism, and cognitive liberty.* Available at: https://neurocosmopolitanism.com/neurodiversity-some-basic-terms-definitions/, 10.03.2026.

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NON-MATERIAL MOTIVATIONAL TOOLS AND THEIR IMPACT ON EMPLOYEE MOTIVATION IN POLAND'S CARE SERVICES SECTOR: A JOB SATISFACTION INDEX CASE STUDY

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Purpose: This article aims to assess the effectiveness of non-material motivational tools used for low-paid employees in the Polish elderly care services sector. The effectiveness of these tools is evaluated using a proprietary Job Satisfaction Index, designed to reflect the actual level of employee satisfaction in financially constrained organizational settings.
Methodology: The study is based on quantitative research conducted among 160 caregivers employed in a care services company operating across four Polish regions. A proprietary survey tool assessed the impact of non-material motivational tools – categorized into task-related, work environment-related, and development-related – using descriptive statistics and correlation analyses.
Findings: The findings confirm that non-material motivational tools significantly affect job satisfaction among low-paid care workers. Job stability, flexible working hours, and favorable working conditions showed the strongest positive correlation with the Job Satisfaction Index, while lack of recognition and poor workplace atmosphere negatively influenced satisfaction.
Research limitations/implications: The focus on selected non-material motivational tools indicates the need to examine their interrelationships with material motivational tools. Future research should adopt comparative and dynamic approaches to explore contextual conditions shaping employee motivation in low-paid sectors.
Practical implications: The results provide practical guidance for managers operating in low-budget care organizations. Effective use of selected non-material motivational tools enhances employee engagement and retention, thereby improving service quality. Organizations should focus on consistent and context-sensitive implementation of these tools to achieve sustainable motivational outcomes.
Social implications: The study highlights the importance of non-material motivational tools for improving job satisfaction among low-paid employees essential to aging care systems. The findings support sector-level initiatives that complement material motivational tools.
Originality/value: The article fills a gap in HRM literature by empirically evaluating non-material motivation in the Polish care services sector. It introduces an original typology of motivational tools and a proprietary Job Satisfaction Index as a methodological contribution.
Keywords: non-material motivation, employee satisfaction, care services sector, low-paid workers, Job Satisfaction Index.
Category of the paper: case study.

1. Introduction

Interest in non-material motivational tools has been growing since the beginning of the 21st century, particularly in sectors with low salary levels facing budgetary constraints. Such tools, which do not entail direct financial expenditures, are increasingly valued for their potential to improve employee efficiency, loyalty, retention, and job satisfaction.

Non-material motivation is especially relevant for low-paid employees, defined as workers receiving remuneration at the statutory minimum level (Dz.U. 2016, item 1265), often including individuals facing social barriers as well as retirees and pensioners. This article focuses on caregivers for the elderly in the Polish care services sector – a physically and emotionally demanding yet poorly compensated occupational group (GUS, 2023) – whose importance continues to grow in an aging society.

The study addresses a research gap by analyzing the effectiveness of selected non-material motivational tools in enterprises providing care services in Poland. A quantitative case study conducted in four Polish voivodeships used a proprietary Job Satisfaction Index to assess the relationship between employees' subjective evaluation of task-related, work-environment-related, and development-related tools and overall job satisfaction, revealing positive correlations of varying strength and enabling the formulation of practical recommendations and directions for further research.

2. Non-material motivational tools – research review

Interest in non-material motivational tools has been steadily growing in management research, particularly in the context of employee engagement, autonomy, and intrinsic motivation. One of the earlier contributions in this field was provided by J.E. Sharon and K. Beverly (2007), who pointed out that the most effective non-material motivational tools include the opportunity to perform challenging work, continuous learning, professional development, and collaboration with a supportive team and supervisor.

At the beginning of the 21st century, F. Galia highlighted the role of independence and creativity in enhancing motivation (Galia, 2008). Similar conclusions were drawn by David Rock, a contemporary representative of the neuroleadership approach, who in his SCARF model (Status, Certainty, Autonomy, Relatedness, Fairness) identifies autonomy as one of five key factors influencing employee motivation and engagement (Rock, 2008). According to Rock, the ability to make decisions and a sense of control over one's work significantly reduce stress and support cognitive processes, thereby increasing satisfaction and performance.

A similar perspective is presented by M.W. Kopertyńska and M. De Pee, who underline that employees want their work and interpersonal relationships to satisfy their needs for belonging, participation, meaningful results, personal engagement, and development (Kopertyńska, 2009; De Pee, 2012). This captures the essence of employee expectations – treating work not only as a source of income but also as a source of recognition, affiliation, and purpose.

A. Broni (2012), on the other hand, argues that well-selected motivational actions contribute to the achievement of organizational goals, foster positive workplace relationships, and support workforce stability. He stresses that a key managerial responsibility is to identify employees' individual needs and motivate them in a way that is appropriate to the context, so as to bring out the best in them.

Comparable conclusions were drawn by A. Czarnecka (2013), who analyzed the role of managerial attitudes in building employee engagement. She highlighted the importance of adopting an individualized approach, accurately identifying employee needs, and creating a work environment conducive to intrinsic motivation. In her view, it is the direct supervisor, through an appropriate leadership style and by fostering a positive organizational climate, who can most effectively influence employee behavior, attitudes, and loyalty.

In the Polish context, the findings of A. Wziątek-Staśko (2014) are particularly noteworthy. She identified the most effective non-material motivational tools as: job security, a positive workplace atmosphere, collegial relationships, promotion opportunities, flexible working hours, and self-actualization. The study also revealed significant differences in the motivational power of individual tools—some (e.g., CSR or equal treatment) are present in organizations but are rated considerably lower by employees in terms of motivational value.

In a similar vein, A. Kochmańska (2016) demonstrated that non-material motivational tools influence the development of pro-organizational attitudes and employee identification with company goals. According to her research, a vast majority of respondents (77.5%) agreed that non-material tools contribute to building such attitudes, while only 22.5% held a different opinion. A follow-up question asked those who answered affirmatively to indicate how significant a role these tools play in fostering pro-organizational attitudes: 55% of respondents stated it was a moderate role, 42.5% indicated it was significant, and only one respondent (2.5%) considered the role to be minor. This suggests a clear correlation between the use of non-material motivational tools and the development of employee identification with the organization.

The analysis further revealed which tools employees consider most important for enhancing their engagement with assigned responsibilities. These include the ability to shape one's career path (67.5%) and development opportunities (62.5%). Other tools ranked by importance included: effective communication systems and leadership style (35%), organizational culture (27.5%), task delegation (20%), employee appraisal systems (17.5%), employee participation (7.5%), and both flexible working hours and verbal praise (2.5%).

M. Pęcek and J. Walas-Trębacz (2018) emphasized that non-material motivational tools have the strongest influence on employee engagement levels. Job stability was identified as a tool present in over half of the surveyed companies (57.79%) and had a significant impact on employee engagement (52.25%). Other highly influential non-material tools included a positive work atmosphere (52.6%), opportunities for development (36.33%), effective workplace communication (41.18%), clearly defined goals and tasks (43.60%), and the possibility of rapid promotion (31.83%). These tools were the most frequently cited by respondents as having a strong impact on their level of engagement, expressed as a percentage.

A study conducted by Ludmila V. Shchetinina (2019) confirmed that the use of non-material motivational measures contributes to increased staff efficiency. The most effective tools identified included: providing training opportunities, recognizing employee contributions, fostering a positive psychological climate at work, and enabling career development. According to the study, these actions have a significant effect on increasing productivity, enhancing employee loyalty, and improving the organization's image.

Similar conclusions emerged from a study conducted by Nikola Papac, Nataša Pejanović-Škobić, and Lidija Lesko Bošnjak (2020)[1]. Their research identified a range of effective practices, including appropriate job design, participative management styles, opportunities for involvement in decision-making, flexible working hours, recognition and constructive feedback, the development of organizational culture, and support for training and career path development. The authors emphasized that these tools contribute to greater employee engagement and improve the quality of services provided.

An analysis of contemporary empirical research indicates that the effectiveness of non-material motivational tools lies not only in their diversity but above all in their alignment with employee needs and coherence with organizational goals. Among the most frequently cited and positively evaluated non-material tools are: respect from supervisors, high-quality interpersonal relationships, a friendly working environment, the opportunity to shape one’s own career path, task autonomy, efficient communication, dialog-based leadership styles, and transparency in employee evaluation systems.

These tools support the development of pro-organizational attitudes and reinforce employee engagement in task execution. The literature underscores that for motivational tools to be effective, they must be implemented in a conscious (Langelett, 2014), contextual, and individualized manner (Dobre, 2013), while also respecting the values represented by the workforce (Aniszewska *et al.*, 2007). A lack of such alignment can lead to demotivation, staff turnover, and, in the long run, strategic failures for the organization (Reddin, 2020).

[1] The authors focused on analyzing strategies for using non-material motivational tools among medical personnel in Mostar (n = 79).

The importance of non-material motivational tools is particularly evident in low-paid sectors such as the care services sector, where limited financial resources often preclude the use of material incentives. In this context, tools such as recognition, opportunities for development, autonomy, flexible working hours, leadership quality, a sense of security, and organizational culture become crucial for maintaining workforce stability, fostering employee engagement, and ensuring an adequate quality of services provided.

3. Methodology

To investigate the effectiveness of non-material tools in motivating low-paid employees in the studied branches of the enterprise, a proprietary effectiveness index was applied, with individual scores assigned to the surveyed employees. The study was conducted in a care services company operating across four Polish regions: Łódźkie, Mazovian, Lower Silesian, and Silesian. The research sample included 160 low-paid employees working as elderly caregivers. A quantitative research approach was employed, using a survey method. The questionnaire was designed according to a proprietary typology of non-material motivational tools and aimed to assess their motivational potential in relation to perceived employee satisfaction. For the purpose of this study, non-material motivational tools were classified into three categories: task-related tools, work environment-related tools, and development-related tools (see Table 1). This division was derived from an in-depth literature review as well as practical considerations relevant to the specific working conditions of low-paid caregiving staff.

Task-related tools include elements such as autonomy in performing tasks, alignment responsibilities with personal aspirations, work-life balance, and managerial recognition. Work environment-related tools refer to organizational conditions and interpersonal relations, such as job stability, quality of working conditions, workplace atmosphere, workplace safety and hygiene, flexible working hours, and communication between employees and managers. Development-related tools encompass opportunities for personal growth and skill development through internal training or workshops.

Table 1.
Non-material motivational tools for employees

Non-material tools		
task-related tools	**work environment-related tools**	**development-related tools**
• autonomy in performing tasks, • alignment of responsibilities with personal aspirations, • work-life balance, • managerial recognition.	• job stability, • favorable working conditions, • workplace atmosphere, • workplace safety and hygiene, • flexible working hours, • effective communication between employees and managers.	• opportunities for personal growth, • enhancing skills through internal training/workshops.

Source: own study.

The effectiveness of the applied tools was evaluated using an original Job Satisfaction Index, which reflects the current level of job satisfaction. The JSI was constructed as a composite measure based on respondents' answers to several questionnaire items assessing different dimensions of job satisfaction on five-point Likert-type scales (where: 1 – very dissatisfied, 2 – dissatisfied, 3 – neutral, 4 – satisfied, 5 – very satisfied). The final value of the index was calculated as the arithmetic mean of the ratings of these items. The aim of the study was to identify which of these tools had the greatest impact on motivation and job satisfaction among low-paid employees in the care services sector.

4. Results

For the purpose of interpreting the strength of the relationship between variables, the classification of Spearman's rank correlation coefficient according to J. Guilford was applied (A. Aswegen et al., 2009), as presented in Table 2. This classification served as the general interpretive framework for the results discussed below.

Table 2.
Interpretation of the correlation coefficient according to J. Guilford

Absolute value of the coefficient (ρ)	Interpretation
$\rho < 0.2$	Negligible correlation – virtually no relationship
$0.2 \geq \rho < 0.4$	Low correlation
$0.4 \geq \rho < 0.7$	Moderate correlation
$0.7 \geq \rho < 0.9$	High correlation
$0.9 \geq \rho < 1.0$	Very high correlation

Source: own study.

In addition, the sign of the correlation coefficient was also important. A positive Spearman coefficient indicates that as the level of employee satisfaction increases, so does the positive evaluation of a given tool (i.e., its assigned value on the Likert scale, and therefore its rank). Given the nature of the analyzed index, a positive coefficient was considered desirable, as it suggests that more highly rated motivational tools contribute to higher levels of satisfaction.

As previously mentioned, the calculation of Spearman's coefficient was based on ranks assigned to responses rated on a five-point scale. Table 3 presents how ranks were assigned to survey responses—from 1 ("strongly disagree") to 5 ("strongly agree")—in line with increasing approval of the evaluated tools.

Table 3.
Interpretation of the correlation coefficient

Score on the scale for evaluating the non-material tool	Most common corresponding answer with assigned number on the scale	Rank used in Spearman's coefficient calculation
1	"1 – Strongly disagree"	1
2	"2 – Rather disagree"	2
3	"3 – Neutral"	3
4	"4 – Rather agree"	4
5	"5 – Strongly agree"	5

Source: own study.

In order to determine the relationship between the use of selected groups of non-material motivational tools and employee satisfaction levels, a Spearman's rank correlation analysis was conducted. The tools were grouped into three categories: task-related, work environment-related, and professional development-related. All analyzed categories of tools exhibit a positive correlation with the satisfaction index, indicating their beneficial impact on employee job satisfaction.

The strongest correlation was found for tools related to the work environment ($\rho = 0.6317$), emphasizing the importance of working conditions, interpersonal relationships, and organizational climate in shaping employees' subjective sense of job satisfaction. A slightly weaker yet still significant correlation was recorded for task-related tools ($\rho = 0.5369$), suggesting that clarity of goals, the meaningfulness of tasks, and autonomy in performing tasks significantly contribute to increased satisfaction. A somewhat weaker, though still clearly positive, correlation was observed for development-related tools ($\rho = 0.4737$), confirming that opportunities for skill enhancement and learning are relevant—though not primary—factors in increasing satisfaction.

These results indicate that, among low-paid employees in the care services sector, the strongest impact on job satisfaction comes from those non-material motivational tools that shape the immediate work environment by offering stability, comfort, and social support.

To assess the strength of the relationship between employees' perceived use of selected non-material motivational tools and their level of job satisfaction, Spearman's rank correlation coefficients were calculated. The analysis included task-related tools, work environment-related tools, and elements supporting employee development. The following table presents the correlation coefficients for each tool, enabling the identification of those with the highest potential impact on employee satisfaction levels in the surveyed enterprise.

Table 4.
Effect sizes for potential relationships between the use of non-material motivational tools (as perceived by employees) and the job satisfaction index

Effect size / Type of tool (in the enterprise)	Correlation with job satisfaction (Spearman's ρ)
Autonomy in performing tasks	0.288
Alignment of responsibilities with personal aspirations	0.389
Work–life balance	0.487
Managerial praise	0.407
Job stability	0.511
Favorable working conditions	0.495
Workplace atmosphere	0.377
Workplace safety and hygiene	0.396
Effective communication between employees and managers	0.443
Personal growth	0.458
Internal training/workshops	0.425

Source: own study.

The interpretation of the Job Satisfaction Index in relation to the effectiveness of specific non-material motivational tools was based on an analysis of Spearman's rank correlation coefficients. The results indicate that all examined tools show a positive correlation with the satisfaction index, which means that their use is associated with a higher level of job satisfaction among low-paid employees in the care services sector. However, the strength of this relationship varies, allowing for the identification of tools with the highest motivational potential.

Among the tools most strongly associated with employee satisfaction are: job stability ($\rho = 0.511$), favorable working conditions ($\rho = 0.495$), personal growth ($\rho = 0.458$), effective communication between employees and managers ($\rho = 0.443$), and internal training/workshops ($\rho = 0.425$). These results indicate that employees particularly value factors that enhance their sense of security, comfort at work, opportunities for skill enhancement, and the quality of managerial relationships. The strongest correlation with job stability confirms that, in the context of low-paid care positions, job security is a key motivating factor. Likewise, a well-organized work environment and access to internal training clearly improve employee satisfaction.

Moderate correlations were observed for managerial praise ($\rho = 0.407$), workplace safety and hygiene ($\rho = 0.396$), and a friendly workplace atmosphere ($\rho = 0.377$). Although their impact is somewhat weaker, these tools still play a meaningful role in shaping positive workplace experiences. Recognition and interpersonal climate foster a sense of belonging and being valued by the organization.

The lowest, though still positive, correlations were recorded for autonomy in performing tasks ($\rho = 0.288$) and alignment of responsibilities with personal aspirations ($\rho = 0.389$). This suggests that while autonomy and the alignment of responsibilities with personal aspirations have some motivational value, their influence on job satisfaction in the care services sector is relatively lower compared to more pragmatic and stabilizing factors.

The analysis shows that the greatest impact on job satisfaction among low-paid employees in the care services sector comes from non-material motivational tools that ensure job security, favorable working conditions, and opportunities for development. In contrast, tools that appeal to individual ambition and autonomy have more limited significance. These findings highlight the importance of meeting employees' basic psychological and professional needs in this sector and suggest that effective motivational strategies should focus on security, support, and development, rather than solely on individualism or career aspirations.

5. Discussion of results

The analysis made it possible to assess the relationships between the use of non-material motivational tools and the level of job satisfaction among employees in the surveyed enterprise. All the examined tools demonstrated a positive correlation with the Job Satisfaction Index, which means that the more highly employees rated a given tool, the greater their job satisfaction. However, the values of the Spearman's correlation coefficients ranged from low to moderate, which requires further interpretation.

The highest correlations – classified as moderate according to J. Guilford's classification— were found for tools such as job stability, favorable working conditions, work–life balance, managerial praise, and effective communication between employees and managers. These findings indicate that for low-paid employees in the care services sector, job satisfaction is most influenced by tools that provide employment security, workplace atmosphere, and interpersonal support. This confirms previous research suggesting that stabilizing factors and stress-reducing mechanisms are particularly important for this occupational group.

Although material incentives were not directly examined in this study, the findings should be interpreted in relation to employees' pay levels. In the case of low-paid care workers, non-material motivational tools are unlikely to fully substitute for financial rewards; rather, they appear to complement them by strengthening recognition, security, and organizational support. This interpretation is consistent with the relatively strong correlations observed for job stability, favorable working conditions, and communication with managers, which may partly reflect employees' sensitivity to basic economic security. Thus, the positive effect of non-material tools on job satisfaction may depend, at least to some extent, on whether remuneration is perceived as acceptable and fair.

On the other hand, tools such as autonomy in performing tasks, alignment of responsibilities with personal aspirations, workplace atmosphere, and workplace safety and hygiene showed only low correlations with job satisfaction. Based on these results, several important conclusions and future recommendations can be formulated.

First, the weak correlations may suggest that some tools – although theoretically regarded as motivational – do not align with the real needs and expectations of care workers. This applies in particular to aspects such as autonomy or professional aspirations, which may carry greater importance in other labor market segments. This highlights the need to adapt motivational strategies to the specific characteristics of the occupational group, taking into account income levels, the nature of the work, and the value structure preferred by employees.

Second, the limited effectiveness of certain tools may result not from their mere presence but from the way they are implemented and communicated. For example, autonomy can only be motivating if it is accompanied by appropriate levels of support, trust, and competence. Therefore, both the scope and the quality and organizational context of each tool must be considered.

Third, low correlation values may reflect the diverse needs of employees, which supports the necessity of an individualized approach to motivation. It is recommended to implement flexible solutions such as customizable benefit systems, regular motivational conversations, or needs assessments in the form of consultations.

Fourth, it is worth noting that tools with lower correlation strength should not be completely discarded. While their direct impact on job satisfaction may be limited, they can play a complementary role—influencing the workplace atmosphere, building trust, or supporting long-term engagement. In this sense, their function is indirect but still important for shaping organizational culture.

In summary, the analysis demonstrated that the effectiveness of non-material motivational tools in the studied context is varied, and their impact on employee satisfaction depends both on the type of tool and the manner of its implementation. These findings offer practical guidance for HR managers in the care services sector and underscore the need for further, in-depth research – especially of a qualitative nature – to better understand motivational mechanisms within this specific occupational group.

6. Final conclusion

The aim of this study was to examine the impact of non-material motivational tools on the effectiveness of motivation efforts targeted at low-paid employees in the care services sector in Poland. The analysis was based on a case study of an enterprise operating in four provinces and employed an original Job Satisfaction Index as a measure of motivational effectiveness.

The findings confirmed that all three categories of non-material tools – task-related tools, work environment-related tools, and development-related tools – demonstrated a positive relationship with the Job Satisfaction Index. This indicates that a positive evaluation of applied tools is associated with a higher level of job satisfaction. The strongest, moderate correlations

were observed for environmental and task-related tools, such as job stability, favorable working conditions, work–life balance, effective communication between employees and managers, and managerial praise. These results confirm that effective motivation in the care services sector is primarily based on ensuring security, interpersonal support, and workplace comfort.

At the same time, some tools – such as autonomy in performing tasks, alignment of responsibilities with personal aspirations, and workplace atmosphere – showed only weak correlations with job satisfaction. This suggests that their impact may be limited due to a mismatch with the specific nature of caregiving work, suboptimal implementation, or the varied expectations of employees. Consequently, it is justified to both continue adapting motivational strategies to the realities of care work and conduct further qualitative research to better understand employee needs and perceptions in this sector.

In conclusion, the study confirms that non-material motivational tools can serve as an effective mechanism for supporting employee engagement and satisfaction in the care services sector – provided that they are appropriately selected, effectively implemented, and tailored to the occupational and organizational characteristics of the workforce. From a managerial perspective, this suggests that in low-paid occupations non-material motivational tools should be treated as a complement to fair financial remuneration rather than as its substitute. The case study indicates that, in practice, the most influential tools are those that are pragmatic, stabilizing, and relationship-based, offering clear guidance for managers operating in this segment of the labor market.

References

1. Aniszewska, G., Mrówka, R. (2007). Proces motywowania. In: G. Aniszewska (Ed.), *Kultura organizacyjna w zarządzaniu* (pp. 268-275). Warsaw: PWE.
2. Aswegen, A., Engelbrecht, A.S. (2009). The influence of leader integrity on ethical climate in organisations. *SA Journal of Human Resource Management, Vol. 7, No. 1*, art. 75.
3. Broni, A. (2012). Relationship between motivation and job productivity at the university Mines and Technology. *Journal of Scientific Research, Vol. 3, No. 3*, pp. 309-314.
4. Czarnecka, A. (2013). Rola przełożonego w kształtowaniu motywacji pracowników. *Zeszyty Naukowe Politechniki Częstochowskiej, Nr 3*, pp. 68-78.
5. De Pree, M. (1999). *Przywództwo jest sztuką*. Warsaw: Business Press.
6. Dewhurst, M., Guthridge, M., Mohr, E. *Motivating people: Getting beyond money*, https://www.mckinsey.com/business-functions/organization/our-insights/motivating-people-getting-beyond-money, 5.04.2025.
7. Dobre, O.I. (2013). Employee motivation and organizational performance. *Review of Applied Socio-Economic Research, Vol. 5, No. 1*, pp. 53-60.

8. Galia, F. (2008). Intrinsic–extrinsic motivations and knowledge sharing in French firms. *The ICFAI Journal of Knowledge Management, Vol. 6, No. 1*, pp. 1-25.
9. Główny Urząd Statystyczny. *Struktura wynagrodzeń według zawodów za październik 2022 r.*, https://stat.gov.pl/obszary-tematyczne/rynek-pracy/pracujacy-zatrudnieni-wynagrodzenia-koszty-pracy/struktura-wynagrodzen-wedlug-zawodow-za-pazdziernik-2022-r-,5,8.html, 5.04.2025.
10. Kochmańska, A. (2016). Motywacja niematerialna skutecznym sposobem kreowania proorganizacyjnych postaw. *Zeszyty Naukowe Politechniki Częstochowskiej. Zarządzanie, Nr 24(2)*, pp. 126-137.
11. Kopertyńska, M.W. (2009). *Motywowanie pracowników. Teoria i praktyka* (wyd. 2). Warsaw: Placet.
12. Langelett, G. (2014). *How do I keep my employees motivated?* River Grove Books.
13. Papac, N., Pejanović-Škobić, N., Lesko Bošnjak, L. (2020). Non-monetary motivation strategies in the healthcare sector, *Economic Review: Journal of Economics and Business, Vol. 18, No. 1*, pp. 165-182.
14. Pęcek, M., Walas-Trębacz, J. (2018). Ocena skuteczności systemów motywacyjnych stosowanych w organizacjach. *Journal of Modern Management Process, No. 3(1)*, pp. 16-26.
15. Reddin, W. (2020). *Testy dla menedżerów stawiających na efektywność*. Warsaw: Alma-Press.
16. Rock, D. (2009). *Your brain at work: Strategies for overcoming distraction, Regaining focus, and working smarter all day long*. New York: HarperBusiness.
17. Sharon, J.E., Beverly, K. (2007). Jak zatrzymać pracowników. In: *Biznes. Zarządzanie firmą*, cz. 2. Warsaw: PWN.
18. Shchetinina, L.V. (2019). Non-monetary motivation of staff as a way to increase efficiency of its work. In: *Proceedings of the 18th International Scientific Conference Economic Science for Rural Development*, *vol. 50.* Jelgava.
19. Ustawa z dnia 22 lipca 2016 r. o zmianie ustawy o minimalnym wynagrodzeniu za pracę oraz niektórych innych ustaw, Dz.U., poz. 1265 (2016).
20. Wziątek-Staśko, A. (2014). Motywatory niematerialne skutecznymi narzędziami doskonalenia procesu motywowania w organizacjach zarządzających różnorodnością – w oparciu o wyniki międzynarodowych badań empirycznych. *Zeszyty Naukowe Politechniki Śląskiej, No. 73*, pp. 687-700.

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FAMILY-FRIENDLY PRACTICES AND TURNOVER INTENTIONS AMONG WORKING PARENTS: A SYSTEMATIC REVIEW AND CONCEPTUAL FRAMEWORK

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Purpose: The paper aims to systematize and synthesize existing research on the relationship between organizational family-friendly practices and turnover intentions among working parents. It identifies when and under what conditions family-supportive actions are associated with lower declared intentions to leave, and proposes an integrative conceptual framework for subsequent empirical testing.
Design/methodology/approach: A structured two-stage literature review was conducted. First, a systematic literature review (SLR) based on a predefined screening procedure was used to synthesize evidence on links between organizational family-friendly practices and turnover intentions among employees with dependent children. Second, bibliometric mapping (Web of Science) was applied to identify dominant research streams and thematic clusters. The scope covers formal organizational practices (e.g., flexible work arrangements, leave, dependent-care support), family-supportive culture, and family-supportive supervisor behaviors.
Findings: The review indicates that family-friendly practices are associated with lower turnover intentions, with effects operating primarily indirectly through reduced work–family conflict and increased work–family enrichment, which translate into higher job satisfaction, work engagement, organizational commitment, and lower emotional exhaustion. Supervisor family-supportive behaviors emerge as a critical implementation mechanism. Outcomes also depend on implementation quality, barriers to use (including flexibility stigma), and contextual conditions such as sector, gender, and parenting stage.
Research limitations/implications: The review draws on a single database (Web of Science), which may limit coverage. The dominance of cross-sectional designs restricts causal inference. Future studies should employ longitudinal and multilevel approaches across occupational groups and national contexts.
Practical implications: Organizations can use family-friendly practices as a retention tool, potentially reducing turnover-related costs (recruitment, onboarding, lost productivity). Returns depend on implementation consistency, managerial behaviors, and minimizing barriers to policy use.
Social implications: Effective organizational family-friendly practices may improve quality of life for working parents, support labor-market attachment, and reduce stigma around using flexibility, informing employer standards and public or industry policy.

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Originality/value: The paper integrates fragmented findings into a concise conceptual framework combining formal organizational practices, family-supportive climate, and supervisor behaviors, specifying key mediators and moderators relevant to retention among working parents.
Keywords: family-friendly practices, turnover intentions, working parents, work–family conflict, family-supportive supervisor behaviors.
Category of the paper: research paper.

1. Introduction

Contemporary organizations increasingly conceptualize retention as an outcome of exchange relationships between employees and the organization, as well as access to resources that enable individuals to fulfil non-work roles. Historically, employee turnover has often been examined through the lens of working conditions and pay-related factors (Hom, Lee, Shaw, Hausknecht, 2017, p. 531). In classic approaches, leaving the organization is commonly treated as a consequence of diminished job satisfaction, lower engagement and trust, and rising psychological costs of work (Dilmaghani, 2021, p. 170; Agarwal, Nelson, 2023, p. 4). From this perspective, organizational family-friendly policies can be understood as an investment through which enhanced loyalty and trust in the employer may reduce turnover, particularly when organizational efforts mitigate tensions arising from the conflict between occupational and family roles (Hill, Matthews, Walsh, 2016, p. 475; Las Heras et al., 2017, p. 338).

The literature offers multiple definitions and classifications of family-friendly policies and practices within organizations. One stream focuses on formal solutions such as flexible work arrangements, parental leave, and dependent-care support, which are frequently framed as mechanisms supporting employees in maintaining work–life balance (Kossek et al., 2023, p. 2065). Another stream highlights contextual factors, including the role of the work environment and organizational culture in shaping whether such practices are accessible and effective in everyday organizational life (Las Heras et al., 2015, p. 338; Taheri, 2021, p. 2115). A third, relational perspective emphasizes supervisor support, conceptualized as a set of behaviors that include emotional and instrumental support, role modeling, and "creative work–family management" aimed at reducing strain at the work–family interface (Hill, Matthews, Walsh, 2016, p. 480; Odle-Dusseau, Hammer, Crain, Bodner, 2016, p. 297). In addition, employee's beliefs about the organization's family-supportive orientation may strengthen or weaken the effects of supervisor behaviors and the employer brand-related signals conveyed by these practices (Hill, Matthews, Walsh, 2016, p. 477; Agarwal, Nelson, 2023, p. 8).

In the Polish context, the concept of a family-friendly labor market and organizational family-supportive practices has gained increasing scholarly attention, with a focus on how organizational solutions support parents labor-market participation and reduce strain associated with reconciling work and caregiving roles. Michalski and Szwarc (2023) document the diversity of family-friendly practices implemented in Polish firms and emphasize that their effectiveness depends not only on formal availability but also on implementation conditions, including organizational culture and the practical accessibility of solutions.

At the same time, the literature suggests that the mere presence of formal family-friendly solutions may be insufficient if the organizational climate does not encourage the use of entitlements or if the use of such practices is stigmatized (Ferdous, Ali, French, 2020, p. 512). Importantly, evidence remains mixed, especially regarding flexible work arrangements. Dilmaghani's findings indicate that flexible working time often communicated as a form of organizational support for combining work and family roles may foster satisfaction and selected organizational attitudes, yet effects differ across groups and depend on how flexibility is designed (Dilmaghani, 2021, p. 169). Review-based research also points to potential negative consequences of family-friendly policies. Some studies argue that, in specific contexts, such policies may activate mechanisms of perceived inequality and unfairness and intensify stigma, weakening their retention effects and potentially reinforcing gendered disparities in access to resources (Perrigino, Dunford, 2018, p. 612; Ferdous, Ali, French, 2022, p. 512). In this sense, organizational family-friendly policy functions not only as a human capital management instrument but also as a social signal embedded in ideal worker norms, performance evaluation practices, and organizational culture.

An important layer of the discussed problem concerns managerial behaviors, which may either facilitate or weaken the implementation of these policies in the workplace. Training interventions aimed at increasing manager's awareness have demonstrated beneficial indirect effects, for example, higher perceived supervisor support translated into improved job satisfaction and work engagement, reduced turnover intentions, and even enhanced job performance (Odle-Dusseau, Hammer, Crain, Bodner, 2016, p. 299). At the same time, some studies emphasize that relying solely on supervisors is insufficient if the organizational culture does not support a family-friendly workplace (French, Dumani, Allen, Shockley, 2020, p. 542). This points to the need to model these relationships simultaneously at multiple levels. Formal solutions and the development of a family-supportive organizational culture represent macro-level actions, whereas supervisor's behaviors operate as an implementation mechanism that indirectly shapes employee's experiences. Accordingly, the purpose of this article is to conceptualize and synthesize evidence on the relationships between organizational family-friendly practices and employee turnover intentions.

2. Research methodology

The study was conducted as a systematic literature review aimed at identifying and synthesizing evidence on the relationship between organizational family-friendly practices and employee turnover intentions. Web of Science was selected as the sole data source due to its selective journal indexing, consistent metadata, and the possibility of conducting replicable mapping of outputs and citations in management research, while also supporting the article's strict length constraints. The search strategy was based on three conceptual blocks covering parental and caregiving roles (e.g., working parents), constructs related to work–family balance (e.g., work–family, work–life balance), and retention-related outcomes (e.g., turnover intention, intention to leave). This approach yielded a total of 920 records. During dataset preparation, duplicates were removed and the remaining publications were screened based on titles and abstracts (n = 904). Studies were excluded when they did not address family-supportive practices in an organizational context or did not include retention-related constructs. As a result of this stage, 697 records were excluded, and 207 publications were retained for an in-depth abstract assessment. Subsequently, based on the relevance to the review objective and the potential to inform the development of a theoretical model, 64 publications were selected for full-text retrieval. Of these, 10 articles could not be obtained in a form allowing content assessment, while 54 full texts were retrieved, analyzed, and included in the final synthesis. The selection process is presented in PRISMA based flow diagram (Figure 1).

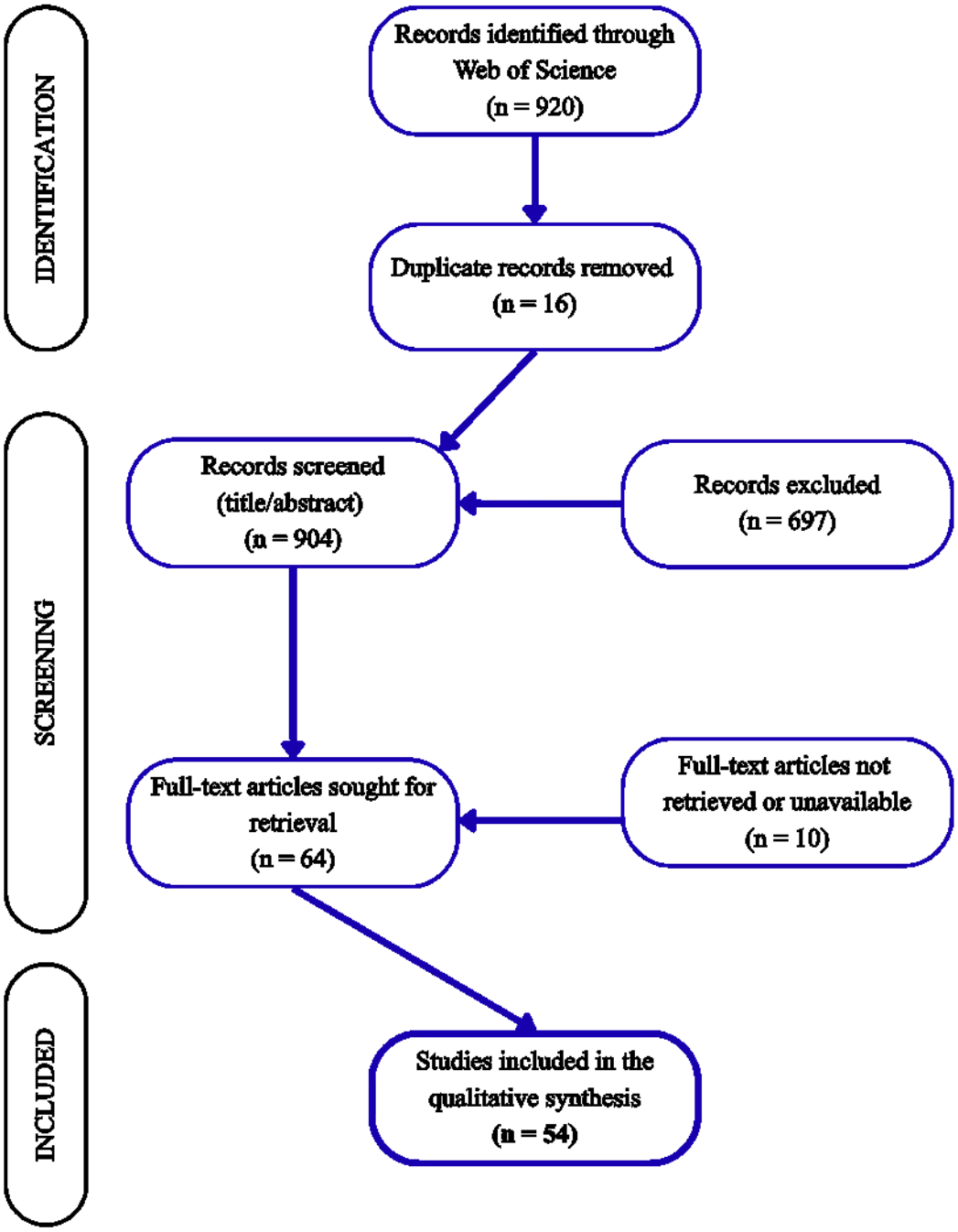

Figure 1. PRISMA-based flow diagram of study selection.

Source: own elaboration based on Web of Science search results and the study selection process.

The synthesis was conducted using a narrative approach, focusing on identifying the dominant causal pathways, areas of inconsistency across studies, and contextual conditions shaping the effectiveness of family-friendly practices. Particular attention was paid to family-supportive supervisor behaviors as an implementation mechanism and as a core element of the proposed theoretical model.

3. Family-friendly practices and turnover intentions: results of the bibliometric analysis

The results of the bibliometric analysis and the literature review indicate that the relationship between family-friendly practices and turnover intentions is predominantly conceptualized as a multi-layered configuration comprising formal HR solutions, organizational culture, and supervisor behaviors. The formal practices stream focuses primarily on flexible work arrangements and their links to employee attitudes and turnover intentions (Dilmaghani, 2021, p. 171; Berber et al., 2025, p. 7; Straub, Vinkenburg, van Kleef, 2020, p. 21). Within the same stream, studies addressing caregiving roles frame the availability and use of flexibility practices as support for combining paid work and caregiving responsibilities (Bainbridge, Townsend, 2020, p. 488). The second component concerns a family-supportive organizational climate and culture, conceptualized as the degree to which organizational norms, values, and practices facilitate work–family integration and reduce the costs associated with using family-friendly arrangements (Las Heras et al., 2015, p. 338; Taheri, 2021, p. 2115). The third component highlights managerial behaviors as an implementation mechanism, most commonly operationalized as family-supportive supervisor behaviors (FSSB), alongside the construct of perceived organizational support (Odle-Dusseau et al., 2016, p. 300; Hill, Matthews, Walsh, 2016, p. 473; Marescaux et al., 2020). Consequently, family support is more often treated as a configuration of formal and informal practices embedded in an organizational culture that encourages the use of family-friendly solutions and is reinforced through supervisor–employee relationships, rather than as a stand-alone set of HR policy provisions (Kossek et al., 2025, p. 2081).

At the level of explanatory mechanisms, the literature is dominated by mediated pathways in which family support influences turnover intentions through employee's work and family experiences and their work-related attitudes. The most frequently tested mechanism is work–family conflict (WFC), which is reduced by supervisor behaviors and organizational culture and, in turn, relates to lower turnover intentions (Agarwal, Nelson, 2023, p. 188; Liu et al., 2020, p. 812; Afsar, Rehman, 2017, p. 98). The reviewed studies also repeatedly include job satisfaction and satisfaction with work–family balance as mediators, incorporating these constructs strengthens the retention-oriented interpretation of the observed relationships (Taheri, 2021, p. 2115; Las Heras et al., 2017, p. 338; Dilmaghani, 2021, p. 7). Some models further include "organizational attitudes", such as trust and intrinsic motivation, which mediate the relationship between supervisor support and turnover intentions (Nguyen, Haar, Smollan, 2020, p. 162; Kulik, 2024, p. 1312).

From a strain perspective, emotional exhaustion is a recurring theme, both as a mediator between work–family conflict and turnover intentions and as an outcome influenced by supervisor support (Gull et al., 2023, p. 74; Jolly, Gordon, Self, 2022, p. 17). Boundary

conditions and inconsistencies in results are typically explained by organizational and social context. Gender is visible both in mechanisms and moderating effects: in several studies, supervisor support more strongly reduces exhaustion and turnover intentions among women (Jolly, Gordon, Self, 2022, p. 1084; Kulik, 2024, p. 1322). From an institutional perspective, the regulatory environment and cultural differences are highlighted as relevant conditions shaping the mechanisms through which balancing work and family roles translates into retention outcomes (Las Heras, Rofcanin, Escribano, Kim, Mayer, 2021, p. 335; Berber et al., 2025, p. 4).

A major constraint on the effectiveness of formal solutions is flexibility stigma, understood as sanctions and norms that discourage employees from using flexible arrangements (Ferdous, Ali, French, 2022, p. 510). Synthetic accounts also systematize potential negative consequences of implementing work–life balance policies (including family-related arrangements), pointing to mechanisms of inequality, stigma, and unintended side effects that may weaken an organization's ability to retain employees despite the formal availability of support (Perrigino, Dunford, Wilson, 2018, p. 600). Methodologically, the reviewed articles are dominated by quantitative survey-based studies, frequently employing mediation and moderation models (SEM, PROCESS, AMOS), complemented by multilevel analyses and a smaller number of qualitative studies and reviews (Las Heras et al., 2017, p. 512).

Overall, the literature synthesis suggests that family-friendly support is associated with lower turnover intentions primarily through reducing work–family conflict, while accounting for moderators such as stigma, gender, and institutional and sectoral context (Taheri, 2021, p. 2113; Agarwal, Nelson, 2023, p. 9; Ferdous, Ali, French, 2022, p. 514; Perrigino, Dunford, Wilson, 2018, p. 600). Based on the synthesis of the reviewed studies, a simplified conceptual model is proposed (Figure 2). The model integrates formal family-friendly practices (e.g., work flexibility, leave, and caregiving-related solutions), organizational culture and climate, and family-supportive supervisor behaviors as factors linked to turnover intentions. The model assumes that the effect of organizational family-friendly actions on turnover intentions is predominantly indirect and operates at the work–family interface. At the same time, it incorporates boundary conditions that may strengthen or weaken these relationships.

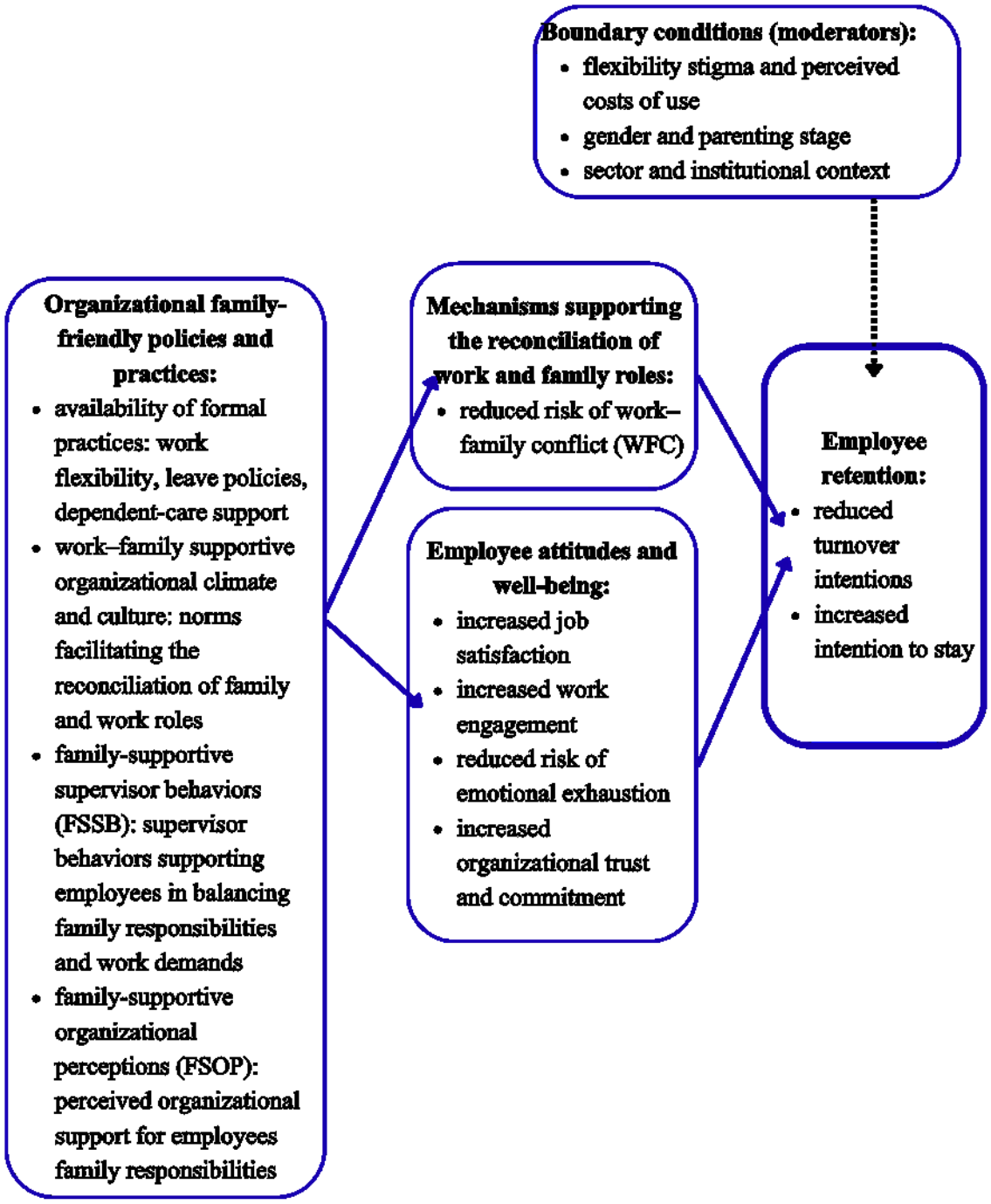

Figure 2. Theoretical model of the relationship between organizational family support and employees' turnover intentions.

Source: own elaboration.

The model offers an ordered and conceptual synthesis of findings that facilitates the identification of recurring patterns and the sources of inconsistencies across studies. It also specifies measurable constructs and relationships that can be examined in further empirical research across different employee populations and sectors, thereby enabling a shift from descriptive synthesis to testing the conditions under which family-friendly support is most strongly associated with retention.

4. Conclusion

The literature review indicates that organizational family-friendly policies and practices are meaningfully associated with employee's turnover intentions, while this relationship rarely takes the form of a simple direct effect. Most frequently, the impact operates through processes involved in reconciling work and family roles, including reducing work–family conflict and strengthening positive spillover (i.e., work–family enrichment). These processes subsequently translate into key employee attitudes and states, such as higher job satisfaction, stronger work engagement, greater organizational trust, and lower emotional exhaustion. This suggests that organizational family-friendly actions serve not only a social function but also a strategic role in retention. At the same time, the reviewed evidence reveals inconsistencies depending on the type of support, implementation quality, and organizational and institutional context. This justifies framing the phenomenon in terms of boundary conditions and constraints that shape when and how family-friendly practices are effective.

At the organizational level, it is critical to treat family-friendly policies as a coherent retention system rather than a stand-alone set of benefits. In practice, this implies designing integrated bundles of solutions (e.g., work flexibility, caregiving support, leave arrangements), accompanied by clear rules of access, transparent communication, and systematic monitoring of outcomes. Such an approach helps reduce the risk of stigmatization and addresses the "availability–use gap" between the formal presence of practices and their actual utilization. At the managerial level, the role of supervisors is particularly salient, as they act as day-to-day implementers of organizational policies. The influence of managerial behavior becomes visible in routine decisions related to planning, task allocation, performance evaluation, and responsiveness to employee's caregiving needs. Accordingly, developing family-supportive supervisor behaviors should be embedded in people-management standards rather than treated as an ad hoc intervention. At the employee level, organizations can enhance the effectiveness of family-friendly practices by simplifying procedures, increasing predictability of rules, providing informational support, and reducing social barriers related to policy use. These measures support retention by stabilizing employees' decisions to remain in the organization.

Finally, the review highlights that the effectiveness of organizational family-friendly policies and practices should be assessed not only in terms of formal adoption, but also with regard to their functioning in everyday practice. Future research should therefore simultaneously incorporate the organizational level (policies and culture), the managerial level (supervisor behaviors), and the individual level (employee's work–family experiences, attitudes, and states), while testing relationships in models capable of explaining both dominant mechanisms and sources of empirical inconsistency. This creates a clear need to complement review-based evidence with empirical verification using both qualitative and quantitative designs.

Acknowledgements

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References

1. Afsar, B., Rehman, Z.U. (2017). Relationship between Work-Family Conflict, Job Embeddedness, Workplace Flexibility, and Turnover Intentions. *Makara Human Behavior Studies in Asia*, *21*(2), 92-104. https://doi.org/10.7454/mssh.v21i2.3504
2. Agarwal, B., Nelson, M.M. (2023). Impact of Organizational and Supervisory Support Perceptions on the Turnover Intentions of Working Mothers-to-Be: A Study of the Indian IT Sector. *International Journal of Business Analytics*, *10*(1), 1-15. https://doi.org/10.4018/IJBAN.321536
3. Bainbridge, H.T.J., Townsend, K. (2020). The effects of offering flexible work practices to employees with unpaid caregiving responsibilities for elderly or disabled family members, *Human Resource Management*, *59*(5), 483-495. https://doi.org/10.1002/hrm.22007.
4. Berber, N., Stavrou, E., Slavić, A., Gašić, D. (2025). Flexible Work Arrangements in Central and Eastern Europe: Effects on Organizational Outcomes. *Journal of East European Management Studies, 30(4),* 1-18. https://doi.org/10.31083/JEEMS44450
5. Dilmaghani, M. (2020). There is a time and a place for work: comparative evaluation of flexible work arrangements in Canada. *International Journal of Manpower, 42(1),* 167-192. https://doi.org/10.1108/IJM-12-2019-0555
6. Ferdous, T., Ali, M., French, E. (2022). Impact of flexibility stigma on outcomes: role of flexible work practices usage. *Asia Pacific Journal of Human Resources, 60(3),* 510-531. https://doi.org/10.1111/1744-7941.12275
7. French, K.A., Dumani, S., Allen, T.D., Shockley, K.M. (2020). A cross-national meta-analytic examination of predictors and outcomes associated with work-family conflict. *Journal of Applied Psychology*, *105*(6), 539-576. https://doi.org/10.1037/apl0000442
8. Gull, N., Asghar, M., Bashir, M., Liu, X., Xiong, Z. (2023). Does a family-supportive supervisor reduce the effect of work-family conflict on emotional exhaustion and turnover intentions? A moderated mediation model. *International Journal of Conflict Management*, *34(2),* 253-272. https://doi.org/10.1108/IJCMA-03-2022-0046
9. Hill, R.T., Matthews, R.A., Walsh, B.M. (2016). The Emergence of Family-specific Support Constructs: Cross-level Effects of Family-supportive Supervision and Family-

Supportive Organization Perceptions on Individual Outcomes. *Stress and Health*, *32*(5), 472-484. https://doi.org/10.1002/smi.2643

10. Hom, P.W., Lee, T.W., Shaw, J.D., Hausknecht, J.P. (2017). One hundred years of employee turnover theory and research. *Journal of Applied Psychology*, *102*(3), 530-545. https://doi.org/10.1037/apl0000103
11. Jolly, P.M., Gordon, S.E., Self, T.T. (2022). Family-supportive supervisor behaviors and employee turnover intention in the foodservice industry: does gender matter? *International Journal of Contemporary Hospitality Management*, *34*(3), 1084-1105. https://doi.org/10.1108/IJCHM-02-2021-0280
12. Kossek, E.E., Perrigino, M.B., Lautsch, B.A. (2023). Work-Life Flexibility Policies From a Boundary Control and Implementation Perspective: A Review and Research Framework. *Journal of Management*, *49*(6), 2062-2108. https://doi.org/10.1177/01492063221140354
13. Kulik, L., (2024). Stressors in the family-work system, family-friendly management practice assessment and dedication to work: A comparative analysis between fathers and mothers. *Analyses of Social Issues and Public Policy*, *24*, 1309-1337. https://doi.org/10.1111/asap.12401
14. Las Heras, M., van der Heijden, B.I.J.M., de Jong, J., Rofcanin, Y. (2017). Handle with care: The mediating role of schedule i-deals in the relationship between supervisors' own caregiving responsibilities and employee outcomes. *Human Resource Management Journal*, *27*(3), 335-349. https://doi.org/10.1111/1748-8583.12160
15. Las Heras, M., Rofcanin, Y., Escribano, P., Kim, S., Mayer, M. (2021). Family supportive organisational culture, work-family balance satisfaction and government effectiveness: Evidence from four countries. *Human Resource Management Journal*, *31*(2), 454-475. https://doi.org/10.1111/1748-8583.12317
16. Liu, B., Wang, Q., Wu, G., Zheng, J., Li, L. (2020). How family-supportive supervisor affect Chinese construction workers' work-family conflict and turnover intention: investigating the moderating role of work and family identity salience. *Construction Management and Economics*, *38*(9), 807-823. https://doi.org/10.1080/01446193.2020.1748892.
17. Marescaux, E., Rofcanin, Y., Las Heras, M., Ilies, R., Bosch, M.J. (2020). When employees and supervisors (do not) see eye to eye on family-supportive supervisor behaviors: The role of segmentation desire and work-family culture. *Journal of Vocational Behavior*, *121*, Article 103471. https://doi.org/10.1016/j.jvb.2020.103471.
18. Michalski, M.A., Szwarc, K., Gizicka, D. (2023). *Młode Polki, młodzi Polacy i ich plany rodzinne… Co młode pokolenie myśli o małżeństwie, rodzinie i rodzicielstwie? (Report)*. Poznań: Instytut Wiedzy o Rodzinie i Społeczeństwie. Retrieved from: https://iworis.pl/images/Dokumenty/Raport_A4_Mlodzi_polacy_maly.pdf. 25.03.2026.
19. Nguyen, L.V., Haar, J., Smollan, R. (2020). Family supportive supervisor behaviors and turnover intentions: testing a multiple mediation model in the New Zealand hospitality

industry. *Labour & Industry*, *30*(2), 156-173. https://doi.org/10.1080/10301763.2020.1730674

20. Odle-Dusseau, H.N., Hammer, L.B., Crain, T.L., Bodner, T.E. (2016), The Influence of Family-Supportive Supervisor Training on Employee Job Performance and Attitudes: An Organizational Work–Family Intervention. *Journal of Occupational Health Psychology*, *21*(3), 296-308. https://doi.org/10.1037/a0039961.
21. Perrigino, M.B., Dunford, B.B., Wilson K.S. (2018), Work–Family Backlash: The "Dark Side" of Work–Life Balance (WLB) Policies. *Academy of Management Annals*, *12*(2), 600-630. https://doi.org/10.5465/annals.2016.0077.
22. Straub, C., Beham, B., Islam, G. (2019). Crossing boundaries: integrative effects of supervision, gender and boundary control on work engagement and work-to-family positive spillover. *The International Journal of Human Resource Management*, *30*(20), 2831-2854. https://doi.org/10.1080/09585192.2017.1340324
23. Straub, C., Vinkenburg, C.J., van Kleef, M., (2020). Career customization: Putting an organizational practice to facilitate sustainable careers to the test. *Journal of Vocational Behavior*, *117*. https://doi.org/10.1016/j.jvb.2019.103320
24. Taheri, F. (2021). Family-supportive organizational environment and turnover intention. *International Journal of Productivity and Performance Management*, *70*(8), 2113-2130. https://doi.org/10.1108/IJPPM-10-2019-0467

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

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MANAGERIAL COMPETENCIES OF MUNICIPAL AUTHORITIES

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Purpose: Key managerial competencies required for effective municipal governance remain insufficiently explored in the literature. The aim of this paper is to develop a practical profile of the managerial competencies of local government authorities at the municipal level.
Design/methodology/approach: To achieve the research objective, data were collected from secondary sources (desk research), primary sources (field research), and the authors' own empirical studies, including surveys, observations, and interviews. The study involved 15 municipal mayors (wójtowie) and 216 councillors representing 15 rural municipalities located in the Małopolska Province, Poland.
Findings: Based on self-assessment, the respondents identified a set of key managerial competencies essential for exercising authority and managing municipal affairs effectively. The findings indicate the existence of both theoretical and empirical gaps within the field of management and quality sciences concerning the development of a comprehensive competency model for local government authorities.
Research limitations/implications: The research process was constrained by a limited understanding of, and reluctance to participate in, scientific studies among some mayors and councillors. Future research should therefore emphasize direct contact with respondents and provide clear explanations regarding the purpose, reliability, and importance of the research process in order to increase participation and data quality.
Practical implications: The identification of key managerial competencies among local government authorities may contribute to: (1) increasing awareness of competency requirements among candidates seeking municipal leadership positions; (2) establishing competency standards for local government authorities; and (3) facilitating competency assessment, including the identification of competency gaps and surpluses.
Social implications: The issue of managerial competencies among local government authorities has received relatively limited attention in management and quality sciences. Nevertheless, these competencies exert a substantial influence on society, residents' quality of life, social attitudes, local development, and public policy. Consequently, the managerial competencies of municipal authorities should be continuously identified, assessed, and developed to ensure their effective and efficient application in local governance.
Originality/value: The principal contribution of this study lies in the development of a catalogue of key managerial competencies for local government authorities, providing a valuable addition to the existing body of knowledge in the field.
Keywords: competencies, managerial competencies, public manager.
Category of the paper: Research paper.

1. Introduction

Today's organizations, both business and public, need professional managers who are able not only to properly understand the processes taking place within them, but also to manage them efficiently and effectively. Over the years, municipal governance has also changed. Heads of the commune and councillors have moved from administration to management, which requires them to be competent managers. Unfortunately, the current electoral mechanism ensures an inflow of people, not all of whom are professionals. Very often, too many amateurs can be found among those exercising authority in municipal self-government. This affects the quality of management, which is characterized by numerous inconsistencies and superficial actions, while wrong decisions bring not only economic consequences, but also social ones, which are strategic in nature.

2. The Concept, Dimensions and Structure of Competencies

Managing a modern organization is a difficult and complex process. It requires a professional management staff responsible for planning, organizing, motivating, and controlling human, material, financial, and information resources. As research indicates, the development of an organization depends to a significant extent on the quality of managerial functions performed by those in charge. In turn, the quality of managers' actions is determined by many factors, among which competencies are key (Torfing, Bentzen, Winsvold, 2022).

The issue of competencies has become the subject of interest for various research streams and scientific disciplines. The interdisciplinary nature of competencies significantly hinders their methodological and systematic definition and understanding, which is why, despite the passage of years, there is still no consensus as to what competencies actually are. Initially, competencies meant possessing formal powers, duties, and responsibilities resulting from the employee's position in an organization. In Poland, competencies gained popularity in the field of people management with the advent of the new millennium. However, the origins of the concept date back to the 1970s, when D. McClelland (McClelland, 1998) sought the causes of employees' success in organizations and the principles that should be followed in order to conduct recruitment properly. An important contribution to defining competencies was also made by T.W. Schultz (Schultz, 1971), who studied traits, referring to them as competencies rather than personality characteristics. M. Armstrong (Armstrong, 2004) argued that competence implies the ability to transfer what people understand and know into different contexts, that is, into various aspects of life and work. Since that time, various views on competencies have emerged, focusing on how to conceptualize the characteristic features of

employees necessary for the proper performance of professional activities and the achievement of success.

In the 1980s, particular interest in competencies was observed in the field of management sciences. This was influenced by the growing complexity of the functioning of entities on the market, the increasing multifunctionality of employees, the need for professional reorientation, and employee polyvalence (Muringa, Shava, 2024). It was then established that competencies relating to a person are employee attributes such as knowledge, skills, attitudes, values, and other characteristics that allow for increased efficiency and effectiveness in task performance. Competencies defined in this way may refer both to a job position, a performed function, a fulfilled role, and to the person carrying out work in that position, performing a particular function, or fulfilling a given role.

In order to systematize the structure of the concept of competencies and analyze its components, it was necessary to classify the category under discussion on the basis of the available literature. Of the 53 analyzed definitions of competencies presented by Polish and foreign authors, almost 68% include knowledge as a component of competencies, nearly 70% include skills, and 38% include attitudes and values. Experience is considered less important by authors, as it is indicated in about 21% of definitions, as is personality (23% of definitions). Meanwhile, 80% of the concepts of competence mention other attributes important from the perspective of individual authors (Hałat, 2024). The following dimensions of competencies may therefore be distinguished:

- theoretical (knowledge): what a given person knows and what education they have,
- practical (skills): what and how a given person is able to do,
- behavioral/social (attitudes, values): how a given person behaves at work, how they communicate with others, and what approach they have to cooperation.

There are multiple approaches to competencies and various ways of classifying them. In organizational management, managerial competencies are of the greatest importance, being identified with the key characteristics of a manager who performs their work very well. Many authors seek answers to the question of what competencies managers should possess. Taking into account the most frequently distinguished components (knowledge, skills, attitudes and values), an analysis of the subject literature was carried out and, from among 28 definitions of managerial competencies, several universal components of managerial competencies most frequently mentioned by authors were identified, including: teamwork skills (25/28 authors), communication skills (21/28 authors), managerial skills (18/28 authors), leadership skills (18/29 authors), results orientation (16/28 authors), decision-making skills (12/28 authors), problem-solving skills (9/28 authors), professional and specialist knowledge (7/28 authors), propensity to take risks (6/28 authors), and a sense of responsibility (4/28 authors). What emerges, therefore, is the image of a manager possessing leadership skills and abilities, the ability to subordinate others to themselves, energy and the will to act, constructiveness and dynamism, perceived as the ability to act against existing rules and entrenched views, as well

as the ability and courage to take risks. The key issue is the attitude of managers that promotes the search for and discovery of non-standard, unconventional ways of performing tasks and achieving goals (Hałat, 2024).

Competency requirements for managers differ depending on the culture or country in which the manager operates. Another key factor determining the managerial competencies necessary for efficient and effective management is the type of organization managed by the managers (Jeruszka, Wolan-Nowakowska, 2020). Domestic and foreign literature presents catalogues of the most important competencies of professional managers managing business organizations. By contrast, only a few studies address the competency requirements imposed on those managing public organizations, including municipalities.

3. Characteristics and Role of the Public Manager in Municipal Governance

In the subject literature, one may observe disputes as to whether public organizations are managed or merely administered. W. Kieżun (Kieżun, 2011) adopted the thesis that the state is a macro-organization, which means that it may be considered from the point of view of the criteria of efficient and effective functioning developed within organization and management theory. Therefore, in this context, it is fully justified to use the term "management" with reference to public organizations, including municipalities, and to call those who manage them public managers.

An analysis of the literature leads to the conclusion that the understanding of the term "public organization manager" is ambiguous. This is associated with the existence of different models of public service in particular countries, as well as with the varying degree of advancement in the implementation of public management (Jäntti, Lajunen, Haveri, Airaksinen, 2026). Taking municipal self-government into account, it is worth noting that, since the 1980s, principles aimed at improving municipal management have begun to be introduced. In many countries, the position of manager has come into operation. In Polish municipal self-government, the public manager is primarily the municipal secretary (employed through a competition) and the municipal treasurer (appointed to office). B. Kożuch (Kożuch, 2023) believes that public managers also include managers at various levels whose primary task is the economical and efficient management of organizations providing all kinds of high-quality public services. The author emphasizes that what distinguishes managers in public organizations from managers operating in business is their value system and the related orientation toward cooperation. B. Kożuch (Kożuch, 2010) proposed the following definition: public managers are managers at various levels in public organizations whose basic duty is the efficient and effective management of those organizations providing high-quality public services.

In the subject literature, attention is focused mainly on public managers, understood in the case of municipalities as municipal secretaries, treasurers, deputy heads of the commune /mayors/city presidents, heads of municipal organizational units, department directors, heads of divisions, heads of sections, as well as managers employed on the basis of contracts (Heinelt, Magnier, Cabria, Reynaert, 2018). However, public managers are above all the persons exercising authority, namely heads of the commune, town mayors, city presidents, and councillors, who manage municipalities and determine the directions of their development. They supervise the activities carried out by secretaries, treasurers, and managers, and they are their superiors. Unfortunately, such control is usually rather illusory in nature, because the activities of public managers are characterized by a high degree of professionalization, as these persons are competent, meet the requirements imposed on them by the legislator, possess higher education required for managerial civil service positions, have experience, and constantly improve their skills. By contrast, politicians serving as heads of the commune and councillors very often do not possess adequate preparation, education, or the necessary skills, which does not allow them to properly supervise the work of secretaries, treasurers, heads of units, and so on (Sabchev, 2022).

In municipal management, persons exercising authority perform tasks imposed by applicable legal provisions and also make key current and strategic decisions, while at the same time performing the basic functions of management, which requires them to possess an appropriate level of managerial competencies (Hałat-Majka, 2018). However, under the applicable legal provisions, a candidate seeking a position enabling the exercise of authority in a municipality must meet requirements relating to age, citizenship, place of residence, criminal record, and the exercise of full public rights, as specified in the Electoral Code. These expectations are not stringent and do not refer to the necessity for candidates seeking the position of head of the commune, town mayor, or councillor to possess specific managerial competencies, which in no way guarantees their professionalism. They do not concern education, which means that persons exercising authority in local government do not need to have appropriate knowledge. There are no specified requirements regarding candidates' experience. Entry into office takes place from one day to the next, without preparation, immediately after the oath is taken (Kjaer, 2015). We often encounter situations in which offices of authority are assumed by people who know very little about the functioning of local government and who, despite having the opportunity, are not interested in improving their competencies. They also very rarely take part in training courses or other forms of development ensuring the growth of managerial competencies. They are not subject to any evaluation during the performance of their functions. The only form of evaluation consists in subsequent elections, during which residents may determine how they assess the work of persons exercising authority during the previous term of office and whether they will vote for them again. In the case of those governing municipal self-governments, there are no promotion rules or motivational systems. Remuneration for persons serving as bodies of authority is limited by

legal provisions. Resolutions determining the amount of remuneration both for the head of the commune and for councillors themselves are adopted by the municipal council. These decisions are not the result of an assessment of work results, but are discretionary and limited by legal regulations.

The above-mentioned factors result in the fact that in some municipalities in Poland, mainly rural ones, there are no adequately qualified persons serving as bodies of authority who would govern efficiently and effectively and be ready to introduce changes and innovations. In 2023, research was conducted (in-depth individual interviews and surveys) concerning the assessment of managerial competencies of 15 heads of the commune and 216 councillors in 15 of the smallest municipalities of the Małopolskie Voivodeship: Bolesław, Gręboszów, Kozłów, Mędrzechów, Moszczenica, Mucharz, Pałecznica, Polanka Wielka, Racławice, Radziemice, Rytro, Sękowa, Słaboszów, Spytkowice, Wietrzychowice. In terms of education, the structure of the research sample (heads of the commune and councillors) is presented in Table 1.

Table 1.
Characteristics of heads of the commune and councillors by education

Characteristics of respondents		N	Structure of respondents (%)
education of councillors	Primary	9	4,2
	Vocational	69	31,9
	Secondary	90	41,7
	Higher	48	22,2
education of head of the commune	Secondary	3	20
	Higher	12	80

Source: Author's own elaboration based on empirical research.

Taking into account the education of the surveyed councillors, it can be observed that only 21.8% have higher education (of which the largest group, 4.2%, completed pedagogical studies). The respondents mostly have secondary education (41.7%) as well as vocational and primary education (36.15%). Analyzing the education of the surveyed heads of the commune, it can be stated that 80% have higher education (of whom 25% completed studies in agriculture, 16.7% in finance and accounting, 16.7% in geodesy, while the others graduated in history, animal science, construction, physical education, and economics). The remaining heads of the commune have secondary education (20%).

The professionalism of managerial staff is a key condition for efficient and effective management in organizations, including public ones (including municipalities), in which awareness of the importance of improving the key competencies of managers emerged much later than in private organizations.

4. Characteristics of the Most Important Managerial Competencies of Municipal Authorities

Within management and quality sciences, there is a very limited theoretical, methodological, and empirical body of work concerning the competencies of persons exercising authority in a municipality, and it refers exclusively to heads of the commune (Walkowiak, 2006; Niewiadomski, Sterna, 2009). With regard to the competencies of councillors, this issue has never been addressed before. However, research cannot be narrowed solely to the head of the commune, because without the support of councillors, the head of the commune is merely an administrator. Heads of the commune have limited agency—they are less flexible than councillors because their actions are strictly regulated by legal provisions. Therefore, it is so important that when analyzing the bodies of authority in a municipality, they are treated comprehensively.

As part of the research conducted in 15 municipalities, taking into account the most important behaviors of municipal authorities, a catalogue of desired and expected competencies was created, which affect the quality of municipal self-government management. The presented competency profile of municipal authorities (Table 2) was developed on the basis of an analysis of domestic and foreign literature as well as expert knowledge.

Table 2.
Competency profile of municipal authorities

KNOWLEDGE	
K1	Professional knowledge (general in nature)
K2	Specialist knowledge
SKILLS (PRACTICAL AND SPECIALIST)	
S1	Leadership skills
S2	Managerial skills
S3	Ability to analyze social phenomena and processes
S4	Results orientation
S5	Decision-making ability (individual and group)
S6	Negotiation skills
S7	Conflict resolution skills
S8	Information delivery and communication skills
S9	Ability to keep documentation and create procedures
S10	Ability to assess situations and generate solutions
S11	Knowledge of the principles of diplomatic protocol
S12	Team-building skills
S13	Ability to apply knowledge in action
S14	Ability to budget in the munipicity
S15	Capacity and readiness for development and improvement
ATTITUDES AND VALUES	
AV1	Personal culture
AV2	Independence
AV 3	Flexibility
AV 4	Creativity, innovation and entrepreneurship
AV 5	Integrity, honesty and truthfulness
AV 6	Sense of responsibility

Cont. table 2.

AV 7	Diagnostic-analytical and strategic-systemic thinking
AV 8	Assertivrness
AV 9	Self-discipline and self-control
AV 10	Conscientiousness
AV 11	Resistance to stress
AV 12	Propensity to take risks
AV 13	Building positive relationships and trust in the enviroment
AV 14	Self-confidence
AV 15	Customer orientation

Source: Author's own elaboration based on empirical research.

During the conducted research, 32 managerial competencies of municipal authorities were identified. The structure of the managerial competency profile of municipal authorities consists of three key components of competence: knowledge (professional and specialist), skills (15 skills), and attitudes and values (15 attitudes and values). The catalogue of competencies constituted the foundation for constructing the managerial competency profile of municipal authorities in practice.

As part of the conducted empirical research, the actual and desired level of managerial competencies of municipal authorities was examined. Respondents (15 heads of the commune and 216 councillors) were asked to indicate the assessment scale of competencies according to the following criteria: 0 – not useful, 1 – useful to a slight extent, 2 – of little use, 3 – moderately useful, 4 – useful, 5 – very useful, 6 – indispensable. The obtained results are presented in Table 3.

Table 3.
Summary of the results concerning the competencies expected of persons exercising authority in municipal self-government and the self-assessment of heads of the commune and councillors

Competency	Competency		Difference between expected and actual competencies (difference in means)
	expected (mean)	actual (mean)	
K1 K	3,70	3,75	-0,05
K2	4,50	3,27	1,22
S1	4,91	3,65	1,26
S2	4,78	3,61	1,18
S3	4,80	3,79	1,01
S4	4,35	3,73	0,62
S5	4,86	4,01	0,85
S6	4,55	3,87	0,68
S7	4,76	3,95	0,81
S8	4,58	3,92	0,66
S9	3,69	2,94	0,75
S10	4,38	3,73	0,65
S11	3,42	2,63	0,80
S12	4,45	3,63	0,83
S13	4,38	3,72	0,66
S14	4,37	2,74	1,63

S15	4,66	3,81	0,85
AV1	5,35	4,61	0,74
AV2	4,90	4,20	0,71
AV3	4,46	4,06	0,40
AV4	4,72	3,78	0,94
AV5	5,39	4,98	0,40
AV6	5,32	4,74	0,58
AV7	4,80	3,86	0,94
AV8	4,49	3,68	0,81
AV9	4,75	4,12	0,63
AV10	5,00	4,38	0,61
AV11	4,97	4,16	0,82
AV12	4,29	3,98	0,32
AV13	5,18	4,52	0,66
AV14	4,89	4,32	0,57
AV15	5,04	4,40	0,64

Source: Author's own elaboration based on empirical research.

In the respondents' opinion, the highest-rated expected competencies indispensable for exercising authority in a municipality are: (PW5) integrity, honesty, and truthfulness (mean 5.39), (PW1) personal culture (mean 5.35), (PW6) sense of responsibility (mean 5.32), (PW13) building positive relationships and trust in the environment (mean 5.18), (PW15) resident orientation (mean 5.04), (PW10) conscientiousness (mean 5.00), (PW11) resistance to stress (mean 4.97), (U1) leadership skills (mean 4.91), (PW2) independence, (PW14) self-confidence (mean 4.89), (U5) decision-making ability (mean 4.86), the ability to analyze social phenomena and processes (mean 4.80), (PW7) diagnostic-analytical and strategic-systemic thinking (mean 4.80), (U2) managerial skills (mean 4.78), (U7) conflict resolution skills (mean 4.76), (PW9) self-discipline and self-control (4.75), (PW4) creativity, innovation, and entrepreneurship (mean 4.72), (U15) capacity and readiness for development (mean 4.66), (U8) information delivery and communication skills (4.58), and (W2) specialist knowledge (mean 4.50). In the respondents' opinion, the lowest means were obtained by: (U11) knowledge of the principles of diplomatic protocol (mean 3.42), (U9) the ability to keep documentation and create procedures (mean 3.69), and (W1) professional knowledge (mean 3.70).

In the case of self-assessment results, respondents assessed their level of competencies as significantly lower than the level expected of persons exercising authority and candidates seeking the position of head of the commune or councillor. The only exception is (W1) professional knowledge, the current level of which (mean 3.75), according to the respondents, is higher than the expected level (mean 3.70). In the respondents' opinion, professional knowledge should be at an average/above-average level, and they believe they possess such knowledge. The surveyed heads of the commune and councillors assessed the following competencies as being at a low level: (U14) ability to budget in the municipality (mean 2.63), (U11) knowledge of the principles of diplomatic protocol (mean 2.63), and (U9) ability to keep documentation and create procedures (mean 2.94). The highest-rated competencies possessed

by heads of the commune and councillors were: (PW5) integrity, honesty, and truthfulness (mean 4.98), (PW6) sense of responsibility (mean 4.74), (PW1) personal culture (mean 4.61), and (PW13) building positive relationships and trust in the environment (mean 4.52). As a result of self-assessment, the surveyed heads of the commune and councillors indicated a high level of attitudes and values, and a low level of knowledge and skills. In the case of the remaining competencies, respondents assessed their own competencies as average/above average. Taking into account the level of expected competencies (4.5 in the case of knowledge, and 4.55 in the case of skills and attitudes), a practical profile of the managerial competencies of municipal authorities was created (Table 4).

Table 4.
Practical profile of the managerial competencies of municipal authorities

No.	COMPETENCIES
	KNOWLEDGE
1	Specialist knowledge
	SKILLS (PRACTICAL AND SPECIALIST)
2	Leadership skills
3	Managerial skills
4	Ability to analyze social phenomena and processes
5	Decision-making ability (individual and group)
6	Conflict resolution skills
7	Information delivery and communication skills
8	Capacity and readiness for development and improvement
	ATTITUDES AND VALUES
9	Personal culture
10	Independence
11	Creativity, innovation, and entrepreneurship
12	Integrity, honesty, and truthfulness
13	Sense of responsibility
14	Diagnostic-analytical and strategic-systemic thinking
15	Self-discipline and self-control
16	Conscientiousness
17	Resistance to stress
18	Building positive relationships and trust in the environment
19	Self-confidence
20	Customer orientation

Source: Author's own elaboration based on empirical research.

The practical profile of the managerial competencies of municipal authorities includes 20 key managerial competencies of heads of the commune /councillors. Based on the results of the empirical research, a catalogue of the managerial competencies of heads of the commune /councillors was developed that affects the efficiency and effectiveness of municipal management, which constitutes the added value of the article.

5. Conclusions

Modern municipal management requires specialist knowledge, appropriate skills, attitudes, and ethical-moral values. In practice, the selection of persons exercising authority is often determined not by qualifications and professionalism, but by irrational factors such as a sense of distinctiveness, events experienced together with voters, solidarity, preferences, and identity of accepted norms. In addition, with regard to managing public managers—persons exercising authority in a municipality—it is not possible, due to the specific nature of their functioning, to use all the measures applied in human capital management. They constitute only a model framework that must be modified and adapted to the specific nature and multidimensionality of the roles played by persons exercising authority. The presented results of the empirical research and theoretical considerations certainly do not exhaust the subject of managerial competencies of municipal authorities, due to its complexity and significant cognitive importance. Taking into account the significance and timeliness of the issue addressed, the author sought to inspire and provide a contribution to further in-depth scientific research into the managerial competencies of persons exercising authority at both local government and central government levels.

References

1. Babis, H. (2018). Kompetencje cyfrowe w polityce innowacyjnej Polski i Unii Europejskiej. *Ekonomiczne Problemy Usług*, *2*, 31-37.
2. Bessant, J., Tidd, J. (2007). *Innovation and entrepreneurship.* Chichester: John Wiley & Sons.
3. Hałat, J. (2024). *Model kompetencji menedżerskich władz samorządu gminnego*. Doctoral dissertation. Akademia WSB w Dąbrowie Górniczej.
4. Hałat-Majka, J. (2018). Władza stanowiąca a zrównoważony rozwój samorządu terytorialnego. *Zeszyty Naukowe Politechniki Częstochowskiej - Zarządzanie*, 22-42.
5. Heinelt, H., Magnier, A., Cabria, M., Reynaert, H. (2018). *Political Leaders and Changing Local Democracy. The European Mayor.* London: Palgrave Macmilan.
6. Jäntti, A., Lajunen, S., Haveri, A., Airaksinen, J. (2026). Mayors as local leaders – a systematic literature review on European mayor research. *Local Government Studies*, 1-19. https://doi.org/10.1080/03003930.2026.2632134
7. Jeruszka, U., Wolan-Nowakowska, M. (2020). *Zarządzanie różnorodnością w organizacji. Aspekty psychopedagogiczne.* Warszawa: Difin.
8. Kieżun, W. (2011). *Public management.* Szczytno: Wydział Wydawnictw i Poligrafii.

9. Kjaer, U. (2015). *Local Public Sector Reforms in Times of Crisis*. London: Palgrave Macmillan. https://doi.org/10.1177/1078087414537610
10. Kożuch, A. et al. (2016). *Obszary zarządzania publicznego.* Kraków: MiSISP UJ.
11. Kożuch, B. (2010). Kompetencje menedżerów w organizacjach publicznych: teoria a praktyka zarządzania. *Prace Naukowe UE we Wrocławiu*, *115*(92), 349-351.
12. Kożuch, B. (2023). *Nauka o organizacji.* Warszawa: CeDeWu.
13. McClelland, D. (1998). Identifying competencies with behavioral-event interviews. *Psychological Science*, *9*(5), 331-338.
14. Muringa, T.P., Shava, E. (2024). Examining the efficacy of core competencies of municipal leaders in transforming local government in South Africa. *International Journal of Public Leadership*, *20*(3-4), 330-346. https://doi.org/10.1108/IJPL-04-2024-0032
15. Niewiadomski, P., Sterna, K. (2009). Kompetencje menedżera organizacji samorządowej: model kompetencji. *Zeszyty Naukowe Uniwersytetu Szczecińskiego*, *45*, 443-453.
16. Sabchev, T. (2022). The Role of Local Political Leadership in the Reception of Forced Migrants: Evidence from Greece. *Territory, Politics, Governance*, *10*, 306-326. https://doi.org/10.1080/21622671.2021.1927815
17. Schultz, T.W. (1971). *Investment in human capital. The role of education and of research.* New York: The Free Press.
18. Torfing, J., Bentzen, T.Ø., Winsvold, M.S. (2022). How Institutional Designs Condition Perceived Local Political Leadership. *Local Government Studies*, *48*, 341-366. https://doi.org/10.1080/03003930.2020.1821664
19. *Ustawa z dnia 5 stycznia 2011 r. - Kodeks wyborczy* (Journal of Laws of 2025, item 365, as amended) [legal status as of 26 March 2026].
20. Walkowiak, R. (2006). Kompetencje menedżerów organizacji samorządowych – wyzwania edukacyjne. *Współczesne Zarządzanie, 2*(47), 91-93.

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AI-POWERED DIGITAL ASSISTANTS AS TOOLS FOR MANAGING WORK-LIFE BALANCE

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Purpose: The aim of the article is to identify the potential of AI-based digital assistants as tools supporting the management of work–life balance. The paper attempts to identify the benefits and limitations arising from the use of such solutions.
Design/methodology/approach: The article is based on an analysis of the literature in the fields of artificial intelligence, time management, and work–life balance.
Findings: The findings indicate that AI-based digital assistants can support time management and enhance productivity, thereby contributing to the improvement of work–life balance. At the same time, their effectiveness depends on users' awareness and competencies.
Research limitations/implications: The contribution of the article lies in structuring these issues and identifying directions for further research, particularly of an empirical nature, including the analysis of specific tools, criteria for their evaluation, and the long-term effects of their application. Future research should also take into account the organizational context of implementation and individual user differences, which would enable a more comprehensive assessment of the potential and limitations of the analyzed solutions.
Practical implications: The findings may support organizations in implementing AI-based digital assistants in the domain of work–life balance, enhancing work efficiency and employee well-being, which may, in turn, translate into improved economic performance and organizational competitiveness.
Social implications: The use of AI-based digital assistants may contribute to improving quality of life, reducing stress, and enhancing time management, while simultaneously giving rise to challenges related to excessive digitalization and dependence on technology.
Originality/value: The article integrates technological and socio-economic perspectives, presenting AI-based digital assistants as tools supporting work–life balance, which constitutes a relatively new and dynamically developing area of research.
Keywords: artificial intelligence, digital assistants, work–life balance, productivity, time management.
Category of the paper: General review, literature review.

1. Introduction

The contemporary work environment is undergoing dynamic transformations, strongly driven by the ongoing process of digitalization and the continuous advancement of information technologies. Under these evolving conditions, the concept of work–life balance has gained particular importance as a key research domain within the fields of management, economics, and occupational psychology. This balance should not be understood as a static state, but rather as a dynamic adaptive process involving the harmonious integration of professional and non-professional roles while maintaining the psychological well-being of the individual (Bello et al., 2024).

On the one hand, digital tools enable the optimization of time management, task automation, and increased productivity. On the other hand, they contribute to the potentially detrimental blurring of boundaries between professional and private life. The resulting pressure of constant availability may lead to information overload, difficulties in separating work time from leisure time, and increased stress levels (Duan, Deng, Wibowo, 2023).

In response to these challenges, there is a clear need to seek new solutions. In this context, particular attention is being given to digital assistants based on artificial intelligence (AI)[1], which—through the use of machine learning algorithms and natural language processing (NLP)—offer advanced capabilities for personalization and human support.

The aim of this paper is to identify the potential of AI-based digital assistants as innovative tools supporting the maintenance and management of work–life balance. The study seeks to discuss AI digital assistants in the context of their application in productivity enhancement, work organization, and the improvement of users' psychological well-being. The article also aims to identify key benefits, limitations, and challenges associated with the use of AI digital assistants in implementing the work–life balance concept.

The structure of the paper has been designed to achieve the stated research objective and consists of four substantive sections. The first section presents the theoretical foundations of the work–life balance concept. The second part focuses on the characteristics of AI digital assistants, discussing their essence, operational mechanisms, and key functionalities (such as time management, content creation, and communication automation). The third section examines the impact of AI-based systems on productivity and work organization, highlighting their ability to reduce time spent on routine tasks and to support employee well-being[2] through proactive prevention of task overload. The final, fourth section provides a balanced assessment

[1] An AI-based digital assistant is an information system that employs machine learning techniques and natural language processing to support users in task execution, work organization, and decision-making through data analysis and interaction in either textual or voice-based forms.

[2] Employee well-being refers to the overall physical, psychological, and social condition of an individual within the work environment, encompassing levels of job satisfaction, work–life balance, as well as a sense of security and engagement.

of benefits and limitations. It analyzes risks related to excessive dependence on technology and data privacy, outlines development perspectives oriented toward ethical considerations, and emphasizes the need to build appropriate competencies and regulatory frameworks within organizations (Hijry et al., 2024).

2. Theoretical Foundations of Work–Life Balance and the Role of Digital Technologies in Time Management

The concept of work–life balance constitutes a significant area of interest within contemporary management sciences, economics, and occupational psychology. From a theoretical perspective, it refers to an individual's ability to harmoniously integrate professional and non-professional roles while maintaining life satisfaction and psychological well-being. The literature emphasizes that this balance is not a static condition but rather a dynamic adaptive process, dependent on changing work conditions, family life, and individual preferences. Key determinants in this context include the flexibility of work organization, employee autonomy, organizational culture, and the level of employer support (Casper et al., 2025).

The modern work environment is undergoing intensive transformations under the influence of digitalization and the development of information technologies. Digital tools—such as task management systems, mobile applications, and communication platforms—significantly affect the organization of working time and the execution of professional duties. On the one hand, they enable increased efficiency, improved planning, and faster access to information. On the other hand, they contribute to the phenomenon of "boundary blurring" between professional and private spheres, resulting from constant employee availability and the pressure for immediate responsiveness to communications.

From the perspective of time management theory, digital technologies serve as instruments supporting the optimization of time resource utilization. They enable the automation of repetitive activities, integration of data from multiple sources, and monitoring of user activity. Consequently, they facilitate more conscious task management, prioritization, and the elimination of inefficient actions. The literature indicates that, when appropriately applied, such technologies may contribute to increased productivity and the reduction of cognitive load[3].

At the same time, the ambivalent nature of digital technologies in the context of work–life balance should be emphasized. Excessive use of information technologies may lead to information overload, increased stress, and difficulties in separating work time from leisure

[3] Reduction of cognitive load refers to the limitation of the amount of information and mental effort required to process tasks, thereby enabling more effective decision-making and improving concentration and cognitive performance.

time. As a result, there emerges a need for conscious and balanced use of technology, taking into account both efficiency-related aspects and user well-being (Figure 1).

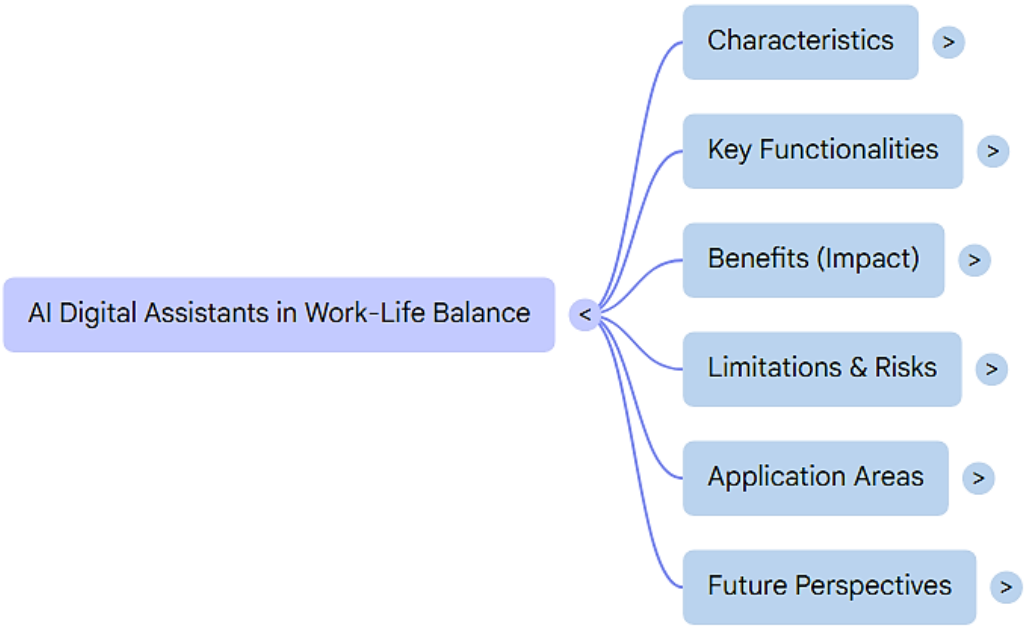

Figure 1. Synergy of Work, Life, and Technology in Maintaining Digital Balance.
Source: author's own elaboration.

In the context of the above considerations, solutions based on artificial intelligence gain particular importance, as they offer new opportunities in terms of personalization and automation of time management. They constitute a significant direction in the development of tools supporting the maintenance of work–life balance, which justifies further analysis of their role in the subsequent sections of this paper.

3. AI-Based Digital Assistants – Characteristics, Functionalities, and Areas of Application

AI-based digital assistants represent one of the most dynamically developing categories of tools supporting user functioning in the digital environment (Limna et al., 2022). From a definitional perspective, they are information systems that utilize advanced machine learning algorithms, natural language processing (NLP)[4], and data analytics to interact with users and assist them in performing a wide range of tasks. Their essence lies in the ability to process information in a manner analogous to human reasoning and to adapt to the individual preferences of the user (Table 1).

[4] Natural Language Processing (NLP) is a field of artificial intelligence concerned with the analysis, understanding, and generation of natural language by computers, enabling human–computer interaction in a manner analogous to interpersonal communication.

Table 1.
Characteristics and Functionalities of AI-Based Digital Assistants

Functionality Category	Function Description	Key Benefits	Area of Application (Professional/Private)	Mechanism of Operation
Time and Task Management	Schedule planning, automated reminders, and task prioritization	Optimization of time utilization, improved daily organization, and reduction of cognitive load	Professional and Private	Predictive analytics and machine learning (analysis of schedules and user behavior
Communication Automation	Generation of message responses, meeting organization, and information filtering	Maintenance of effective communication and coordination of activities, particularly in remote work settings	Professional and Private	Natural Language Processing (NLP) and adaptive models
Content Creation Support	Generation of documents, summaries, and analyses	Reduction of workload associated with routine administrative tasks	Professional	Natural Language Generation (NLG) and machine learning algorithms
Analytical and Decision-Support Functions	Data processing and provision of insights supporting decision-making	Facilitation of decision-making in conditions of increasing digital complexity	Professional	Data analytics and predictive models
Personal Efficiency Optimization	Identification of work patterns, indication of peak productivity periods, and suggestion of breaks	Prevention of fatigue and support for work–life balance	Professional and Private	Machine learning and user behavior pattern analysis
Work Environment Integration	Integration of various tools (communication platforms, office applications) within a single environment	Reduction of the need to switch between applications	Professional	API integration and cloud computing

Source: author's own elaboration.

A fundamental characteristic of AI-based digital assistants is their interactivity and capacity to learn from accumulated data. Unlike traditional information systems that operate according to predefined rules, AI assistants employ predictive and adaptive models, enabling them not only to respond to user commands but also to proactively suggest specific actions. These mechanisms involve the analysis of user behavior, schedules, preferences, and the context of performed activities, which allows for the generation of personalized recommendations.

The functionalities of AI-based digital assistants are multidimensional and encompass a wide range of applications. Among the most significant are time and task management, including schedule planning, automated reminders, and task prioritization. An important role is also played by communication automation, such as generating responses to messages, organizing meetings, or filtering information. Another key area is content creation support, including the generation of documents, summaries, and analyses. Increasing importance is also attributed to analytical functions, which involve data processing and the provision of insights supporting decision-making.

In the context of managing work–life balance, particular importance is assigned to functionalities related to optimizing time utilization and reducing cognitive load. Digital assistants can identify user work patterns, indicate periods of highest efficiency, and suggest breaks to prevent fatigue. Moreover, they facilitate better daily organization through the integration of various tools and information sources within a single environment, thereby reducing the need to switch between multiple applications.

The areas of application of AI-based digital assistants include both professional and private environments. In organizations, they are used to streamline business processes, manage projects, support teamwork, and automate routine administrative tasks. In the context of remote and hybrid work, they play a particularly important role in coordinating activities and maintaining effective communication. In private life, they assist users in planning daily activities, managing household responsibilities, and organizing leisure time.

The development of AI-based digital assistants is closely linked to technological progress in data processing and the increasing availability of cloud-based services. Integration with other systems—such as communication platforms, office applications, and task management systems—enhances their functionality and usability. At the same time, the importance of issues related to data security, privacy, and the ethics of artificial intelligence use is growing[5].

In light of the above considerations, AI-based digital assistants constitute an important tool supporting individual functioning in conditions of increasing complexity in both the work environment and everyday life. Their ability to automate processes, personalize actions, and support decision-making makes them potentially crucial in time management and in maintaining work–life balance.

[5] The ethics of artificial intelligence use refers to the principles and standards governing the design, implementation, and application of AI systems in a responsible manner, taking into account, inter alia, the protection of privacy, transparency of operation, fairness, and the minimization of risks related to discrimination and misuse.

4. Impact of AI-Based Digital Assistants on Productivity, Work Organization, and User Well-Being

The impact of AI-based digital assistants on productivity, work organization, and user well-being constitutes an important area of research in the context of the increasing digitalization of the professional environment. These solutions, through the use of advanced data analytics and machine learning algorithms, enable the automation of numerous processes and support users in effective time and task management (Mattarelli et al., 2024). Consequently, their application may lead to significant changes in the way work is organized, influencing both its efficiency and the quality of individual life (Figure 2).

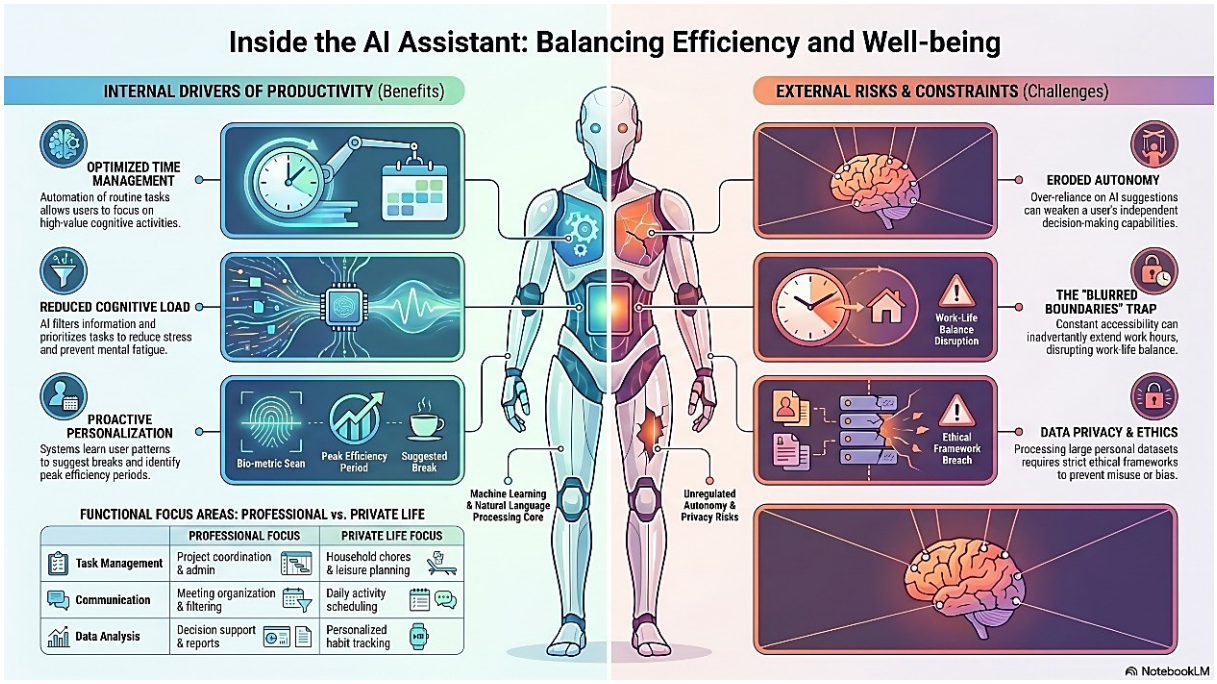

Figure 2. Benefits and Challenges of AI Assistants.

Source: author's own elaboration.

In the area of productivity, AI-based digital assistants primarily contribute to reducing the time devoted to routine and repetitive tasks. The automation of activities such as scheduling meetings, managing correspondence, or generating documents enables users to focus on tasks requiring creativity and decision-making. Moreover, due to their capacity to analyze large datasets, these assistants can provide recommendations regarding optimal task execution, which translates into increased work efficiency. The literature also emphasizes the role of these tools in reducing errors resulting from the human factor, thereby further improving the quality of performed activities.

Another important aspect is the impact of AI-based digital assistants on work organization. These tools enable more effective schedule planning, taking into account both task priorities and individual user preferences. Through integration with various information systems, assistants can synchronize data from multiple sources, allowing for comprehensive management of both professional and personal activities. In the context of remote and hybrid work, their role in coordinating team activities and maintaining continuity of communication becomes particularly significant. As a result, it is possible to enhance process transparency and achieve better utilization of available time resources.

From the perspective of user well-being, AI-based digital assistants can function as tools supporting work–life balance. By monitoring activity and analyzing work patterns, these systems are capable of identifying situations of task overload and suggesting actions aimed at its reduction, such as introducing breaks or reorganizing schedules. The literature indicates that, when appropriately used, such technologies may contribute to stress reduction and improved job satisfaction.

At the same time, attention should be paid to the potential risks associated with the use of AI-based digital assistants. One of these is the risk of excessive automation, which may lead to reduced user autonomy and increased dependence on technology. Furthermore, the constant availability of digital tools may encourage the extension of working hours and hinder the maintenance of clear boundaries between professional and private life. Issues related to data privacy and information security also constitute an important element in the evaluation of these solutions.

AI-based digital assistants exert a multidimensional impact on productivity, work organization, and user well-being. Their potential to support efficiency and work–life balance is significant; however, its full realization requires a conscious and responsible approach to the implementation and use of these technologies. In particular, it is necessary to consider both the benefits and limitations resulting from their application (Wellsandt et al., 2022).

5. Benefits, Limitations, and Development Perspectives of AI in Managing Work–Life Balance

The use of artificial intelligence in managing work–life balance entails a range of benefits, but also significant limitations and challenges that determine the directions of further development of these technologies. The analysis of these aspects allows for a more comprehensive understanding of the role of AI-based digital assistants in shaping contemporary models of work and lifestyle (Table 2).

Table 2.
Key Aspects of AI Application in Work–Life Balance Management

Category of Analysis	Key Aspects	Detailed Description
Benefits of AI Utilization	Automation and Personalization	Automation of routine activities (e.g., meeting scheduling, task organization) combined with the ability to learn user preferences in order to provide personalized recommendations
Limitations and Risks	Dependence, Privacy, and Boundaries	Risk of excessive dependence on technology, reduced decision-making autonomy, and threats related to unauthorized access to user activity data
Future Development Directions	Ethics and Predictive Analytics	Advancement of personalization technologies and predictive analytics while incorporating ethical and social considerations
Organizational Implementation	Digital Competencies and Integration	Implementation of AI tools within existing organizational systems and the development of appropriate digital competencies among employees

Source: author's own elaboration.

Among the most significant benefits resulting from the application of AI is, above all, the increased efficiency of time management. Digital assistants enable the automation of numerous routine activities, such as scheduling meetings, organizing tasks, and analyzing timetables, allowing users to focus on activities of higher cognitive value. Owing to their ability to analyze data and learn user preferences, these tools provide personalized recommendations regarding the organization of the working day, thereby facilitating a better alignment of professional duties with individual needs and personal rhythms of functioning.

Another important benefit is the potential to reduce cognitive load and stress associated with information overload and excessive responsibilities. AI-based digital assistants can support users in information filtering, prioritization, and progress monitoring, which enhances the sense of control over performed tasks. Consequently, this may lead to improved psychological well-being and increased job satisfaction. Additionally, the integration of various tools and systems within a single environment promotes process organization and reduces informational chaos.

However, the use of AI in managing work–life balance is also associated with several limitations. One of the most critical is the risk of excessive dependence on technology, which may result in reduced user autonomy and a diminished capacity for independent decision-making. Furthermore, the constant availability of digital tools may encourage the extension of working hours and hinder the clear separation between professional and private spheres. As a result, instead of supporting balance, these technologies may disrupt it.

An important issue also concerns data privacy and security. AI-based digital assistants operate on large volumes of user activity data, which creates risks related to unauthorized access or misuse of information. In the organizational context, challenges also include the integration of these tools with existing systems and ensuring an adequate level of employees' digital competencies (Table 3).

Table 3.
Application of AI in Work–Life Balance Management

Category of Analysis	Impact on the User	Challenges and Risks	Development Perspectives
Benefits of AI Utilization	Increased efficiency in time management, reduction of cognitive load and stress, improved psychological well-being, and a greater sense of control	No data available in the source	Further enhancement of digital assistant precision through advanced machine learning algorithms and improved integration with calendar systems
Limitations and Risks	Extension of working hours, difficulties in separating professional and private spheres (disruption of balance), and reduced autonomy	Necessity to ensure data security, prevent digital exclusion, and mitigate loss of privacy	Introduction of stricter legal regulations (e.g., AI Act) and the implementation of "privacy-by-design" systems
Future Development Directions	Improved alignment of tools with individual needs and protection against negative effects of digitalization	Establishment of regulatory frameworks and ethical principles for technology implementation	Widespread use of AI for predicting burnout and suggesting real-time work breaks
Organizational Implementation	Requirement for continuous learning; potential for better alignment of work with individual functioning rhythms	Insufficient digital competencies among staff and technical challenges related to system integration	Development of AI literacy training programs and the emergence of new standards for technology-supported work culture

Source: author's own elaboration.

From a developmental perspective, a further increase in the importance of artificial intelligence in managing work–life balance can be anticipated (Bhat, Yousuf, Saba, 2023). Advances in personalization technologies, predictive analytics, and system integration will enable an even better alignment of tools with individual user needs. An important direction of development will also involve the advancement of solutions that incorporate ethical and social considerations, including the protection of privacy and the mitigation of negative effects associated with excessive digitalization (Figure 3).

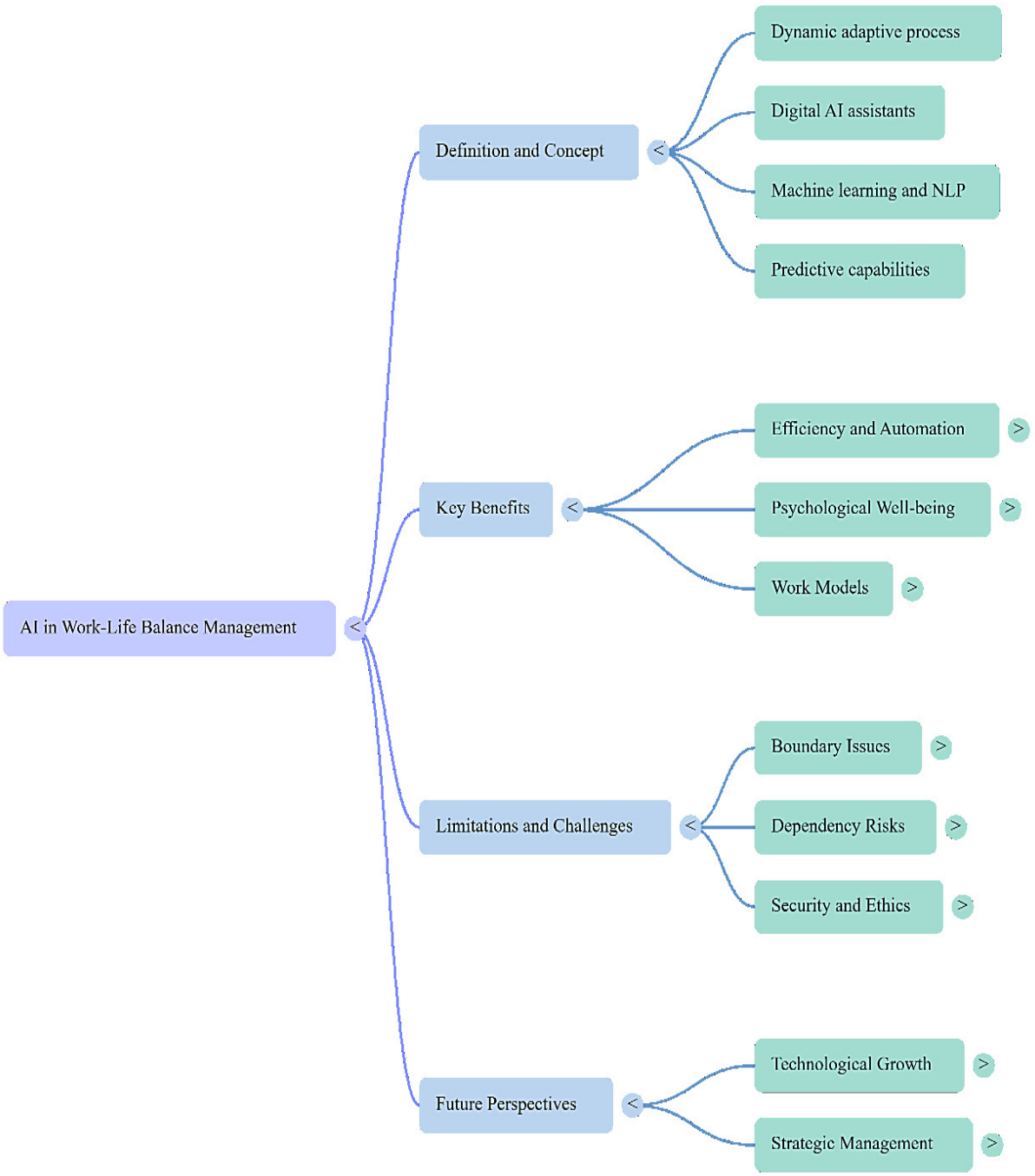

Figure 3. Artificial Intelligence in Work–Life Balance
Source: author's own elaboration.

Artificial intelligence demonstrates significant potential in supporting the management of work–life balance; however, its effective utilization requires a conscious approach that takes into account both its benefits and limitations. Of key importance will be the further development of user competencies, the establishment of appropriate regulatory frameworks, and the integration of technology with organizational practices that promote employee well-being (Rienties et al., 2024).

6. Summary and references

In summary, the conducted analysis indicates that AI-based digital assistants constitute a promising tool for supporting the management of work–life balance; however, their actual effectiveness depends on a range of organizational and individual determinants. The article demonstrates that functionalities related to intelligent time management, task prioritization, and interaction personalization are particularly important, as they can contribute to reducing information overload and improving user well-being. At the same time, it should be emphasized that the absence of appropriate implementation frameworks, excessive automation, or uncontrolled expansion of work scope may lead to adverse effects, including increased technostress and the blurring of boundaries between professional and private life.

The considerations presented in this article should primarily be treated as a review-conceptual study, which identifies a research gap in the integration of studies on AI assistants with the literature on work–life balance, technostress, and boundary management. The contribution of the article lies in structuring these themes and indicating directions for further research, particularly of an empirical nature, including the analysis of specific tools, criteria for their evaluation, and the long-term effects of their use. Future research should also take into account the organizational context of implementation and individual user differences, which would enable a more comprehensive assessment of the potential and limitations of the analyzed solutions.

References

1. Bello, B.G., Tula, S.T., Omotoye, G.B., Kess-Momoh, A.J., Daraojimba, A.I. (2024). Work-life balance and its impact in modern organizations: An HR review. *World Journal of Advanced Research and Reviews*, *21*(1), 1162-1173.
2. Bhat, Z.H., Yousuf, U., Saba, N. (2023). Revolutionizing work-life balance: Unleashing the power of telecommuting on work engagement and exhaustion levels. *Cogent Business & Management*, *10*(2), 2242160.
3. Casper, W.J., Hyde, S.A., Smith, S.G., Amirkamali, F., Wayne, J.H. (2025). How effective are work-life balance policies? The importance of inclusion. *Annual Review of Organizational Psychology and Organizational Behavior*, *12*, 73-108.
4. Duan, S.X., Deng, H., Wibowo, S. (2023). Exploring the impact of digital work on work–life balance and job performance: a technology affordance perspective. *Information Technology & People*, *36*(5), 2009-2029.

5. Hijry, H., Naqvi, S.M.R., Javed, K., Albalawi, O.H., Olawoyin, R., Varnier, C., Zerhouni, N. (2024). Real time worker stress prediction in a smart factory assembly line. *IEEE Access*, *12*, 116238-116249.
6. Limna, P., Jakwatanatham, S., Siripipattanakul, S., Kaewpuang, P., Sriboonruang, P. (2022). A review of artificial intelligence (AI) in education during the digital era. *Advance Knowledge for Executives*, *1*(1), 1-9.
7. Mattarelli, E., Cochis, C., Bertolotti, F., Ungureanu, P. (2024). How designed work environment and enacted work interactions impact creativity and work–life balance. *European Journal of Innovation Management*, *27*(2), 648-672.
8. Rienties, B., Domingue, J., Duttaroy, S., Herodotou, C., Tessarolo, F., Whitelock, D. (2024). *I would love this to be like an assistant, not the teacher: A voice of the customer perspective of what distance learning students want from an artificial intelligence digital assistant.* arXiv preprint arXiv:2403.15396.
9. Wellsandt, S., Klein, K., Hribernik, K., Lewandowski, M., Bousdekis, A., Mentzas, G., Thoben, K.D. (2022). Hybrid-augmented intelligence in predictive maintenance with digital intelligent assistants. *Annual Reviews in Control*, *53*, 382-390.

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STRUCTURE AND DETERMINANTS OF REASONS FOR SOLDIERS LEAVING MILITARY SERVICE: CLUSTER ANALYSIS AND STRUCTURAL EQUATION MODELLING

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Purpose*:* The objective of this article is to empirically test models explaining the reasons why soldiers leave military service using structural equation modelling (SEM). The analysis focuses on assessing which dimensions of organisational functioning (employer, workplace, professional development, financial prospects) constitute significant predictors of reasons for leaving the Polish Armed Forces.
Methodology: The study was based on two surveys conducted in 2019/2020 (N = 158) and 2023 (N = 159) at the War Studies University, using the same research instrument. Confirmatory factor analysis and structural equation modelling were used to test relationships between the four dimensions of military evaluation and the latent factors of reasons for leaving. The measurement equivalence of the models was also verified across generations, length of service, and command functions
Findings: The 2019 model was a good fit, and the only significant predictor of job-related reasons for leaving was the professional development dimension. In 2023, despite the model's very good fit, no significant relationships were found between the analysed factors and reasons for leaving. This indicates stability in the structure of latent variables alongside variability in the mechanisms explaining departures over time.
Practical Implications: The findings suggest that the mechanisms leading to employee turnover are dynamic in nature and require ongoing monitoring rather than a one-time assessment. Professional development may be particularly significant as a factor sensitive to changes in the organisational context. Understanding the mechanisms underlying personnel turnover is crucial for the stability of institutions responsible for national security. Identifying factors that undermine continuity of service can help in designing more resilient organisational solutions. In long term, this translates into strengthening of defence capabilities and boosting public trust in military institutions.
Originality: This article presents methodological value by applying SEM to analyse reasons for turnover across two comparable time periods. This approach not only allows for an assessment of the phenomenon's structure but also enables verification of how its determinants change over time. The study brings contribution to the literature on workforce stability in mission-driven organisations.
Keywords: military service turnover; soldier engagement; personnel stability; cluster analysis; structural equation modelling (SEM); armed forces personnel policy.
Category of the paper: construction or testing of a model or framework.

1. Introduction – Rationale for Studying Employee Engagement and Factors Influencing Soldier Turnover as a Factor in Military Workforce Stability

Contemporary organizations—in both the private and public sectors—operate in an environment of growing uncertainty, dynamic social change, and evolving employee expectations regarding work and employers. One of the key challenges in human capital management today is maintaining sustained employee engagement, understood not only as willingness to perform formally assigned duties, but also as emotional, cognitive, and behavioural identification with the organisation, its mission, and its goals (Porter et al., 1974; Juchnowicz, 2010; Saks, 2006). Employee engagement is viewed as a significant factor determining organizational effectiveness, workforce stability, and quality of tasks performed, a view supported by numerous empirical studies (Czarnowsky, 2008; Wagner et al., 2006; Moczydłowska, 2013).

The concept of work engagement has evolved alongside shifts in management paradigms - from an approach focused on control and discipline towards models based on trust, participation, and employee autonomy. As early as the 1970s, it was noted that a lasting employee commitment to an organisation requires not only economic incentives but, above all, acceptance of the organisation's values and goals, as well as a willingness to go the extra mile (Porter et al., 1974). This trend also encompasses the concept of commitment as a psychological state in which an individual's actions are consistent with their beliefs and reinforce a sense of meaning in their work (Salancik, 1977). These ideas were further developed in management models emphasising the importance of autonomy, shared responsibility, and an organisational culture that fosters employee initiative (Walton, 1985; Peters, Waterman, 1982; Armstrong, 2007).

Source literature emphasises that commitment is a broader construct than motivation, encompassing emotional, cognitive and behavioural components, and that it stems from the exchange relationship between an employee and an organisation (Juchnowicz, 2010; Saks, 2006). In this view, the employee is engaged when they perceive the organisation as fair, supportive and offering resources that enable them to achieve both professional and personal goals. However, a decline in engagement does not necessarily lead to immediate resignation, but may take the form of a gradual withdrawal from active participation in organisational life.

A phenomenon that has attracted particular attention from researchers in recent years is 'quiet quitting', understood as limiting professional activity to the minimum formal requirements whilst simultaneously distancing oneself mentally from work and the organisation (Lu et al., 2023; Öztürk et al., 2023; Gigol, 2023). Quiet quitting is directly linked to a decline in engagement, particularly its emotional and cognitive components, and can be interpreted as an adaptive strategy in response to excessive demands, an imbalance between effort and rewards, or deficits in work resources (Bakker, Demerouti, 2017; Arar et al., 2023).

From the perspective of job demands and resources theory, this phenomenon is the result of a long-term imbalance between workload and organisational support, leading to a reduction in well-being and willingness to make additional effort.

An analysis of issues of engagement and quiet resignations takes on particular significance in relation to mission-oriented organisations, such as the Polish Armed Forces. The military, in both colloquial and normative terms, is perceived as an institution where service is based on duty, discipline and subordination, rather than on the voluntary commitment typical of market-oriented organisations. However, the modern Armed Forces operate in conditions of full professionalisation and competition in the labour market, which means that soldiers are increasingly making rational assessments of the costs and benefits of remaining in service (Piotrowski, 2012; Jabłońska-Wołoszyn, 2023). The shift from conscription to a volunteer model of military service has meant that factors such as job satisfaction, a sense of purpose, relationships with superiors and opportunities for development have taken on real significance within the military (Gocuł, 2012; Nowakowska-Krystman, Piotrowska-Trybull, 2016).

Despite a strong ethos of service and formal subordination, the phenomenon of mental disengagement can also occur in the military, manifesting itself in a decline in initiative, a reduction in responsibility, and a focus solely on fulfilling the minimum of duties. This phenomenon is particularly dangerous in an organisation whose effectiveness relies on cooperation, trust and readiness to act in crisis situations. The quiet departure of soldiers does not directly lead to a reduction in personnel numbers, but it does diminish their actual effectiveness, morale and combat potential, especially in peacetime, which is a crucial period for preparing for potential military operations (Jabłońska-Wołoszyn, 2024).

Complexity of the factors influencing the decision to leave military service – both in factual and psychological terms – requires the use of advanced data analysis methods. The reasons for leaving are multidimensional and encompass individual, organisational, relational and systemic factors, which are interlinked through complex cause-and-effect relationships. Traditional one-dimensional analyses do not allow this complexity to be captured, nor do they enable the identification of hidden patterns of soldiers' behaviour and attitudes. The use of cluster analysis facilitates identification of relatively homogeneous groups of soldiers differing in the structure of their motives and reasons for leaving, whilst structural equation modelling allows for the testing of complex models of the relationship between commitment and the intention to resign from service (Bakker, Demerouti, 2017; Gigol, 2023).

The aim of this article is to determine the structure of the reasons for soldiers leaving military service and to identify the factors explaining these reasons using cluster analysis and structural equation modelling. The study sought to identify coherent groups of reasons for leaving and to check whether their structure and determinants are stable over time. An additional aim was to verify the measurement equivalence of the identified clusters in relation to demographic and occupational characteristics, such as generation, holding command positions, and length of service.

In summary, the choice of this topic stems from the growing significance of the issue of soldiers leaving military service, both from an organisational and a social perspective. The complex nature of these decisions justifies the use of an approach combining exploratory and confirmatory methods, enabling the simultaneous identification of the typology of reasons for leaving and the factors explaining them. The choice of cluster analysis and structural equation modelling allows for a more accurate representation of the multidimensional departures determinants than classical univariate analyses, and thus for a deeper understanding of issues relevant both from the perspective of academic research and the practical management of human resources within the armed forces.

2. A methodological framework for analysing the reasons for leaving military service from the perspective of factors that strengthen commitment.

The empirical data used in this article is drawn from two research projects carried out at the War Studies University: Shaping Soldiers' Commitment in the Armed Forces – an Organisational Perspective (2020) and Changes in the Armed Forces' Personnel Policy and Soldiers' Commitment to Service (2023). The aim of both studies was to identify the factors shaping the level of soldiers' professional commitment and to identify the determinants that may lead to a reduction in professional activity or a decision to leave the service.

The studies were conducted twice – at the turn of 2019/2020 and in 2023 – using the same methodology and identical research tools. Data were collected using an individually-designed questionnaire. The respondents were soldiers participating in training at the War Studies University (degree programmes and specialist courses). The sample was selected purposefully – it included soldiers with several years' service experience and those holding command or specialist roles, which enabled the collection of opinions from respondents possessing the knowledge necessary to assess the organisational and personnel conditions of service.

158 soldiers took part in the first edition of the survey, and 159 in the second. Men dominated in both samples (85.4% and 84.8% respectively), and the majority were soldiers holding command positions (58.2% in 2019/2020 and 66.5% in 2023). The average length of service was 17 years in the first survey and 13 years in the second, with significant variation in professional experience. This means that the analysis covered a group with a high level of competence and institutional experience.

The basis for the operationalisation of the variables was an analysis of responses to the question: "What factors might cause you to leave the Armed Forces?", in which respondents could indicate up to five of the most significant factors, and an original analytical concept assuming that the decision to continue or terminate service is the result of factors affecting the soldier, organised into four areas presented in Figure 1.

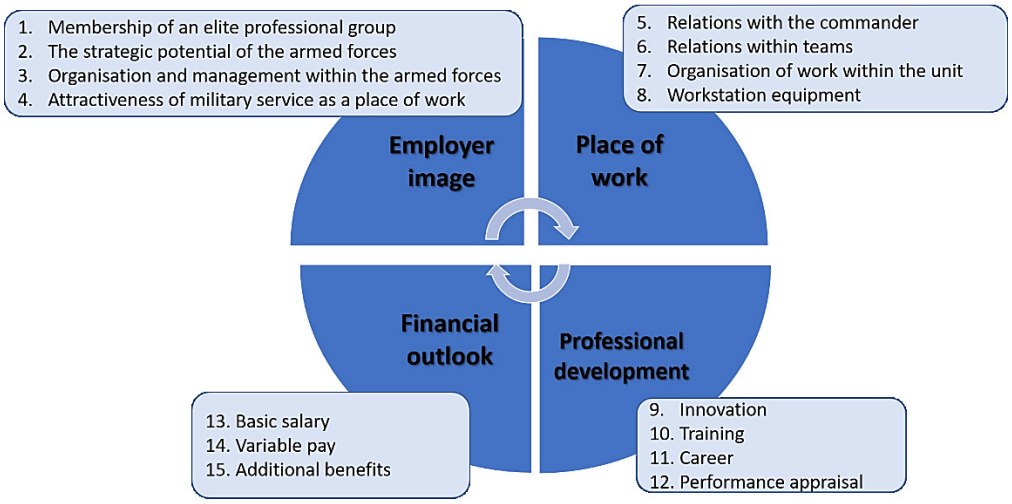

Figure 1. A framework for fostering soldiers' engagement and job satisfaction within the armed forces.

Source: own work.

Statistical analyses were performed using Jasp 0.19.3 and IBM AMOS 29.0. In the first step, hierarchical cluster analysis was conducted to identify the most coherent groups of reasons for leaving the service for data from 2019 and 2023. Subsequently, measurement equivalence was tested using MGCFA on the identified clusters based on command roles, generation (X and Y) and length of service. To this end, two successive models with increasing levels of restriction were evaluated, namely: configurable, metric and scalar (Meredith, 1993). To assess whether the results remained stable across studies, standard recommendations were followed (Chen, 2007); that is, a model was considered stable if the ΔCFI and ΔRMSEA values did not exceed 0.010.

In the next step, models explaining the reasons for leaving the service were tested based on four main factors: the military as an employer, the military as a workplace, the military from the perspective of career development, and the military from a financial perspective. Model fit was assessed on the basis of standard values: the comparative fit index (CFI) ≥ 0.90 and the root mean square error of approximation (RMSEA) ≤ 0.08 (Byrne, 1994; Schermelleh-Engel et al., 2003). A significance level of $\alpha = 0.05$ was adopted.

In order to group the reasons for leaving the service, a hierarchical cluster analysis was conducted to identify the reasons indicated by the respondents that were most similar to one another. The analysis was performed using the Ward.D2 agglomerative method, separately for data from 2019 and 2023. Based on a visual inspection of the dendrogram, it was decided to identify two clusters. A two-cluster division was identified for both 2019 and 2023, with one cluster comprising reasons for leaving related to the employer (financial issues) and the other comprising reasons related to the nature of the work. The results of this part of the study were presented in a separate article entitled "In uniform without commitment? Generational factors contributing to quiet quitting from military service".

3. A structural model for analysing the reasons for leaving military service

Both clusters were included in the structural equation modelling at this stage of the analysis to determine which factors influence the reasons for leaving service in these two groups. Before proceeding with the analysis, the significance of the factor loadings for individual reasons for leaving service within the overarching factor was verified using confirmatory factor analysis.

Results of the 2019 analysis

For the 2019 data, it was decided to exclude 3 items (2, 6 and 7) from cluster 2 as they were not significantly related to the latent variable. This model exhibited a satisfactory level of fit, $\chi 2(26) = 25.09$; $p = 0.514$; CFI = 1.000; RMSEA = <0.001; 90% CI [<0.001; 0.060]. Statistical significance at the trend level was demonstrated for item 9; however, it was decided to retain it in the model – its exclusion worsened the model's fit parameters ($\chi^2(19) = 19.43$; $p = 0.430$; CFI = 0.993; RMSEA = 0.012; 90% CI [<0.001; 0.071]).

Subsequently, the measurement equivalence of the identified clusters of service departure was examined with regard to command roles, generation (X and Y) and length of military service. Based on length of service, the respondents were divided into two groups (those with shorter service of up to 20 years and those with longer service of over 20 years).

As shown in the data in Table 1, measurement equivalence occurred only in the case of generation. For the performance of command functions and length of service, neither metric nor scalar measurement equivalence was obtained (in the case of the performance of command functions).

Table 1

Analysis of the equivalence of reasons for leaving the service, by command role, generation and length of service

	χ^2	*df*	*P*	*CFI*	RMSEA	Δ CFI	Δ RMSEA
Command							
Configural	69.75	52	0.051	0.750	0.047		
Metric	81.02	59	0.030	0.690	0.049	0.060	0.002
Scalar	85.64	66	0.052	0.723	0.044	0.027	0.003
Generation							
Configural	42.39	52	0.827	1.000	<0.001		
Metric	55.92	59	0.590	1.000	<0.001	0	
Scalar	64.53	66	0.528	1.000	<0.001	0	0
Seniority							
Configural	46.61	52	0.685	1.000	<0.001		
Metric	60.30	59	0.429	0.973	0.012	0.027	0.011
Scalar	64.71	66	0.522	1.000	<0.001	0	0

Source: own work.

In the next step, we examined which of the reasons cited by respondents might be linked to a particular group of reasons for leaving the service. Four main areas were included in the model: the Armed Forces as an employer, the Armed Forces as a workplace, the Armed Forces

in the context of personal development, and the Armed Forces from a financial perspective. The analysed model fitted the data well, $\chi^2(54) = 55.14$; $p = 0.431$; CFI = 0.996; RMSEA = 0.012; 90% CI [<0.001; 0.052]. A detailed analysis of the presented pathways showed that only the Army in the context of personal development was significantly associated with the reasons for leaving from cluster 2. The greater the importance the respondents attached to the Army in the context of personal development, the more frequently they cited reasons for leaving related to the structure of work (Cluster 2). None of the analysed factors were associated with the occurrence of factors for leaving the service from Cluster 1. Standardised regression coefficients are shown in Figure 1, and detailed path parameters in Table 2.

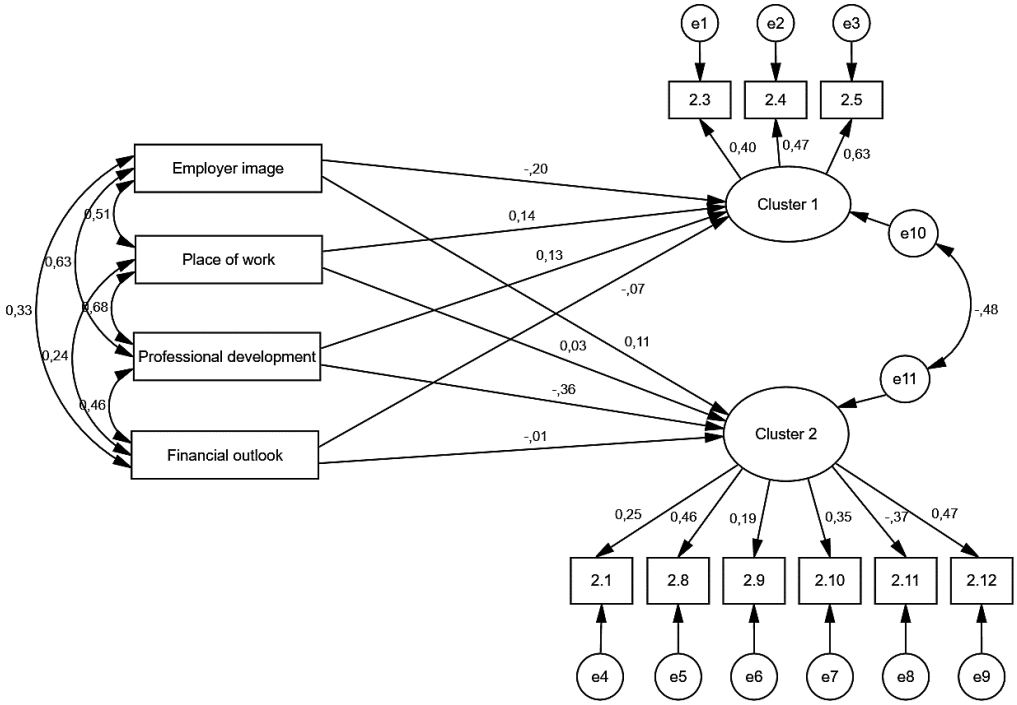

Figure 1. Model explaining the reasons for leaving the service – data from 2019.

Table 2.
Coefficients of the model explaining the reasons for leaving the service, based on data 2019

						95% *CI*	
Y	**X**	**β**	***SE***	***z-value***	***p***	***LL***	***UL***
Cluster 1	Employer image	-0.20	0.14	-1.39	.164	-0.47	0.08
	Place of work	0.14	0.15	0.94	.346	-0.15	0.43
	Professional development	0.13	0.18	0.73	.464	-0.22	0.47
	Financial outlook	-0.07	0.12	-0.58	.564	-0.31	0.17
Cluster 2	Employer image	0.11	0.15	0.77	.440	-0.17	0.4
	Place of work	0.03	0.15	0.21	.837	-0.27	0.33
	Professional development	-0.36	0.18	-2.01	.044	-0.71	-0.01
	Financial outlook	-0.01	0.13	-0.06	.949	-0.26	0.24

Source: own work.

As measurement equivalence was only observed for Generation X, the above model was tested among respondents from Generations X and Y. The analysis revealed no significant associations between potential turnover factors and reasons for leaving among Generation X respondents. In Generation Y, statistical significance at the trend level was observed between the assessment of the military as a workplace and employer-side factors (cluster 1; $p = 0.065$) and between the assessment of the military from a financial perspective and employer-side factors (cluster 1; $p = 0.091$). The remaining paths between the assessments and the factors influencing departure were statistically insignificant.

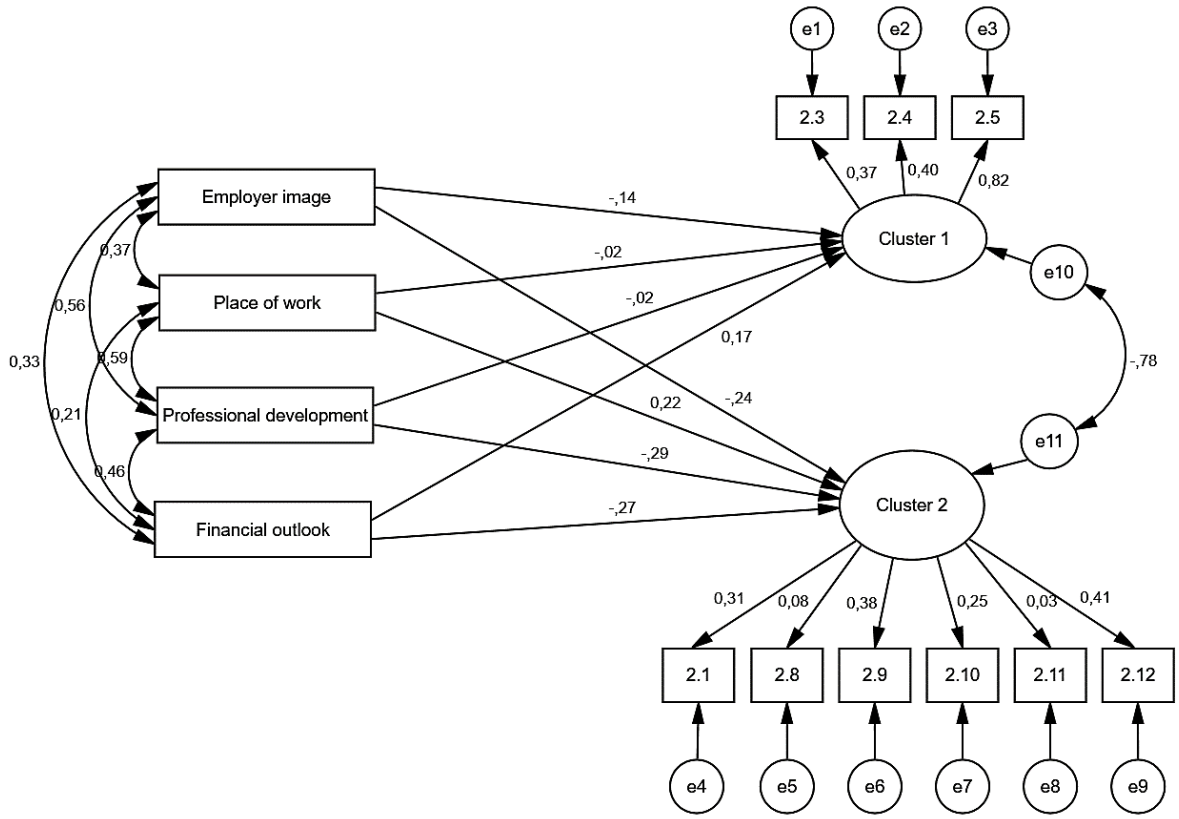

Figure 2. A model explaining the reasons for leaving the service among Generation X respondents.

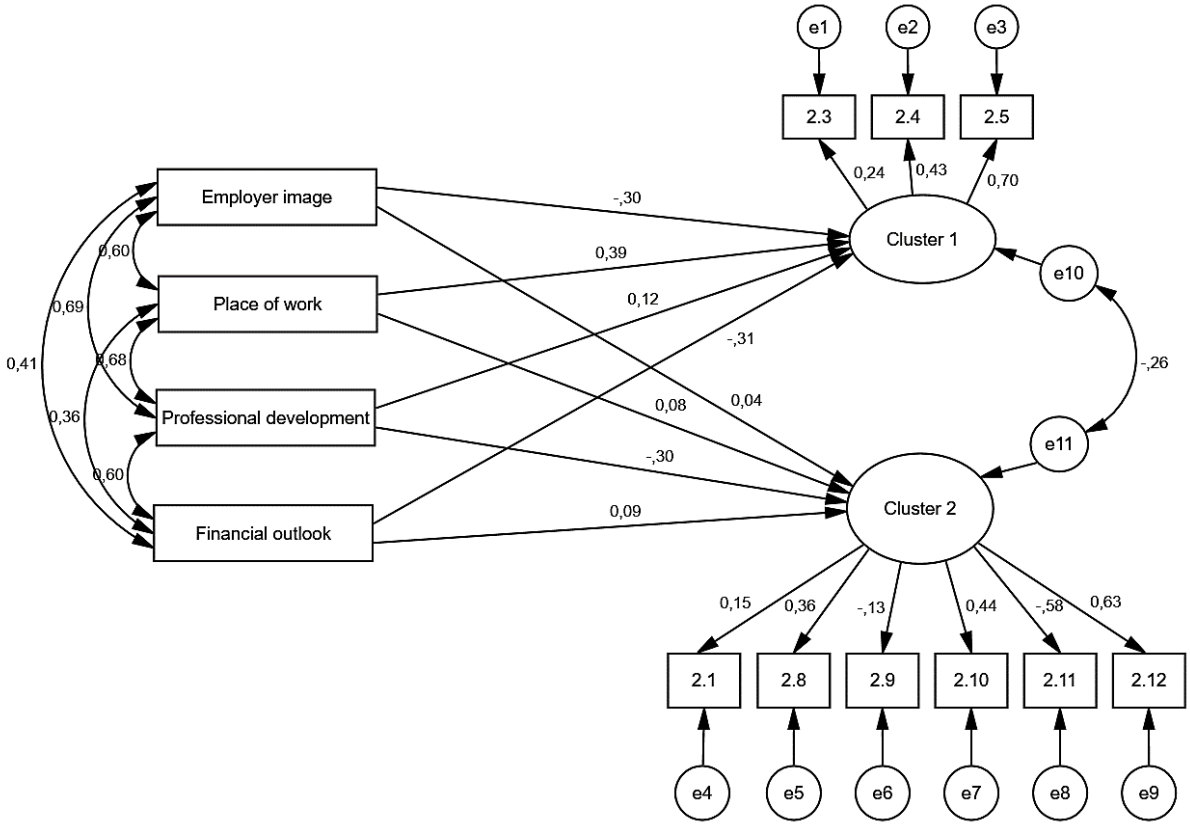

Figure 3. A model explaining the reasons for leaving the service among Generation Y respondents.

Source: own work.

Next, in accordance with the formula proposed by Chin (2000):

$$t = \frac{Path_{sample_1} - Path_{sample_2}}{\left[\sqrt{\frac{(m-1)^2}{(m+n-2)} * S.E._{sample1}^{2} + \frac{(n-1)^2}{(m+n-2)} * S.E._{sample2}^{2}}\right] * \left[\sqrt{\frac{1}{m} + \frac{1}{n}}\right]}$$

the path values in the model were compared. The detailed data are presented in Table 3.

Table 3.

Comparison of unstandardised regression coefficients for the pathways in the models for Generation X and Generation Y

Y	X	*Generation X*		Generation Y			
		b	***SE***	**b**	***SE***	***t***	***p***
Cluster 1	Employer image	-0.09	0.10	-0.20	0.14	0.63	.527
	Place of work	-0.02	0.14	0.24	0.13	1.37	.172
	Professional development	-0.02	0.17	0.08	0.17	0.42	.677
	Financial outlook	**0.13**	**0.12**	**-0.19**	**0.11**	**1.98**	**.049**
Cluster 2	Employer image	-0.06	0.06	0.03	0.13	0.62	.539
	Place of work	0.07	0.08	0.05	0.12	0.14	.891
	Professional development	-0.10	0.10	-0.19	0.16	0.47	.638
	Financial outlook	-0.08	0.07	0.05	0.10	1.06	.293

Source: own work.

The analysis revealed significant differences only in the case of the path between the assessment of the military in financial perspective and cluster 1. For Generation Y, this path was negative and statistically significant, whilst for Generation X it was positive and not statistically significant.

Results of the 2023 analysis

For the 2023 data, it was decided to exclude item 7 from cluster 1 and items 2, 8, 9, 10 and 11 from cluster 2 as they were not significantly related to the latent variable. This model exhibited a satisfactory level of fit, $\chi^2(8) = 7.14$; $p = 0.521$; CFI = 1.000; RMSEA = <0.001; 90% CI [<0.001; 0.085]. Statistical trend significance was demonstrated for item 12; however, it was decided to retain it in the model – its exclusion worsened the model's fit parameters ($\chi^2(4) = 4.60$; $p = 0.331$; CFI = 0.989; RMSEA = 0.030; 90% CI [<0.001; 0.125]).

Subsequently, the measurement equivalence of the identified service departure clusters was examined with regard to command roles, generation and length of military service. Based on length of service, the respondents were divided into two groups (those with shorter service of up to 20 years and those with longer service of over 20 years). Due to the presence of negative variance when taking the division into subgroups into account, it was impossible to carry out and verify the measurement equivalence analysis.

In the following year, a model explaining the reasons for leaving the service was tested. The model proved to fit the data well, $\chi^2(24) = 24.83$; $p = 0.415$; CFI = 0.998; RMSEA = 0.015; 90% CI [<0.001; 0.066]. The analysis showed that none of the potential factors that might influence leaving the service were significantly associated with the identified factors (Figure 4, Table 4).

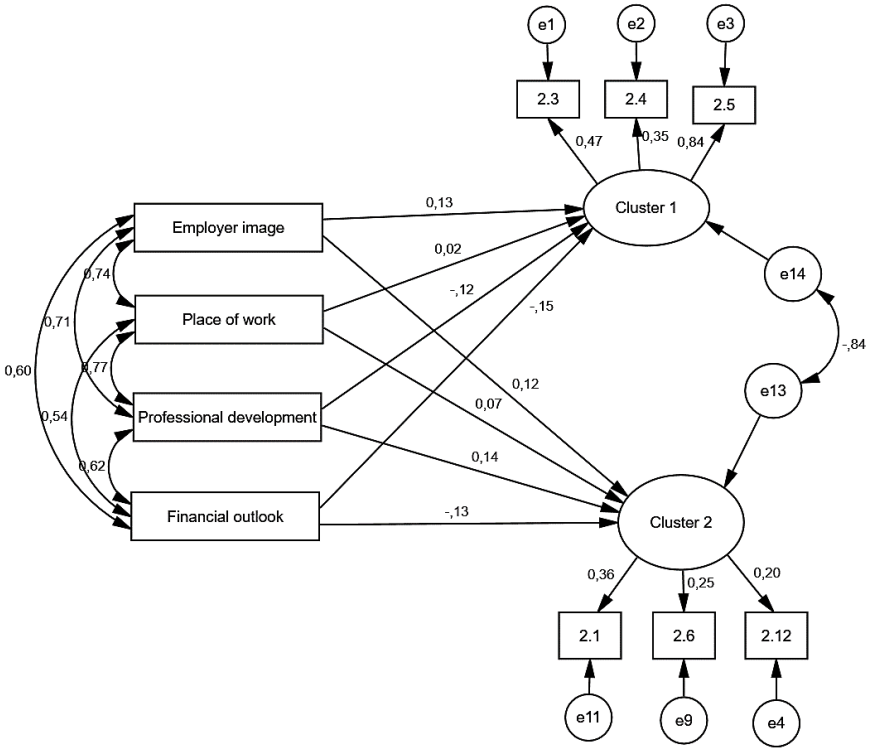

Figure 4. Model explaining the reasons for leaving the service – data from 2023.

Table 4.
Coefficients of the model explaining the reasons for leaving the service, based on data from 2023

						95% *CI*	
Y	X	**β**	***SE***	***z-value***	***p***	***LL***	***UL***
Cluster 1	Employer image	0.13	0.15	0.84	.399	-0.17	0.42
	Place of work	0.02	0.16	0.13	.899	-0.29	0.33
	Professional development	-0.12	0.16	-0.79	.430	-0.43	0.18
	Financial outlook	-0.15	0.12	-1.28	.200	-0.39	0.08
Cluster 2	Employer image	0.12	0.28	0.42	.671	-0.44	0.68
	Place of work	0.07	0.30	0.22	.826	-0.52	0.65
	Professional development	0.14	0.30	0.46	.644	-0.45	0.73
	Financial outlook	-0.13	0.23	-0.56	.577	-0.58	0.32

Source: own work.

4. Conclusions and practical implications of the research

The analyses carried out have shown that the reasons why soldiers leave military service follow a clearly structured and consistent pattern, regardless of when the data was collected. In both 2019 and 2023, two consistent clusters of reasons for leaving were identified: the first related to the military as an employer, covering primarily financial issues, and the second pertaining to the nature and organisation of work. The consistency of this division across both surveys indicates that decisions to leave are not random but may reflect permanent patterns in soldiers' professional experiences.

An analysis of measurement equivalence showed that the understanding of reasons for leaving is stable between Generations X and Y, which allows for reliable intergenerational comparisons. At the same time, the lack of full equivalence depending on the performance of command functions and length of service suggests that organisational experience and position within the military structure significantly modify the importance attributed to individual reasons for leaving. **This means that although the structure of reasons remains similar, their interpretation differs depending on the role performed within the organisation.**

Modelling structural equations for the 2019 data showed that the mechanisms explaining departures were selective and limited to a single area. **The only significant factor associated with reasons for leaving related to the nature of the work was the context of career development, indicating that a lack of development opportunities contributed to the accumulation of difficulties related to the organisation and structure of the service.** During the same period, no significant factors were identified to explain reasons for leaving related to the military as an employer, suggesting a different, more complex nature of this group of causes.

Intergenerational analyses further revealed that in 2019, assessments of the military's functioning had limited significance in explaining reasons for leaving among Generation X, whereas among Generation Y, weak yet noticeable correlations emerged regarding workplace assessment and financial prospects. **This indicates a gradual differentiation in the mechanisms of departure between generations, whilst the structure of the reasons themselves remains similar.**

The results obtained for the 2023 data indicate a significant change in the mechanisms explaining departures from service. Despite the same structure of clusters of reasons for leaving being maintained, none of the analysed factors proved to be significantly associated with any of the identified clusters. **This may indicate a decline in the importance of internal assessments of the military in favour of external or individual factors**, as well as greater fragmentation in decision-making processes regarding leaving the service.

Taken together, the findings suggest that the reasons why soldiers leave military service are characterised by a stable, two-dimensional structure, whilst the factors explaining them vary over time and depend on the organisational and generational context. This means that effective measures aimed at reducing departures should take into account both the permanent types of reasons for leaving and the changing circumstances under which they occur.

The results of the research should not remain merely analytical material. From the perspective of national security, they constitute a significant source of strategic knowledge. The military should treat them as the basis for building a systematic, long-term programme for managing personnel stability.

Firstly, we must move away from treating departures solely as a financial problem. Although pay issues form one of the clear clusters of reasons for leaving, research shows that the area related to the nature of the work, the organisation of service and opportunities for development is equally important – and at times more so. This means there is a need to strengthen professional development policies, transparent career paths and real opportunities for skills development.

Secondly, there is a need to **implement an early warning system for 'quiet resignations' – that is, a decline in engagement without a formal resignation.** Regular monitoring of the organisational climate, levels of engagement and satisfaction should become an integral part of day-to-day personnel management, rather than an ad hoc measure.

Thirdly, **personnel policy should be more differentiated according to career stage and role. The lack of full equivalence in measurement based on length of service and position** indicates that different groups of soldiers interpret their service experiences differently. One-size-fits-all solutions may prove insufficient.

Fourthly, it is essential to take into account the **changing generational and market context**. The stability of the structure of reasons for leaving, coupled with the variability of explanatory factors, suggests that personnel policy should be flexible and based on continuous data analysis, rather than on one-off assessments.

Ultimately, the military should institutionalise research into engagement and attrition – creating a permanent analytical system to support personnel decisions at the strategic level. In the context of contemporary threats, the stability and genuine engagement of soldiers are not merely an organisational matter, but a component of the state's defence capability.

References

1. Arar, T., Cetiner, N., Yurdakul, G. (2023). Quiet quitting: Building a comprehensive theoretical framework. *Akademik Arastırmalar ve Calısmalar Dergisi (AKAD), 15(28),* 122-138. https://doi.org/10.20990/kilisiibfakademik.1245216
2. Armstrong, M. (2007). *Zarządzanie zasobami ludzkimi.* Wydanie IV. Kraków: Oficyna Walters Kluwer Business.
3. Bakker, A.B., Demerouti, E. (2008). Toward a model of work engagement. *Career Development International, 13(3),* 209-223. https://doi.org/10.1108/13620430810870476
4. Byrne, B.M. (1994). Testing for the factorial validity, replication, and invariance of a measuring instrument: A paradigmatic application based on the Maslach Burnout Inventory. *Multivariate Behavioral Research, 29(3),* 289-311.
5. Chen, F.F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling, 14*, 464-504. https://doi.org/10.1080/10705510701301834
6. Chin, W.W. (2000). *Frequentlu Asked Questions – Partial Least Squares & PLS-Graph*. Available: http://disc-nt.cba.uh.edu/chin/plsfaq.htm
7. Czarnowsky, M. (2008). *Learning's role in employee engagement: An ASTD research study.* Alexandria, VA: American Society Training and Development.
8. Gigol, T. (2023). Czym jest, a czym nie jest cicha rezygnacja. Wpływ przywództwa służebnego i zaangażowania w pracę na cichą rezygnację i zamiar odejścia z pracy. *Zarządzanie Zasobami Ludzkimi, 154(5),* 1129.https://doi.org/10.5604/01.3001.0054.0084
9. Gocuł, M. (2012). Siły zbrojne w procesie przeobrażeń systemowych. In: H. Spustek, M. Bodziany, M. Smolarek, A. Gołębiowski (eds.), *Obywatel w mundurze. Aksjologiczny wymiar funkcjonowania nowoczesnych sił zbrojnych.* Wrocław: Wyższa Szkoła Oficerska Wojsk Lądowych.
10. Jabłońska-Wołoszyn, M. (2023). Czynniki wyróżniające wojsko jako pracodawcę a wskaźniki wzmacniania zaangażowania żołnierzy w służbę - perspektywa empiryczna. *International Journal of New Economics and Social Sciences, Vol. 24, iss. 8*, pp. 77-90.
11. Jabłońska-Wołoszyn, M. (2024). Shifting toward a human-centric management paradigm in shaping soldier work engagement and job satisfaction in the Polish Armed Force. In: M. Stor (ed.), *Human at the center of the organization: visions, realities, challenges* (pp. 69-86). Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego.

12. Juchnowicz, M. (2010). Zarządzanie kapitałem ludzkim a poziom zaangażowania pracowników. *Zarządzanie Zasobami Ludzkimi*. Warszawa: IPiPS.
13. Lu, M., Al Mamun, A., Chen, X., Yang, Q., Masukujjaman, M. (2023). Quiet quitting during COVID-19: the role of psychological empowerment. *Humanities and Social Sciences Communications, 10,* 1-16. https://doi.org/10.1057/s41599-023-02012-2
14. Meredith, W. (1993). Measurement invariance, factor analysis and factorial invariance. *Psychometrika, 58,* 525-543. https://doi.org/10.1007/BF02294825
15. Moczydłowska, J.M. (2013). Zaangażowanie pracowników–aspekty psychologiczne i organizacyjne. *Myśl ekonomiczna i polityczna, 4(42),* p. 165.
16. Nowakowska-Krystman, A., Piotrowska-Trybull, M. (2016). Przemiany w Siłach Zbrojnych w kontekście współczesnych koncepcji zarządzania. In: K. Krukowski, S. Sasak (eds.), *Tendencje we współczesnym zarządzaniu publicznym.* Studia i monografie. Kraków: Instytut Spraw Publicznych UJ.
17. Öztürk, E., Arikan, Ö.U., Ocak, M. (2023). Understanding Quiet Quitting: Triggers, Antecedents, and Consequences. *Uluslararası Davranış, Sürdürülebilirlik ve Yönetim Dergisi, 10(18),* 57-79. https://doi.org/10.54709/jobesam.1299018
18. Peters, T., Waterman, R. (1982). *In Search of Excellence.* New York: Harper and Row.
19. Piotrkowski, K (2012). *System zarządzania ludźmi w Siłach Zbrojnych RP.* Warszawa: WAT.
20. Porter, L.W., Steers, R., Mowday, R., Boulian, P. (1974). Organizational commitment, job satisfaction and turnover amongst psychiatric technicians. *Journal and Applied Psychology*.
21. Saks, A.M. (2020). Antecedents and Consequences of Employee Engagement. In: M. Juchnowicz, Zarządzanie przez zaangażowanie. Koncepcja, kontrowersje, aplikacje. *Journal of Managerial Psychology, vol. 7*. Warszawa: PWE.
22. Schermelleh-Engel, K., Moosbrugger, H., Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of psychological research online, 8(2),* 23-74.
23. Wagner, R.J., Harter, J.K. (2006). *The great elemnts of managing.* Washington: The Gallup Orgnisation.
24. Walton, R.E. (1985). From control to commitment in the workplace. *Harvard Business Review, no. 63*.

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EMPLOYEE COMPETENCIES IN THE CONTEXT OF SUSTAINABLE HUMAN RESOURCE MANAGEMENT

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Purpose: The aim of the study was to identify employees' training needs, training and development formats, thematic areas, factors motivating employees to learn, and barriers to participation in educational activities aimed at achieving sustainable development goals.
Design/methodology/approach: Interviews were conducted with HR department managers and sustainable development specialists from seven different service-sector companies. The interview data were categorised.
Findings: The findings indicate that enterprises display a positive attitude towards employee competency development and fund a range of training and development opportunities, although educational programmes give too little attention to sustainable development.
Research limitations/implications: The small sample does not allow for generalisation of the findings.
Originality/value: The empirical material reported here has not been published elsewhere. The article offers practical recommendations for business practitioners: how and why Sustainable Development Goal 4 should be implemented.
Keywords: sustainable human resource management, competencies, sustainable development, employee lifelong learning.
Category of the paper: Research paper.

1. Introduction

Sustainable human resource management (SHRM) is part of the broader concept of sustainable development, the aim of which is to ensure economic growth while simultaneously guaranteeing social and environmental balance. The effectiveness of SHRM depends in practice on the extent to which sustainable employee behaviours are reinforced. It is widely recognised that only employees who understand and apply the principles of sustainable development in their work enable enterprises to transform into so-called sustainable organisations –

ones capable of maintaining financial, human, social and environmental resources in the long term (Walczyna, Mazur, Wilczewska, 2023, p. 183).

Growing interest in sustainable HRM is reflected in bibliometric studies, an example of which is the analysis of publications included in the Web of Science and Scopus databases. A review of 505 articles published between 2000 and 2021 in 201 journals was carried out. The results show that interest in sustainable HRM is growing, particularly with regard to: *green HRM* and *socially responsible HRM* (Tutar, Nam, Güler, 2023, p. 119). A review of scientific publications from the WoS, Scopus, EBSCO and BazEkon databases on sustainable HRM, conducted by M. Fryczyńska, H. Kinowska and A. Lulewicz-Sas (2022, pp. 30-31), showed that the following approaches within sustainable HRM have been analysed over the last decade: *triple bottom line HRM* (addressing economic, ecological and social HRM goals) and *common good HRM* (embedding common good values in HRM policies, structures and procedures). There is a lack of publications presenting practices of Polish companies regarding the development of employee competencies in the area of sustainable development, and one of the main pillars of HRM is personnel development. It is employees who understand and apply sustainability principles in their daily work who ultimately determine whether, when, and to what degree enterprises will engage in sustainable development. Employee development programmes in the area of SHRM "will fulfil their role if employees: acquire appropriate knowledge and skills in this area, apply that knowledge and those skills in their positions, and also change their attitudes and behaviours, becoming more sensitive to socio-ecological problems" (Pabian, 2015, p. 12).

The aim of the article is to present research on the diagnosis of employees' training needs, forms of education, thematic areas, motivating factors for learning, and barriers to employee participation in education aimed at achieving sustainable development goals. To this end, a study was conducted using an interview technique. Interviews were conducted with HR department managers and sustainable development specialists from seven different service-sector companies.

2. The essence of sustainable human resource management

SHRM is defined as the adoption of human resource strategies and practices that enable the achievement of economic, social and environmental goals, affect the organisation's internal and external environment, and improve the quality of life of present and future generations. According to A. Pabian (2015, p. 10), SHRM involves planning for and recruiting employees who combine professional competence in a given area of business with environmental and social awareness reflected in concrete actions, as well as shaping them through training and development, motivation and evaluation so that they can pursue economic, environmental and

social goals within the organisation, thus helping to balance intergenerational needs. A. Pocztowski (2016, p. 303), drawing on the idea of sustainable development, identified the main features constituting SHRM as taking economic, social and environmental aspects into account in the processes of creating value for stakeholders within the personnel function.

Implementing the SHRM concept in management practice requires people who can significantly shape an organisation's capacity to implement sustainable development programmes. These include managers and non-managerial employees oriented towards sustainable development. They tend to display the following characteristics (Cohen, 2011, pp. 132-156):

1. they want to be responsible for the health of the Earth,
2. they act for the benefit of future generations, so that these are able not only to survive but also to develop,
3. they focus on the future (including the very distant future),
4. they pursue economic, ecological and social goals,
5. sustainability (in production, consumption, sales) is more important to them than growth,
6. they monitor the impact of their organisations on people and the environment,
7. they minimise the negative impact of their organisations on the planet,
8. they develop products, services and technologies in accordance with the principles of sustainable development.

SHRM practices concern the shaping of the personnel function, working conditions, forms of employment and the organisation's culture. Appropriate leadership is also of considerable importance for the implementation of SHRM. Sustainable human resource management means giving equal weight to practices at every stage of management related to employee selection, retention within the organisation and competence development, while ensuring an appropriate organisational climate, adequate physical working conditions and employee well-being. It also means developing competencies needed by future generations (Aust et al., 2019). Employees are regarded as among the organisation's most important stakeholders, playing a key role in its success or failure (Piwowar-Sulej et al., 2023, p. 13). Sustainable development at the organisational level cannot be achieved without employee participation.

3. Research objectives

The research was conducted within the framework of the research project "Sustainable Development Goals in the Practice of Human Resource Management in Polish Companies", financed from funds granted to Maria Grzegorzewska University (Academy of Special Education) from the subsidy allocated to APS in 2025 (project number UPB 24/25).

The scientific aim of the project was to analyse the significance of actions undertaken by enterprises in pursuit of sustainable development goals related to: good health and quality of life (Goal 3), ensuring quality education and promoting lifelong learning for all (Goal 4), gender equality (Goal 5), and reducing income and social inequalities (Goal 10). In this article – given the scope of the work – a part of the research results relating to the implementation of Goal 4 is presented: ensuring quality education and promoting lifelong learning for all. Goal 4 on ensuring quality education for all and promoting lifelong learning has a social component, but also an economic and environmental one. The tasks assigned to this goal concern social policy promoting equal opportunities for professional development and educational activity for all social groups regardless of age, gender, ethnic origin or disability.

This article examines the determinants of employee competency development in the context of sustainable human resource management.

The aim of the study was to identify how employee training needs are diagnosed, what forms of education are offered, which thematic areas are covered, what motivates employees to learn, and what barriers they face in participating in educational activities aimed at achieving sustainable development goals.

The main research question was: How can Goal 4 of sustainable development be implemented in companies, and what does current practice in this area look like - namely, ensuring quality education for all and promoting lifelong learning?

The following specific questions were posed:

1. How are employee training needs diagnosed?
2. What forms of competency development do companies offer their employees, and which forms of education are preferred?
3. What thematic areas related to sustainable development are included in educational programmes implemented in companies?
4. What factors motivate employees to participate in education?
5. What are the barriers associated with employee participation in various forms of professional development?

4. Research approach and procedure

These research questions called for a qualitative, descriptive-exploratory design focused on the possibilities and practice of employee learning and professional development, as well as on understanding and applying sustainable development in economic practice.

A qualitative method was used in the study, with interviews as the research technique. These were individual, overt, structured interviews with open-ended questions, based on an interview schedule developed by the researchers. The study was conducted from October to

December 2025 via Microsoft Teams. Respondents were selected based on their familiarity with sustainable human resource management in practice. Interviews were conducted with seven individuals – HR managers, HR specialists and sustainable development specialists from service-sector companies – with one respondent from each company. Participants were recruited through the researchers' professional networks, using purposive sampling consistent with the adopted inclusion criteria. Inclusion in the study required at least two years of managerial experience. The respondents represented medium-sized and large companies. Micro and small enterprises were excluded because such organisations often provide little training due to financial and time costs, the limited availability of practical training offers, concern about losing trained employees after training, and insufficient awareness of the need to invest in development. The study was anonymised. Each interview lasted approximately one hour. The interviews were recorded, transcribed and categorised. MAXQDA 2024 software was used for the qualitative analysis of the research material. The paragraph served as the unit of analysis. The analysis made it possible to answer the research questions.

The findings are not intended to support universal claims, but are rather treated as indications of broader trends and real-world conditions.

5. Research results and discussion

Diagnosis of employee training needs

Diagnosing training needs is the process of identifying differences between employees' current and desired competencies so that training can be aligned with the goals of a company committed to sustainable development. In the category of training-needs diagnosis, six excerpts were coded. Three approaches to identifying training needs can be distinguished in the statements.

According to the first approach, an employee's competence gap is identified by their supervisor or the company director (2 utterance excerpts): *I meet with the director and establish whether there are any development gaps, whether there are topics that need to be covered in a given group or across the whole company. If we find a common area relating to sales management, leadership or negotiations, then the director decides who should be trained and in what scope* [R2]; *the manager decides in 90% of cases whether and how those programmes are implemented* [R1].

The second approach is based on input from HR departments responsible for training and employee development (2 utterance excerpts): *HR departments conduct training needs assessments in the company and based on this assessment decide which topics should be covered and in which teams. Then they look for companies on the market to deliver those topics* [R2]; *our HR team saw the need and ran training sessions on psychological safety* [R1].

The third approach relates to employee self-assessment (2 utterance excerpts). Self-assessment is crucial for employees to analyse their own resources and diagnose competency gaps: *employees themselves, through self-diagnosis, identify what they need; we provide the tool and encourage and inform them* [R3]; *interviews are conducted with individual employees about which topics particular individuals would like to cover. Either a collective training session is arranged for those individuals or they have individual development paths and within some kind of development package they can choose a training session that interests them, or they are directed to a specific training session* [R2].

None of the statements contained any reference to the diagnosis of employee training needs in relation to a list of key competencies in a given company oriented towards achieving sustainable development goals, competency assessment criteria, or an employee competency assessment system.

Forms of education in the workplace

Interviewees discussed the forms of employee competence development used in their organisations. Their statements yielded 33 coded segments, the largest number recorded for any category related to employee education. Based on the respondents' statements, a catalogue of workplace training and development formats was developed - aligned both with employees' needs and with the needs and capacities of the enterprise. The respondents mentioned:

1. participation in training programmes (14 utterance excerpts). The responses mentioned: internal training, delivered by internal trainers: *we are required to introduce internal training sessions* [R7], *the training was done by us internally, our HR team ran it* [R1], *we deliver a lot of training internally through employees, for example satisfaction surveys* [R4]; and external training, delivered by external experts when the subject matter required it: *we have our various trainers, but external people are also invited. It all depends on what the topic is. We had training related to diversity where we invited external experts* [R5], *trainers are hired, external people who deliver training on commission for specific topics* [R4]. Respondents also referred to both closed and open training: *closed, meaning dedicated to people from a given company, and open, where we say today we have training on negotiations, if anyone wants to participate please sign up* [R2];
2. remote learning using specialist e-learning platforms (6 utterance excerpts): *we have our own platform based on Moodle, an internal one for delivering online training, for self-directed learning* [R4], *development courses are offered at the company available on the MultiLife platform* [R3];
3. mentoring (4 utterance excerpts): *working in business myself I had a mentor who was preparing me for the role of internal trainer* [R2], *in my opinion this works brilliantly, but you cannot designate a mentor – the mentor has to appear on their own, there has to be a bit of chemistry between the mentee and the mentor* [R3];

4. coaching (2 utterance excerpts): *that kind of coach support is for managers – if they report a problem, that they are struggling with something, they have support, they can talk internally and find a solution to a specific problem* [R5], *I am a coach for the managers operating in the company* [R2];
5. postgraduate studies (1 utterance excerpt): *we have a budget for postgraduate studies; the intranet clearly describes the conditions under which one can apply for postgraduate studies. Anyone who has the need and 9 months of tenure at the company can study. Participation is free for the employee* [R3];
6. seminars in both in-person and online format (2 utterance excerpts).

None of the interviews referred to internships or work placements. This may suggest that these forms are not used, possibly because they are not regarded as effective.

In some cases, respondents discussed training formats and teaching methods together. Respondents referred to active, practice-oriented methods that create conditions for the engagement and active participation of the learner in classes, for learning through practice (4 utterance excerpts): *we often weave into our training sessions various examples, situations or slides to raise awareness among people* [R7], *a lot of training is delivered in workshop format, it teaches practical skills, that certainly works* [R4].

Thematic areas of employee competency development

Respondents spoke readily about the content of the educational programmes offered to employees. In the category of thematic areas, 24 utterance excerpts were coded. The subject matter of these programmes can be considered in two dimensions: the first concerns introducing new employees (novices) to work in a given company; the second concerns training and developing employees who already have some tenure within the company. Statements relating to the second dimension can, in turn, be divided into two categories: care for employee well-being and education related to social and environmental goals.

For the first dimension of this category, 3 utterance excerpts were coded. Study participants indicated the implementation of onboarding in their companies, so that new employees quickly become fully integrated members of the team: *already at the recruitment stage I was given information about what benefits I was entitled to, and during onboarding I received that information – a half-hour module where we discussed the benefits available to us* [R3]; *onboarding is carried out, meaning people are well prepared for their role, they get to know the company even before their actual employment, they learn the procedures and the approach, and it is clear that these kinds of activities translate into better performance by those people at the start* [R2].

Respondents pointed to the importance of employees' mental and physical health for the effectiveness of their work (6 utterance excerpts): *I see the enormous work done for employee well-being. We show how physical activity, caring for physical and mental well-being, affects*

employees, and we encourage employers to understand that a healthier employee means better productivity. It is better to take a long-term view and invest in that employee in order to have an adequate return on investment [R3]; *we have a lot of anti-mobbing topics* [R5]; *there is a culture of safety and training on how to deal with various stressful situations at work* [R7]; *if I am frustrated, stressed, I will not be as effective at work as I could be. It seems to me that companies do not notice this, because very few companies notice this relationship* [R2].

In the context of employee training and development, respondents mentioned developing foreign language communication competencies as a required ability for effective information transmission and reception in a global and multicultural working environment (2 utterance excerpts): *we provide English language teaching. You can apply to participate in group lessons or use the e-Tutor platform, and I have already completed the entire Business English course at B2 level and moved on to C1 level* [R3]; *administrative staff generally need support increasingly often in the area of English language learning* [R4].

Interview respondents pointed to different subject matter offered to managers and operational employees (4 utterance excerpts): *if you are a manager you have a different package of available knowledge* [R1]; *our branches have training dedicated to managers, a Leadership Academy, and there is training focused on managerial skills as well as hard skills* [R3]; *top management and management have mandatory training related to diversity and how to manage and support diversity in teams, while employees can participate in various other types of training* [R5]; *there are special support training sessions specifically for department heads* [R4]. This is the correct approach, since managers and operational employees are two distinct professional groups, differing in scope of responsibilities, requirements placed upon them, and the professionalisation of management.

Given the study aims, it is striking how rarely respondents mentioned the inclusion in educational programmes of subject matter typically associated with the implementation of the socio-ecological goals of the enterprise in the area of sustainable development. Respondents only incidentally addressed examples of sustainable development in practice. And if employees do not acquire appropriate knowledge and skills in the area of sustainable development, they will not change their attitudes and behaviours to become more sensitive to socio-ecological problems.

Motivation

In the category of learning motivation, 13 utterance excerpts were coded. Statements contained references to onboarding as a motivating factor (2 utterance excerpts): *the effectiveness of onboarding affects employee motivation and retention in the company; it lasts from a few days to even several months* [R1].

Respondents indicated that the organisational culture of the company, the style of human resource management, and relationships can motivate employees to develop (4 utterance excerpts): *when a team is well managed, has a good manager, people know which direction to go, the management process is at the right level, then employees are more willing to participate in training and feel more motivated to develop* [R2]; *when employees have periodic training they show greater interest* [R7]; *those who choose the topics to be covered themselves, those who want to learn, are more interested* [R1]. A motivating factor for employees is recognition of their needs and emotions (2 utterance excerpts): *I feel looked after as an employee, people are kind. For me that kind of work culture is something important* [R3]; *there are three groups: the first are the star pupils – they come and say great, I'll learn something new, I'll try it, I'll see; the second are the tourists – they come to the training and immediately ask what time lunch is and whether we will finish early; the third are the exiles – they come and challenge everything, they participate because they have to, but they do so reluctantly* [R2].

Competency-based pay, rewards for acquiring new skills, and development opportunities serve as motivators (5 utterance excerpts): *the key problem in the motivational system is remuneration – I have the impression that employees value financial rewards above all* [R4]; *there is the possibility of internal promotion and support for employee education, co-financing of studies, training, etc. For example, it is very difficult to recruit drivers, so we financed ecodriving – that is, learning fuel-efficient driving techniques aimed at minimising fuel consumption and reducing exhaust emissions – and HGV licences, so that someone would want to work with us* [R1].

During the interviews, respondents most often linked employee motivation to participate in education with the principle that employees respond to rewards and penalties in their environment, rather than with the idea that employees strive for excellence through learning, creating and improving the world. Motivating employees is an extremely difficult task. The statements did not address the diversification of motivating factors or the possibility of increasing employee engagement in education through other incentives.

Barriers to participation in education

In the category of barriers to participation in education, six utterance excerpts were coded. Respondents drew attention to communication barriers and to the need for transparent communication and broader information about training opportunities: *there are meetings, information sent by email or passed on verbally in the corridor, but that is not enough* [R2]. Respondents also pointed to insufficiently engaging actions on the part of HR department staff: *people from the HR department are mainly responsible for this; they create their own model of operation, and there is no such model that functions on the market* [R7].

Respondents also indicated that strategic assumptions on paper are not always reflected in practice: *I have a clear picture that on paper it all looks good, but in reality not entirely. There are individual initiatives, it seems to me, but a properly implemented strategy I have not heard of* [R2]. A barrier to participation is the one-off nature of these initiatives and the lack of perspective for further development plans: *employees approach this with great distrust, because they know that after 3 months everyone will have forgotten, or it will come down to a single campaign, a one-off training session whose purpose was to show that we are doing something like this* [R6]. Respondents also pointed to technological barriers, including limited access to digital tools and gaps in digital competencies.

Although respondents were asked about barriers to employee participation in education imposed by the employer, they spoke only rarely. Respondents only incidentally addressed employer-imposed barriers, which confirms that competency development matters both to the employee and to the employer.

Figure 1 illustrates the code categories identified in the study.



Figure 1. Code categories in the area of the employee education variable.
Source: authors' own elaboration.

6. Summary

Quality education and lifelong learning are key social goals not only from the perspective of sustainable development; but, above all, achieving them affects companies' competitiveness and the stable functioning of markets, especially in the face of dynamic changes in the contemporary world. Systematic and consistent procedures make it possible to align human resource development in a planned way with the needs and changes occurring in the working environment and in companies' broader context.

A detailed analysis of the findings showed clearly the wide range of forms and thematic areas represented in the educational programmes implemented by enterprises. It should be emphasised that the study participants were representatives of large organisations that had budgeted funds for education and for employee competence development.

The wide range of thematic areas reflects the diversity of positions within organisations. However, it should be emphasised that every respondent referred to thematic areas related to employee well-being in the workplace. This suggests that organisations are increasingly recognising the growing problem of mental health in the workplace. In this respect, the sustainable development goal related to quality education and lifelong learning is linked to the goal concerning quality of life and health. The findings also indicated that organisations take employees' diverse needs into account when selecting training topics - for example, by considering employee age. An employee's career stage directly affects their professional development needs.

Another point worth emphasising is the diversity of educational forms and methods used in these programmes: from in-person formats in the workplace, through off-site training, to a range of technology-based forms. Employers encourage employees to undertake education, which is also reflected in financing or co-financing participation in learning. Education for sustainable development is present in organisational practice.

The findings may serve as a basis for identifying further avenues for research into the relationships between employee competency development and the achievement of economic, environmental and social goals, particularly in relation to the idea of corporate social responsibility.

References

1. Aust, I., Matthews, B., Muller-Camen, M. (2019). Common Good HRM: A paradigm shift in sustainable HRM? *Human Resource Management Review, 30(3),* https://doi.org/10.1016/j.hrmr.2019.100705.12.12.2025
2. Bradbury, H. (2003). Sustaining the Internal and External World: A Holistic Systemic Approach to the Development of Sustainable Business Practices in Management. *Organizational Behavior Teaching Review, 27(2),* 172-187.
3. Cohen, S. (2011). *Sustainability Management*. New York: Columbia University Press.
4. Fryczyńska, M., Kinowska, H., Lulewicz-Sas, A. (2022). Wymiary zrównoważonego zarządzania zasobami ludzkimi [Dimensions of sustainable human resource management]. *Przegląd Organizacji, 6(989),* 29-37.
5. Grant Thornton (2025). *Bariery w biznesie. Edycja 2025. Wyniki badania International Business Report prowadzonego przez Grant Thornton (Report).* Retrieved from: https://grantthornton.pl/wp-content/uploads/2025/04/Bariery-w-biznesie-2025-BADANIE-Grant-Thornton-17-04-2025.pdf, 09.032025.
6. Greenwood, M. (2013). Ethical Analyses of HRM: A Review and Research Agenda. *Journal of Business Ethics, 114(2),* 355-366.

7. Hosseini, S.A., Moghaddam, A., Damganian, H., Shafiei Nikabadi, M. (2022). The effect of perceived corporate social responsibility and sustainable human resources on employee engagement with the moderating role of the employer brand. *Employee Responsibilities and Rights Journal, 34(2)*, 101-121.
8. Pabian, A. (2015). Zrównoważone zarządzanie zasobami ludzkimi – zarys problematyki [Sustainable human resource management – an outline of the issues]. *Zeszyty Naukowe Politechniki Częstochowskiej. Zarządzanie, 17*, 7-16.
9. Piwowar-Sulej, K., Bąk-Grabowska, D., Grzesik, K., Zając, Cz. (2023). *Zrównoważone zarządzanie zasobami ludzkimi – wybrane zagadnienia [Sustainable human resource management – selected issues]*. Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.
10. Pocztowski, A. (2016). Zrównoważone zarządzanie zasobami ludzkimi w teorii i praktyce [Sustainable human resource management in theory and practice]. *Zarządzanie i Finanse, 14(2/1),* 303-314.
11. Tutar, H., Nam, S., Güler, S. (2023). Development of Sustainable Human Resources in the Period 2000-2021: A Bibliometric Review. *Journal of Chinese Human Resource Management, 14(1),* 117-139.
12. Wagner, M. (2013). 'Green' human resource benefits: Do they matter as determinants of environmental management system implementation? *Journal of Business Ethics, 114*, 443-456. https://doi.org/10.1007/s10551-012-1356-9
13. Walczyna, A., Mazur, B.C., Wilczewska, W. (2023). Zrównoważone zarządzanie zasobami ludzkimi w polskich przedsiębiorstwach [Sustainable human resource management in Polish enterprises]. *Journal of Modern Science, 5(54),* 181-201.

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THE IMPACT OF THE ASSESSMENT OF REMUNERATION TRANSPARENCY ON ATTITUDES TOWARD WORK

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Purpose: The aim of this article is to analyse the relationship between the assessment of remuneration transparency and three key attitudes toward work: job satisfaction, proactivity and employee engagement.
Design/methodology/approach: The research model was verified in a quantitative study conducted in March 2025 using the CAWI method on a nationwide sample of 600 working people in Poland, using structural equation modelling (SEM) and confirmatory factor analysis (CFA).
Findings: The positive impact of perceived remuneration transparency on job satisfaction, proactivity and employee engagement was confirmed, with the strongest relationships observed for satisfaction and proactivity. The strength of the relationship varies depending on the type of activity and contract.
Practical implications: Enhancing transparency can help to increase job satisfaction, proactivity and engagement, and the effects of these measures should be designed taking into account the specific nature of the type of activity and employment.
Originality/value: The paper contributes to the remuneration transparency literature by showing its positive links with job satisfaction, proactivity and engagement, offering value to both researchers and HR practitioners.
Keywords: remuneration transparency, job satisfaction, proactivity, employee engagement.
Category of the paper: Research paper.

1. Introduction

The implementation of a sustainable development strategy in today's operating environment, determined, among other things, by new models of work organisation and new forms of work in the digital world, requires a cultural change in management. The foundation of the desired value-based organisational culture is remuneration transparency, understood as the transparency of the principles, criteria and decision-making processes for determining wages. It constitutes a dimension of the quality of the remuneration system and an element of

the organisational culture that promotes trust, satisfaction and employee engagement (Juchnowicz et al., 2025). This phenomenon is undoubtedly the result of changes in worldview, expressed in the pursuit of gender equality, as well as changes in the expectations of successive generations of employees. To this end, it is essential to ensure job satisfaction. Achieving this among employees is not only a component of well-being, but also a prerequisite for achieving business benefits in the form of proactivity and optimal employee engagement (Juchnowicz, Kinowska, 2018).

Therefore, the aim of this article is to analyse the relationship between pay transparency and job satisfaction, proactivity and employee engagement.

2. The relationship between remuneration transparency and job satisfaction, proactivity and employee engagement

Under the influence of social pressure, growing employee expectations and legal requirements, organisations are increasingly recognising the need to disclose information about remuneration, the principles of determining it and the rules for communicating these issues (Avdul et al., 2024; McMullen, Dahle, 2024). This is driven by increasing social and political expectations regarding pay equality. Research findings indicate that greater transparency helps to reduce inequality and strengthens the sense of organisational justice (Joelle, 2018).

The literature identifies four dimensions of pay transparency: transparency of results, processes, communication, and archival transparency (Henn et al., 2024). The first concerns the disclosure of remuneration amounts, the second - the rules and criteria for determining them, the third - the possibility of exchanging information between employees, and the fourth - access to remuneration data outside the organisation.

Effective performance in conditions of uncertainty and digital revolution requires employees to have specific attitudes towards work, such as proactivity and engagement. These are strongly contextual and dependent, in particular, on job satisfaction, which is treated as an emotional and cognitive attitude towards work (Armstrong, Taylor, 2014). It means a positive attitude of employees towards the tasks entrusted to them, working conditions, superiors and colleagues, requiring that work creates intellectual challenges, a sense of success, joy from professional development and self-fulfilment, and identification with the work performed and/or the organisation (Juchnowicz, 2014).

Transparency in remuneration is associated with higher job satisfaction, lower turnover and stronger identification with the organisation's goals (Hartmann, Slapničar, 2012; McMullen, Dahle, 2024), which results in a number of economic consequences, including the level of proactivity and engagement of employees (Gutierrez et al., 2025, Juchnowicz, 2014). This impact is indirect and conditional. It occurs through perceptions of organisational justice

(especially procedural and distributive) and affective reactions triggered by social comparisons and the assessment of one's own pay position (Siman-Tov-Nachlieli, Bamberger, 2021). Research shows that the factor shaping job satisfaction is information about wage relations, i.e. one's position relative to others, rather than absolute wage amounts (Juchnowicz, Kinowska, 2018, 2020).

Job satisfaction has a positive effect on employee proactivity. This relationship is bidirectional. A proactive attitude indicates a relatively stable tendency of employees to actively influence their environment. It is characterised by:

- acting without external coercion, orders or situational pressure,
- anticipation and future orientation – recognising upcoming opportunities/risks and acting "before the fact",
- a focus on changing work methods, procedures, influencing others, and developing one's own resources or competencies for future requirements (Grant, Ashford., 2008).

To date, there has been no broader research directly analysing the relationship between proactivity and pay transparency. It occurs indirectly, with mediators (fairness, climate, trust) or as part of broader models of organisational behaviour (Brown et al., 2022).

Employee engagement is an attitude towards work that is of fundamental importance from the organisation's point of view. The literature takes a perspective rooted in psychology, according to which engagement is understood as a positive state related to work, manifested in vigor, dedication and absorption in the tasks performed (Schaufeli et al., 2006).

In a broader sense, engagement is sometimes described as an attitude expressing identification with the organisation, a willingness to go above and beyond the call of duty, and loyalty to the employer (Juchnowicz, 2012). It is a relatively stable orientation of the employee towards work and the organisation, developed on the basis of experiences related to honesty, respect and trust. Building engagement is facilitated by clear organisational rules, including remuneration policies, as well as a sense of agency and influence on the work environment.

Transparency of remuneration can influence engagement in several ways. It is part of a systemic approach in which the level of engagement is the result of consistent motivational practices and consideration for employee well-being (Kinowska, 2025). Transparent rules reinforce the perception of organisational justice, which helps to build trust in the employer (Van den Bos, Lind, 2002; Van den Bos et al., 1997). Clear criteria and rules for remuneration make it easier for employees to understand the relationship between their workload and the remuneration they receive, which can strengthen their internal motivation and willingness to make additional efforts (Inayat, 2018; Jiang, Luo, 2018).

In this sense, remuneration transparency can be seen as a component of an organisation's offer that includes not only the financial aspect, but also elements of respect and recognition (Juchnowicz, 2012). People who believe that they are treated fairly and transparently are more

likely to engage in the pursuit of organisational goals, are more willing to cooperate and take initiatives that go beyond their formal duties.

Based on an analysis of the literature describing the relationship between remuneration transparency and job satisfaction, proactivity and employee engagement, the following research hypotheses were formulated:

H1: Transparency in remuneration has a positive impact on job satisfaction.

H2: Transparency of remuneration has a positive impact on employee proactivity.

H3: Transparency of remuneration has a positive impact on employee engagement.

3. Methods

In March 2025, a quantitative study was conducted to validate the model of the relationship between remuneration transparency and attitudes towards work. It was carried out on a sample of economically active people working in Poland (N = 600), using the CAWI method, on a nationwide accredited research panel.

In the sample obtained, men accounted for 53% and women for 47% of respondents. People aged 35-44 accounted for 33%, 45-59 - 34%, 25-34 - 27%, the youngest (18-24) - 4%, and the oldest group (60 and over) accounted for 2% of the sample. Respondents with higher education dominated (56%), 36% had secondary education, 7% had basic vocational education, and 1% had primary education. Most of the respondents held non-managerial positions (68%), 28% held managerial positions, and 4% were self-employed. The vast majority of respondents worked full-time (91%), while 9% worked part-time. Employment contracts predominated – 89% of the sample, 7% of respondents were employed on the basis of civil law contracts, and 4% ran their own businesses (b2b contracts). Employees of micro-enterprises accounted for 32% of the sample. The remaining respondents worked in small companies (17%), medium-sized companies (19%), large companies (12%) and very large organisations (20%). Respondents were mainly employed in the service sector (51%) and manufacturing (31%), while 18% worked in public administration. Most of the respondents worked in the private sector (71%), 27% in the public sector, and 2% in non-governmental organisations.

Analyses of the impact of remuneration transparency on attitudes towards work were conducted using IBM SPSS AMOS software (version 29).

The research model consisted of four variables (Table 1): "Remuneration transparency" (explanatory variable; Cronbach's alpha = 0.891), "Employee engagement" (explained variable), "Job satisfaction" (explained variable) and "Employee proactivity" (explained variable; Cronbach's alpha = 0.791). The scale measuring "Remuneration transparency" was adapted based on the proposal by Henn, Neck and Houghton (2024). The measurements of

"Employee engagement" and "Job satisfaction" were based on individual statements of a general assessment nature, based on the approach proposed by Juchnowicz (2012, 2014). Respondents rated each statement on a five-point Likert scale, where "1 = strongly disagree", "5 = strongly agree" and "3" was the midpoint.

Table 1.
Variables in the model

Variable	Statement	Path weight
Remuneration transparency	My organisation provides employees with information about remuneration levels for individual positions.	0.628
	My colleagues openly discuss their remuneration with me.	0.554
	My employer has no objection to discussions about remuneration within our organisation.	0.601
	I am familiar with the principles used to determine my salary.	0.824
	I know how decisions about remuneration are made.	0.902
	I have a good understanding of how remuneration is determined for individual positions in my organisation.	0.893
Job satisfaction	My job gives me satisfaction.	1
Employee proactivity	At work, I am happy to share my knowledge and experience with other employees.	0.715
	I am happy to take on additional tasks beyond my mandatory duties.	0.749
	At work, I suggest ways to improve how things are done.	0.784
Employee engagement	I give my all at work every day.	1

Source: own study.

4. Results

In the first stage of the analysis, the validity and reliability of the scales used to measure latent variables were checked. Both achieved a satisfactory level of CR and AVE. The AVE root values are higher than the correlation between the constructs. The scales described show convergent and differential validity, which confirms their theoretical validity (Table 2).

Table 2.
Assessment of the psychometric properties of the scales

Variable	CR	AVE	Correlations/ AVE root*	
			1	2
1. Remuneration transparency	0.880	0.559	0.747	
2. Employee proactivity	0.794	0.562	0.514	0.750

CR – Composite Reliability, AVE – average variance extracted, * The AVE root is bolded on the diagonal.

Source: own study.

The model of relationships between constructs was estimated using the SEM approach, and the measurement part was verified using the CFA method. The fit of the measurement model can be considered satisfactory (Table 3).

Table 3.
Model fit to data

Indicator	Value
Chi-square and df	199.815, df = 38
GFI	0.943
AGFI	0.901
NFI	0.944
CFI	0.954
SRMR	0.059
RMSEA	0.084 (90% CI RMSEA = [0.073; 0.096])

*p<0.001

Source: own study.

In order to test the relationships between "Remuneration transparency" and "Job satisfaction", "Employee proactivity" and "Employee engagement", path coefficients were estimated (Table 4).

Table 4.
Path coefficients for the examined relationships between variables

Structural path	β	Est.	S.E	C.R.
Remuneration transparency -> Job satisfaction	0.563	0.587	0.039	15.026
Remuneration transparency -> Employee proactivity	0.536	0.410	0.036	11.516
Remuneration transparency -> Employee engagement	0.464	0.438*	0.037	11.839

*p < 0.001.

β - standardised coefficient; Est. - unstandardised coefficient; S.E. - standard error; C.R. -Est./S.E.

Source: own study.

The variables in the analysed model explained approx. 31.7% (R2 = 0.317) of the variance in "Job satisfaction", approx. 28.7% (R2 = 0.287) of the variance in "Employee proactivity" and approx. 21.5% (R2 = 0.215) of the variance in "Employee engagement".

The results of the structural model estimation provide empirical support for the three research hypotheses. "Remuneration transparency" has a significant and positive impact on "Job satisfaction" (H1; $\beta = 0.563$, $p < 0.001$). Its positive impact on "Employee proactivity" (H2; $\beta = 0.536$, $p < 0.001$) and "Employee engagement" (H3; $\beta = 0.464$ ($p < 0.001$).

In order to verify whether the strength of the impact of "Remuneration transparency" on the attitudes under study differs depending on employment characteristics and organisational characteristics, a multi-group analysis (MGA) was conducted. The analysis did not reveal any significant differences for: organisation size and sector, position and working hours.

A comparison of the baseline model (without restrictions) with a model imposing equality of structural paths between groups revealed marginally significant differences between types of organisational activity: $\Delta\chi^2(6) = 11.281$, $p = 0.08$ (at a significance threshold of $p < 0.1$). This means that the relationships in the model may differ between groups, although the effect

has limited evidential strength. Changes in fit indices were minimal (ΔCFI = -0.001; ΔRMSEA = -0.001; ΔGFI = -0.003; ΔNFI = -0.003).

The analysis of path coefficients (Table 5) indicates that the relationships are strongest in manufacturing organisations, weaker in services, and weakest in administration.

Table 5.
Path coefficients for the examined relationships between variables for types of organisational activity

Structural path	β	Est.	S.E	C.R.
	Production (n=183)			
Remuneration transparency -> Job satisfaction	0.609	0.695	0.078	8.947
Remuneration transparency -> Employee proactivity	0.626	0.541	0.069	7.793
Remuneration transparency -> Employee engagement	0.568	0.584	0.071	8.165
	Services (n=307)			
Remuneration transparency -> Job satisfaction	0.541	0.523	0.050	10.487
Remuneration transparency -> Employee proactivity	0.538	0.360	0.044	8.095
Remuneration transparency -> Employee engagement	0.426	0.370	0.047	7.813
	Administration (n=110)			
Remuneration transparency -> Job satisfaction	0.464	0.507	0.103	4.923
Remuneration transparency -> Employee proactivity	0.314	0.284	0.102	2,791
Remuneration transparency -> Employee engagement	0.320	0.322	0.099	3.271

*p < 0.001, **p < 0.05, β - standardised coefficient; Est. - unstandardised coefficient; S.E. - standard error; C.R. -Est./S.E.

Source: own study.

In order to identify differences between the types of activities of the organisation, CRD indicators were used in a free model, assuming a significance threshold of $p < 0.10$ ($|CRD| > 1.64$). The analysis showed that the type of activity differentiates the strength of the impact of "Remuneration transparency" on "Employee proactivity" and "Employee engagement" - manufacturing differed significantly from services and administration, while services and administration did not differ significantly from each other (Table 6).

In the case of "Job satisfaction", a difference was only noted between manufacturing and services. The effects were strongest in manufacturing organisations, weaker in services and weakest in administration.

Table 6.
Critical Ratios for Differences (CRD) for the examined relationships between variables for types of organisational activity

Path	Services vs. manufacturing	Administration vs. manufacturing	Administration vs. services
Remuneration transparency -> Employee engagement	-2,487	-2.147	-0.439
Remuneration transparency -> Job satisfaction	-1.859	-1.460	-0.146
Remuneration transparency -> Employee proactivity	-2.204	-2.088	-0.680

$p < 0.05$ ($|CRD| > 1.96$), $p < 0.10$ ($|CRD| > 1.64$).

Source: own study.

A comparison of the baseline model with the model with imposed structural path equality showed a deterioration in fit after applying the restrictions, confirming the moderating role of contract type: $\Delta\chi^2(6) = 15.323$; $p = 0.018$. Changes in the fit indices were minor (ΔCFI = -0.002; ΔRMSEA = 0.000; ΔGFI = -0.001; ΔNFI = -0.004), suggesting that the differences between the groups concern selected paths.

In each group, positive relationships were found between "Remuneration transparency" and the attitudes studied, although their significance and strength varied (Table 7).

Table 7.
Path coefficients for the examined relationships between variables for contract types

Structural path	β	Est.	S.E	C.R.
	Employment contract (n=534)			
Remuneration transparency -> Job satisfaction	0.563	0.591	0.042	14.136
Remuneration transparency -> Employee proactivity	0.511	0.387	0.038	10.195
Remuneration transparency -> Employee engagement	0.450	0.425	0.039	10.757
	Civil law contract (n=40)			
Remuneration transparency -> Job satisfaction	0.390	0.398	0.162	2.458
Remuneration transparency -> Employee proactivity	0.568	0.463	0.147	3.145
Remuneration transparency -> Employee engagement	0.271	0.265***	0.159	1.662
	B2b contract (n=26)			
Remuneration transparency -> Job satisfaction	0.632	0.585	0.149	3.930
Remuneration transparency -> Employee proactivity	0.843	0.805	0.130	6.18
Remuneration transparency -> Employee engagement	0.804	0.857	0.140	6.127

*p < 0.001, **p < 0.05, ***p < 0.1, β - standardised coefficient; Est. - unstandardised coefficient; S.E. - standard error; C.R. -Est./S.E.

Source: own study.

The results of |CRD| indicated that economic activity differs from other forms of employment in terms of the impact of "Remuneration transparency" on "Employee proactivity" (Table 8). A significant difference was found between b2b contract and an employment contract, and a marginal difference between b2b contract and a civil law contract. The effect was highest for b2b contract.

B2b contracts differed from other forms of employment in the strength of the impact of "Remuneration transparency" on "Employee engagement". The effect was strongest for b2b contract, weaker for an employment contract and weakest for a civil law contract.

However, for the path "Remuneration transparency" -> "Job satisfaction", no significant differences were found between the forms of employment.

Due to the smaller size of the civil law contract (n = 40) and b2b contract (n = 26) groups, the interpretation of the differences should take into account the greater uncertainty of estimation in these groups.

Table 8.
Critical Ratios for Differences (CRD) for the examined relationships between variables for contract types

Path	Employment contract vs civil law contract	B2b contract vs employment contract	B2b contract vs civil law contract
Transparency of remuneration -> Employee engagement	-0.974	2.976	2.795
Remuneration transparency -> Job satisfaction	-1.153	-0.037	0.850
Transparency of remuneration -> Employee proactivity	0.502	3.081	1.737

$p < 0.05$ ($|CRD| > 1.96$), $p < 0.10$ ($|CRD| > 1.64$).

Source: own study.

5. Discussion

The results of the study indicate that perceived transparency of remuneration is a predictor of employee satisfaction, proactivity and engagement. The strongest correlations were observed for job satisfaction and proactivity, suggesting that transparency affects the assessment of work as such and the willingness to take initiative, change and pursue personal development.

Remuneration transparency can be understood as a mechanism that reduces uncertainty and reinforces the belief in the predictability of rules. The study showed that the assessment of transparency is most strongly manifested through knowledge of the mechanism and rules of remuneration formation, as well as the method of its differentiation for individual positions, i.e. job evaluation. Significantly less through conversations and the provision of information about remuneration levels for individual positions.

The results indicate that perceiving the work environment as fairer and more understandable promotes positive attitudes and behaviours that go beyond the minimum requirements. Transparency can act as a motivating factor, especially in the area of proactivity.

A multi-group analysis showed that the relationship between pay transparency and attitudes towards work varies between organisations with different business profiles. In manufacturing organisations, the impact of transparency on proactivity and engagement was stronger than in services and administration, while the differences between services and administration were insignificant. In the case of job satisfaction, a difference was noted between manufacturing and services.

This can be interpreted as meaning that in manufacturing companies, transparency in remuneration more often translates into engagement and proactivity, because in their typical working environments, the mechanisms linking performance, standards and the remuneration system tend to be more measurable and unambiguous. In administration, where remuneration frameworks tend to be more formalised and regulated, transparency may have less potential to

shape attitudes, as clarity of remuneration rules does not necessarily mean that it is possible to influence remuneration levels in practice.

The results of the multi-group analysis indicate that the type of contract affects some of the relationships in the model. The most pronounced difference concerned the impact of remuneration transparency on engagement. The relationship was strongest in the group of persons cooperating within the b2b framework and weaker in the other groups. In the case of proactivity, differences were also noted, indicating a stronger effect of transparency for b2b contracts. However, no differences were found between forms of employment in terms of job satisfaction.

A possible explanation is the different psychological contract and sources of security in different forms of employment. For people on b2b contracts, transparency of remuneration rules can play an important informational and security role – it facilitates the assessment of the profitability of cooperation, reduces the risk of arbitrary decisions on remuneration, and strengthens the belief in partnership-based treatment. This, in turn, can translate into a willingness to invest effort and take initiative. At the same time, the lack of differences in satisfaction may suggest that transparency influences the assessment of work in a more universal way.

The results of the study are relevant to human resource management practice. They indicate that transparency should be treated as a tool for shaping attitudes, and not just an element of legal compliance. In particular, if an organisation expects proactivity and behaviour that goes beyond formal duties, clear remuneration rules can be a signal that reinforces the willingness to act.

The diversity of effects suggests that transparency should be tailored to the specific nature of the organisation and employment. In manufacturing, it can bring particularly significant benefits in the area of proactivity and engagement, while in administration it is worth combining it with human resource management tools that increase agency, e.g. clear promotion criteria and development paths. With regard to people working on b2b contracts, transparency can be an element of building long-term cooperation and stable relationships.

Certain limitations should be taken into account when interpreting the results. The use of a questionnaire in a single measurement may contribute to common method bias, overestimating the observed relationships. Job satisfaction and engagement were included as single items, which may affect the accuracy of the estimation. The RMSEA value is at the limit of the generally accepted level of model fit. In the multi-group analysis, the groups of civil law contracts and b2b contracts were relatively small, which increases standard errors and the risk of instability in parameter estimation.

6. Summary

The results obtained indicate that employees' opinions on various aspects of remuneration transparency are an important factor related to attitudes towards work. At the same time, the strength of these links depends on the context. Differences related to the type of organisation and form of cooperation are particularly noticeable. This means that remuneration transparency can be an effective tool for shaping employee attitudes, but its effects are strongest where it is accompanied by predictability, agency and a clear link between rules and real consequences.

References

1. Armstrong, M., Taylor, S. (2014). *Armstrong's Handbook of Human Resource Management Practice (13th ed.).* London: Kogan Page.
2. Avdul, D.N., Martin, W.M., Lopez, Y.P. (2024). Pay Transparency: Why it is Important to be Thoughtful and Strategic. *Compensation and Benefits Review*, *56*(2), 103-116. https://doi.org/10.1177/08863687231181454
3. Brown, M., Nyberg, A.J., Weller, I. Strizver, S.D. (2022). Pay Information Disclosure: Review and Recommendations for Research Spanning the Pay Secrecy–Pay Transparency Continuum. *Journal of Management*, *48*(6), 1661-1694.
4. Grant, A.M., Ashford, S.J. (2008). The dynamics of proactivity at work. *Research in Organizational Behavior, 28*(2008), 3-34.
5. Hartmann, F., Slapničar, S. (2012). Pay fairness and intrinsic motivation: the role of pay transparency. *International Journal of Human Resource Management*, *23*(20), 4283-4300. https://doi.org/10.1080/09585192.2012.664962
6. Henn, C.M., Neck, C.B., Houghton, J.D. (2024). The Pay Information Awareness Questionnaire (PIAQ): A Comprehensive Measure of Pay Transparency. *Compensation and Benefits Review*, 1-20. https://doi.org/10.1177/08863687241304017
7. Inayat, A. (2018). Impact of Compensation on Employee Engagement: (Evidence from Telecom Sector of Pakistan). *International Journal of Research and Innovation in Social Science (IJRISS)*. Retrieved from: www.rsisinternational.org
8. Jiang, H., Luo, Y. (2018). Crafting employee trust: from authenticity, transparency to engagement. *Journal of Communication Management*, *22*(2), 138-160. https://doi.org/10.1108/JCOM-07-2016-0055
9. Joelle, K.E. (2018). The Moderation Effect of Pay Transparency for the Relationship between Justice Judgments and Intrinsic Motivation. *International Journal of Academic*

Research in Business and Social Sciences, *8*(12), 361-376. https://doi.org/10.6007/ijarbss/v8-i12/5018

10. Juchnowicz, M. (2012). *Zaangażowanie pracowników. Sposoby oceny i motywowania*. Warsaw: PWE.
11. Juchnowicz, M. (2014). *Satysfakcja zawodowa pracowników - kreator kapitału ludzkiego*. Warszawa: PWE.
12. Juchnowicz, M., Kinowska, H. (2018). Sprawiedliwość wynagradzania a zaangażowanie pracowników. *Studia i Prace WNEiZ*, *52*(3), 199-209. https://doi.org/10.18276/sip.2018.52/3-19
13. Juchnowicz, M., Kinowska, H. (2020). Diagnoza sprawiedliwości wynagradzania w Polsce - implikacje w warunkach gospodarki 4.0. In: Z. Wiśniewski, C. Sadowska-Snarska (Eds.), *Praca i rynek pracy w perspektywie gospodarki 4.0* (pp. 200-212). Toruń: Adam Marszałek.
14. Juchnowicz, M., Kinowska, H., Walczak, K. (2025). *Transparentność wynagradzania. Aspekty zarządcze, metodyczne i prawne.* Warszawa: PWE.
15. Kinowska, H. (2025). *Praktyki motywowania i dobrostan pracowników w kształtowaniu zaangażowania - ujęcie systemowe*. Warsaw: Oficyna Wydawnicza SGH.
16. McMullen, T., Dahle, J. (2024). Pay Transparency Causing Major Impacts in Reward Strategies: New Research from Reward Leaders. *Compensation and Benefits Review*, *56*(2), 76-82. https://doi.org/10.1177/08863687241234860
17. Schaufeli, W.B., Bakker, A.B., Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*, *66*(4), 701-716. https://doi.org/10.1177/0013164405282471
18. SimanTov-Nachlieli, I., Bamberger, P. (2021). Pay communication, justice, and affect: The asymmetric effects of process and outcome pay transparency on counterproductive workplace behavior. *Journal of Applied Psychology*, 106(2), 230-249. https://doi.org/10.1037/apl0000502
19. Van den Bos, K., Lind, E.A. (2002). Uncertainty Managment by Menas of Fairness Judgement. *Advancies in Experimental Social Psychology*, *34*, 1-60.
20. Van den Bos, K., Lind, E.A., Vermunt, R., Wilke, H.A.M. (1997). How Do I Judge My Outcome When I Do Not Know the Outcome of Others? The Psychology of the Fair Process Effect. *Journal of Personality and Social Psychology*, *72*(5), 1034-1046.

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ESG TALK VS ESG WALK IN THE EUROPEAN FASHION VALUE CHAIN

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Purpose: This study develops a framework to evaluate early sustainability reporting by EU apparel and clothing companies under the CSRD and ESRS, positioning the analysis within the still-emerging literature on sustainability reporting in the fashion industry.
Design/methodology/approach: The study employs the TALK–WALK distinction to analyse how FY2024 disclosures connect ESG commitments with evidence of implementation and performance across the fashion value chain. TALK is operationalised through materiality coverage, target specificity, credibility signals, and supplier governance commitments. WALK is categorised into process and outcome indicators. Scopus-indexed publications focus on greenwashing, transparency, ESG controversies, and sustainability reporting practices in the luxury fashion industry.
Findings: TALK remains consistent across companies, with environmental materiality, specific climate and circular-economy targets, and credibility and supplier governance signals. WALK varies in process reporting, with the greatest variation in water measurement depth and EU taxonomy disclosures. Firms report decarbonisation processes and at least one outcome metric. Social materiality focuses on human capital, while disclosures regarding affected communities are less frequent, suggesting that sustainability narratives may coexist with uneven implementation and reporting depth.
Research limitations and implications: The analysis examines an early stage of CSRD/ESRS reporting. Future research could expand the sample, conduct longitudinal coding, and incorporate qualitative interviews to elucidate TALK–WALK differences.
Practical implications: For companies, the framework highlights areas where implementation evidence is weakest, particularly in water accounting boundaries and EU taxonomy reporting, signalling opportunities to improve systems and value-chain measurement. For users, comparing TALK indicators with WALK-process and outcome signals helps differentiate between declarative commitments and evidenced actions.
Social implications: Results suggest that early CSRD/ESRS reporting in fashion foregrounds workforce-related issues, but less consistently considers social impacts on affected communities.
Originality/value: The study translates the established TALK–WALK distinction into a CSRD/ESRS-anchored disclosure framework that differentiates commitment signals from implementation processes and outcomes. It provides early empirical evidence from FY2024

disclosures in the European fashion industry, demonstrating that standardised commitment narratives can coexist with diverse process details. It contributes to a less developed area of the literature by linking sustainability reporting, selective disclosure risk, and the fashion industry context.
Keywords: CSRD, ESRS, ESG, EU fashion industry, human capital.
Category of the paper: research paper.

1. Introduction

This study aims to develop a framework for evaluating the early implementation stage of EU sustainability reporting, a central component of sustainable finance. Large, listed companies are expected to disclose comparable sustainability information based on a formal double materiality assessment (DMA) and to organise it in accordance with the European Sustainability Reporting Standards (ESRS).

The choice of EU clothing and textile companies as the empirical setting is driven by the sector's significant environmental and social impacts and its increased vulnerability to transition, liability, and reputational risks - the types of impacts and dependencies that double materiality assessment and ESRS-aligned disclosures are designed to identify and standardise for market use. As reported by the European Environment Agency (Saskia et al., 2019), in 2017 alone, European households consumed 26 kg of textiles per person, with only 7.4 kg produced in Europe; in the same year, the manufacture of clothing, footwear, and textiles involved the use of approximately 104 m^3 of water and 1.3 tonnes of primary raw materials, while contributing to chemical pollution and microplastics. The sector's climate relevance is similarly significant: the Ellen MacArthur Foundation (2017) estimates that the world's fashion industry emitted 1.2 billion tonnes of greenhouse gases in 2017, exceeding the combined emissions from international aviation and maritime shipping. Adverse effects occur throughout the product life cycle - from fibre cultivation and animal farming, through material processing, manufacturing and logistics, to consumer use and disposal - linking the industry to multiple ESRS topical areas (notably climate change, pollution, water and marine resources, biodiversity, and circular economy) alongside value-chain social impacts. This gap matters for both theory and practice. From a theoretical perspective, the fashion industry provides a particularly useful setting for examining the relationship between sustainability narratives, disclosure quality and selective transparency. From a practical perspective, the growing formalisation of sustainability reporting increases the need to distinguish between standardised declarations and more substantive evidence of implementation.

To analyse relationships between disclosed commitments and evidence of action in FY2024 sustainability statements (first CSRD/ESRS disclosure), we use "TALK" and "WALK" as analytical categories derived from research that distinguishes symbolic communication and

commitment from substantive corporate action and performance. The "TALK-WALK" distinction is well established in CSR/ESG scholarship as a way of analysing divergence between symbolic communication or commitments and substantive organisational action and performance, and it is closely connected to the greenwashing literature (Delmas, Burbano, 2011) that conceptualises situations in which positive sustainability communication is not matched by underlying practices or results. Building on institutional decoupling theory (Meyer, Rowan, 1977; Bromley, Powell, 2012; Crilly et al., 2016; Cepêda et al., 2025), we differentiate policy versus practice decoupling (policies, targets, or commitments not matched by implementation evidence) and means versus ends decoupling (implementation evidence not matched by outcomes, or outcomes not yet observable). This distinction is reflected in CSR measurement approaches that separate policies, programmes, and impacts as empirically distinct layers (Talpur et al., 2023).

Then, we apply this analytical framework to selected EU apparel and fashion companies to address four research questions, specifically:

RQ1: Which environmental and social matters are designated material in the analysed companies' disclosed FY2024 DMAs, and what position do human‐capital-relevant social matters occupy?

RQ2: How do companies differ in the specificity of their disclosed climate and circular‐economy/resource targets, and in the disclosure of external credibility signals linked to such commitments?

RQ3: What co‐occurrence patterns are observed between TALK indicators of scope and commitment and WALK‐PROCESS indicators of implementation?

RQ4: How frequently do companies that disclose one or more WALK‐PROCESS signals (WP) also disclose WALK‐OUTCOME signals (WO)?

2. Methodology

We apply these distinctions to the CSRD/ESRS context, where the undertaking's double materiality assessment (DMA) is used to determine the sustainability information to be reported and defines the scope of disclosures. ESRS also distinguishes disclosure blocks for actions/resources versus metrics (ESRS 2 MDR‐A vs MDR‐M). In our dataset, FY2024 annual reports provide DMA results, taxonomy disclosures, and ESG disclosures, alongside strategy-level ESG targets; some disclosures (e.g., biodiversity) are mainly qualitative. We measure environmental and social DMA breadth using an unweighted disclosure index (respectively E1-E5 and S1-S4 materiality coverage, normalised by the number of items), while all remaining constructs are operationalised as item‐level disclosure scores coded with explicit binary or ordinal rules as specified in the coding Tables 1 and 2. We limit the use of a disclosure

index, a research tool, to minimise subjectivity (Marston, Shrives, 1991). This methodological approach is intended to map disclosure content and to assess whether standardised reporting narratives are accompanied by implementation evidence.

Table 1.
Operationalisation of CSRD/ESRS TALK (T)*

Construct	Concept	Definition	Operational measure	Coding scheme
T1	Environmental materiality coverage (DMA E1-E5)	Breadth of environmental topical standards (E1-E5) disclosed as material.	E_coverage ∈ [0,1]	For each E1-E5: 1 = material in DMA; 0 = not material. E_coverage = sum/5.
T2	Social materiality coverage (DMA S1-S4)	Breadth of social topical standards (S1-S4) disclosed as material.	S_coverage ∈ [0,1]	For each S1–S4: 1 = material in DMA; 0 = not material. E_coverage = sum/4.
T3	Workforce & communities materiality coverage (DMA S1-S3)	Social topical standards relevant to human capital and communities (S1-S3) designated material in the disclosed DMA.	S1_DMA, S2_DMA, S3_DMA ∈ {0,1}	1 = material in DMA; 0 = not material.
T4	Climate target specificity (E1)	Degree to which climate targets are quantified and time‑bound, and with boundary conditions.	E1_target ∈ {0,1,2,3}	0 = no target disclosed; 1 = qualitative only; 2 = quantified with target year; 3 = quantified with target year and scope boundary (incl. Scope 3) and baseline/ milestone where disclosed.
T5	Circular economy target specificity (E5)	Degree to which circular targets are quantified, time‑bound, and numerous.	E5_target ∈ {0,1,2,3}	0 = no target; 1 = qualitative or quantified without target year; 2 = quantified with target year and defined object; 3 = multiple quantified targets with target years and defined objects/boundaries.
T6	External credibility signals	Disclosed third‑party validation/programme participation that strengthens commitment credibility.	SBTi_validated (0/1); ZDHC_signatory_disclosed (0/1)	SBTi_validated = 1 only if validated targets disclosed; ZDHC_ signatory_disclosed = 1 only if signatory status disclosed.
T7	Supplier governance commitment	Disclosed adoption of a Supplier Code of Conduct.	Supplier_CoC (0/1)	1 if supplier standard disclosed; else 0.

Note * "TALK" refers to the company's communication on its ESG policies and targets under the CSRD/ESRS framework

Source: Authors' elaboration.

Table 2.
Operationalisation of CSRD/ESRS Walk (W)*

Construct	Concept	Definition	Operational measure	Coding scheme
WO1	Reported GHG emissions	Disclosed gross GHG emissions and achieved absolute reductions with scope and time boundaries	Emissions_disclosed ∈ {0,1,2,3}	0 = no gross GHG emissions disclosed; 1 = gross GHG emissions disclosed, absolute emission reported but boundaries unclear or limited to a single scope categoty only; 2 = absolute emission reported and boundaries are clear; 3 = absolute emission reported, boundaries are clear and absolute reduction reported (if the KPI covers two last years)
WO2	Reported carbon intensity	Disclosed carbon intensity metric and its trend.	Carbon_intensity_disclosed ∈ {0,1,2}	0 = no carbon intensity disclosed; 1 = carbon intensity metric disclosed; 2 = values for at least two consecutive years disclosed but limited to 1&2 scope or definition unclear; 3 = otherwise.
WO3	Reported energy mix	Disclosed energy consumption and energy mix with boundary clarity for own operations.	Renewables_disclosed ∈ {0,1,2,3}	0 = no quantitative energy consumption disclosed; 1 = quantitative energy consumption disclosed with renewable energy unclear or partial and/or mix not provided.; 2 = energy consumption and renewable energy quantified disclosed, with incomplete mix; 3 = complete quantitative energy consumption including renewables disclosed including disaggregation.
WP1	Depth of value-chain measurement boundary (E3)	Extent to which quantitative water accounting is disclosed beyond own operations into upstream business relationships, operationalised as the deepest boundary for which the company discloses quantified water data (own operations vs tiered upstream).	Water_measurement_depth ∈ {0,1,2,3}	0 = no quantitative water metric disclosed; 1 = quantitative water metric disclosed for own operations only or definition unclear; 2 = own operations + Tier 1 suppliers disclosed; 3 = own operations + Tier 1 and Tier 2 suppliers disclosed.

Cont. table 2.

WP2	EU taxonomy-aligned KPI breadth	Breadth of taxonomy-aligned KPIs (turnover, CapEx, OpEx) disclosed, capturing whether alignment is evidenced across revenue and/or expenditure categories.	Taxonomy_aligned_ breadth ∈ {0,1,2,3}	Count the number of Article 8 KPIs with a non-zero taxonomy-aligned value disclosed: 0 = none (all aligned KPIs explicitly 0); 1 = one KPI > 0 (turnover or CapEx or OpEx); 2 = two KPIs > 0; 3 = all three KPIs > 0.
WP3	EU taxonomy-eligible turnover presence	Disclosed a non-zero share of taxonomy-eligible turnover under transition to a circular economy (CE) objective, indicating that at least one reported economic activity is taxonomy-eligible under that objective.	Taxonomy_CE_turnover_eligible ∈ {0,1}	1 = eligible turnover under CE disclosed as > 0; 0 = explicitly disclosed as 0.
WO4	Packaging waste outflow metric presence	Disclosed quantified packaging waste outflows and an associated treatment indicator.	Packaging_waste_metric_disclosed ∈ {0,1}	1 = both (i) quantity of packaging waste and (ii) share/portion prepared for recycling are disclosed quantitatively; 0 = otherwise.
WP4	Supplier decarboni-sation engagement mechanism implementa-tion	Disclosed a mechanism aimed at reducing upstream (Scope 3) emissions through suppliers' engagement.	Supplier_decarbonisation_mechanism ∈ {0,1}	1 = at least one supplier-focused decarbonisation mechanism disclosed with operational features; 0 = otherwise.

Note: *"WALK" (W) refers to the company's communication on its ESG achievements under the CSRD/ESRS framework, understood as process (WP) or/and outcomes (WO).

Source: Authors' elaboration.

We operationalise ESG TALK (T) as disclosure-based indicators of communication/commitment, using: (i) DMA materiality coverage for environmental and social topics (T1-T2) and workforce and communities topics (T3), (ii) targets specificity for climate (T4) and circular economy (T5), (iii) external credibility signals linked to commitments (such as SBTi validated targets, ZDHC signatory status as disclosed) (T6), and (iv) supplier governance commitment through disclosure of a Supplier Code of Conduct (T7). We operationalise ESG walk (W) as disclosure-based indicators of substantive corporate action and performance, divided into walk-process (WP) and walk-outcome (WO). WP includes the depth of value-chain measurement boundary (E3) (WP1), EU taxonomy-aligned KPI breadth across turnover, CapEx, and OpEx (WP2), EU taxonomy-eligible turnover under the circular-economy objective (environmental objective 4) (WP3), and implementation of the supplier decarbonisation engagement mechanism (WP4). WO includes reported GHG emissions (WO1), carbon intensity (WO2), energy mix (WO3) and the presence of a packaging waste outflow metric (WO4).

3. Results

As evidenced in Tables 3 and 4, the coded DMA FY2024 profiles show widespread environmental materiality: E coverage is 5/5 across 11 companies (one case with no value), indicating that the full range of ESRS E1-E5 is considered material in the sample. Social materiality is also extensive but less consistent: among the 11 companies with S coverage, it is divided into 4/4 (5 companies; 45.5%) and 3/4 (6 companies; 54.5%), meaning all companies disclose at least 3 of the 4 social standards as material. Regarding social issues, "human capital" appears as material in 11 companies (one case, with no value), while S3 (affected communities) occurs as material much less often (5/11). This highlights a focus on issues related to employees and their value chain, and less on affected communities.

In the sample, companies do not differ regarding the coded specificity of their climate and circular/resource-related goals: all have maximum scores for E1 target = 3/3 (12/12) and E5 target = 3/3 (12/12), meaning that all have set quantitative goals with a time horizon and a clearly defined scope/objective. Some differentiation appears in external credibility signals: SBTi is disclosed by all (12/12), as is the Supplier Code of Conduct (12/12), while ZDHC is disclosed by 9/12 (75%).

TALK indicators are high, while WALK PROCESS shows greater diversity. All companies disclose as much as possible about specific climate and circularity goals (E1 and E5 3/3 each, Supplier CoC in all companies, also WP4 = 1 in 12/12), but the disclosure of implementation processes differs primarily in water and taxonomy areas. WP1 (water measurement depth) is polarised (0 in 5/12; 1 in 1/12; 3 in 6/12), WP2 (taxonomic disclosure breadth) ranges from 0 to 2 (0 in 2/12; 1 in 6/12; 2 in 4/12), and WP3 (non-zero share of "CE taxonomy-eligible" turnover) is rare (2/12). Significantly, WP3 appears only when WP2 is highest (both companies with WP3=1 also have WP2=2), indicating that disclosures of "hard" turnover CE indicators mainly occur in firms with a broader set of taxonomic KPIs. Furthermore, an unintuitive co-occurrence between ZDHC and water appears: all three companies without ZDHC disclosure have a maximum WP1 = 3/3, while firms disclosing ZDHC show a more varied (often lower) WP1 depth. On the social side, a consistent “package” of TALK is evident: S coverage = 4/4 coincides with S3 goals (5/5), and where S coverage is lower (3/4), S3 goals are entirely absent (0/6).

There is complete overlap between process and outcome disclosures in the sample: all companies report at least one WALK PROCESS signal (WP4 in all cases) and simultaneously report at least one WALK OUTCOME signal. This indicates that the conditional proportion P (≥1 WP ≥1 WO) is 100% (12/12). The pattern also holds when conditioning on specific processes: all companies with WP1 > 0 (7/7), WP2 > 0 (10/10), and WP3 = 1 (2/2) disclose WO signals.

Table 3.
FY2024 TALK in EU CSRD/ESRS textile companies

Company	T1 E coverage	T2 S coverage	T3 S1 target	T3 S2 target	T3 S3 target	T4 E1 target	T5 E5 target	T6 SBTi	T6 ZDHC	T7 Supplier CoC
Adidas	5/5	4/4	1	1	1	3	3	1/1	1/1	1
Hugo BOSS	5/5	3/4	1	1	0	3	3	1/1	1/1	1
PUMA	5/5	3/4	1	1	0	3	3	1/1	1/1	1
LPP	5/5	3/4	1	1	0	3	3	1/1	1/1	1
H&M	N/A	N/A	N/A	N/A	N/A	3	3	1/1	1/1	1
LVMH	5/5	4/4	1	1	1	3	3	1/1	0/1	1
Kering	5/5	4/4	1	1	1	3	3	1/1	0/1	1
SMCP	5/5	3/4	1	1	0	3	3	1/1	1/1	1
INDITEX	5/5	4/4	1	1	1	3	3	1/1	1/1	1
Moncler	5/5	3/4	1	1	0	3	3	1/1	1/1	1
Brunello Cucinerri	5/5	4/4	1	1	1	3	3	1/1	0/1	1
OVS	5/5	3/4	1	1	0	3	3	1/1	1/1	1

Source: Authors' elaboration.

Table 4.
FY2024 WALK in EU CSRD/ESRS textile companies

Company	WO1 Emissions	WO2 Carbon intensity	WO3 Energy & Renewables	WP1 Water depth	WP2 Taxonomy aligned	WP3 CE turnover eligible	WO4 Packaging waste	WP4 Supplier decarbonisation engagement
Adidas	2	2	3	0	1	0	1	1
Hugo BOSS	2	0	3	0	0	0	1	1
PUMA	2	3	3	3	1	0	0	1
LPP	2	2	3	0	2	0	1	1
H&M	2	2	3	3	2	1	1	1
LVMH	2	1	3	3	1	0	1	1
Kering	3	3	3	3	1	0	1	1
SMCP	3	2	3	0	2	1	1	1
INDITEX	2	3	3	0	1	0	0	1
Moncler	3	2	3	3	1	0	0	1
Brunello Cucinerri	2	1	3	3	0	0	0	1
OVS	2	1	3	1	2	0	0	1

Source: Authors' elaboration.

4. Conclusions

The study sample demonstrates a very high level of consistency in the TALK message. All companies recognise the importance of environmental issues and establish specific goals for climate and circularity. The WALK dimension, however, shows that while companies generally disclose decarbonisation processes and related environmental outcomes, the detail and scope of process reporting vary, especially regarding water and the Taxonomy. This may also indicate differences in how these processes are implemented across companies.

In the social dimension, the "human capital" area (S1-S2 and S4) is consistently recognised as material, whereas a broader perspective on social impact, such as "Affected Communities", is less frequently addressed.

The study results demonstrate that companies are in the early stages of adapting to reporting requirements. Regulatory pressure and the adoption of reporting standards have enabled companies to communicate declaratively (TALK). At the same time, implementing the declared goals requires significant effort, not only within companies' operations but also across their entire value chains. This may explain the greater variability in the WALK PROCESS. It shows that reporting can appear highly mature, but differences between companies are evident only in their implementation processes and metrics.

Expanding the sample to include smaller entities not obligated to report under CSRD/ESRS, as well as those governed by different regulatory frameworks, would likely lead to greater variation in TALK and WALK profiles. It would also be beneficial to develop a typology of disclosure strategies and identify factors behind differences in TALK-WALK profiles (e.g., size, supply chain geography, market segment, regulatory exposure).

To determine whether differences in WALK increase as data systems and audit/attestation mature, a longer analysis, such as two or three years, should be conducted, with the coding repeated in subsequent reporting years. The study could also be extended to include a qualitative approach, for example, through interviews with CEOs, CFOs, and ESG teams, to better understand the barriers to implementing ESG principles in practice, both regulatory and procedural. These interviews would help clarify differences between organisations in what is actually implemented and measured, and the factors that hinder the translation of these declarations into concrete actions and results.

References

1. Adidas AG (2024). *Annual management report of Adidas for 2024*. Retrieved from: https://www.adidas-group.com/en/investors/financial-reports?tag=2024, 01.02.2026.
2. Bromley, P., Powell, W.W. (2012). From smoke and mirrors to walking the talk: Decoupling in the contemporary world. *Academy of Management Annals*, *Vol. 6, Iss. 1,* pp. 483-530, doi: 10.1080/19416520.2012.684462.
3. Brunello Cucinelli S.p.A. (2024). *Annual management report of Brunello Cucinelli for 2024*. Retrieved from: https://investor.brunellocucinelli.com/en/services/archive/investor/financial-reports/2024 01.02. 2026.
4. Cepêda, C., Monteiro, A.P., Aibar-Guzmán, B. (2025). Decoupling in sustainability reporting: A systematic literature review. *Corporate Social Responsibility and Environmental Management*, *Vol. 32, Iss. 3*, pp. 2988-3007, doi: 10.1002/csr.3114.

5. Crilly, D., Hansen, M., Zollo, M. (2016). The grammar of decoupling: A cognitive‐linguistic perspective on firms' sustainability claims and stakeholders' interpretation. *Academy of Management Journal*, *Vol. 59, Iss. 2*, pp. 705-729. Retrieved from: https://www.jstor.org/stable/24758308?seq=1, 01.02.2026.
6. Czerska J., (2011). Efekty wdrożenia lean production. *Ekonomika i Organizacja Przedsiębiorstwa*, *No. 4*.
7. Delmas, M.A., Burbano, V.C. (2011). The drivers of greenwashing. *California Management Review*, *Vol. 54, Iss. 1*, pp. 64-87, doi: 10.1525/cmr.2011.54.1.64.
8. Di Leo, A., Sfodera, F., Cucari, N., Mattia, G., Dezi, L. (2023). Sustainability reporting practices: an explorative analysis of luxury fashion brands. *Management Decision*, *Vol. 61, Iss. 5*, pp. 1274-1297.
9. Ellen MacArthur Foundation (2017). *A New Textiles Economy: Redesigning Fashion's Future*. Retrieved from: https://www.ellenmacarthurfoundation.org/a-new-textiles-economy, 01.02.2026.
10. Górecki B.R. (2010). *Ekonometria. Podstawy teorii i praktyki.* Warszawa: KeyText.
11. GUS, (2016). *Mały Rocznik Statystyczny 2015.* Warszawa: GUS.
12. H&M Group (2024). *Annual management report of H&M for 2024*. Retrieved from: https://hmgroup.com/investors/reports/, 01.02.2026.
13. Haack, P., Schoeneborn, D. (2015). Is decoupling becoming decoupled from institutional theory? A commentary on Wijen. *Academy of Management Review*, *Vol. 40, Iss. 2*, pp. 307-310, doi.10.5465/amr.2014.0344.
14. Hepner, J.L. (2025). Sustainability Challenges and Opportunities in Luxury Fashion: A Response to Policy Deregulation in the United States. *Journal of Sustainable Marketing*, *Vol. 6, Iss. 1*, pp. 5-12.
15. HUGO BOSS AG (2015). *Annual management report of Hugo Boss for 2024*. Retrieved from: https://group.hugoboss.com/en/investors/publications/results, 01.02.2026.
16. Inditex (2024). *Annual management report of INDITEX for 2024*. Retrieved from: https://www.inditex.com/itxcomweb/api/media/604197b9-50de-4f4f-ab84-c1e379cb3fd0/Inditex_Group_Annual_Report_2024.pdf?t=1741989136588&utm_source=chatgpt.com, 01.02.2026.
17. Kering (2024). *Annual management report of Kering for 2024*. Retrieved from: https://www.kering.com/api/download-file/?path=Kering_2024_Financial_Document_885917e81b.pdf, 01.02.2026.
18. Korsan-Przywara, P., Zgrzywa-Ziemak, A. (2011). Zarządzanie procesowe. In: M. Hopej, Z. Kral (Eds.), *Współczesne metody zarządzania w teorii i praktyce.* Wrocław: Oficyna Wydawnicza Politechniki Wrocławskiej.
19. LPP S.A. (2024). *Annual management report of LPP for 2024*. Retrieved from: https://www.lpp.com/en/investor-relations/reports/financial-reports/, 01.02.2026.
20. LVMH (2024). *Annual management report of LVMH for 2024*. Retrieved from:

https://www.lvmh.com/en/investors, 01.02.2026.
21. Meyer, J.W., Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology*, *Vol. 83, No. 2,* pp. 340-363. Retrieved from: https://www.jstor.org/stable/2778293?seq=1.
22. Moncler Group (2024). *Annual management report of Moncler for 2024*. Retrieved from: https://www.monclergroup.com/en/investor-relations/publications?date=2024, 01.02.2026.
23. OVS S.p.A. (2024). *Annual management report of OVS for 2024*. Retrieved from: https://www.ovscorporate.it/sites/default/files/documents/2025-07/ovs_annual_report_2024_eng_def.pdf, 01.02.2026.
24. Özkan, A. (2025). A Content Analysis of GRI Standards in XTEKS Listed Companies Sustainability Reporting. *Tekstilec*, Vol. 68, Iss. 2, pp. 194–206.
25. Palmberg, K., (2009), Exploring process management: are there any widespread models and definitions? *The TQM Journal*, *Vol. 21, No. 2*.
26. Polak, P. (2006), Orientacja procesowa w zarządzaniu a narzędzia integracji systemów. *Prace Naukowe Akademii Ekonomicznej we Wrocławiu*, *No. 1134*.
27. PUMA SE (2024). *Annual management report of Puma for 2024*. Retrieved from: https://about.puma.com/en/investor-relations/financial-publications, 01.02.2026.
28. Saskia, M., Christis, M., Vercalsteren, A., Arnold, M., Nicolau, M., Lafond, E., Mortensen, L.F., Coscieme, L. (2019). *Textiles and the environment in a circular economy*. Retrieved from: http://europa.eu. 01.02.2026.
29. Schwoy, S., Dutzi, A., Messing, J. (2024). Silence is golden? – Analysing the transparency of ESG controversies in corporate reporting within the pharmaceutical and textile industry. *Management Decision*, *Vol. 63, Iss. 2*, pp. 665-707.
30. Science Based Targets initiative (SBTi) (2026). *The SBTi's Target Dashboard.* Retrieved from: https://sciencebasedtargets.org/target-dashboard, 01.02.2026.
31. SMCP (2024). *Annual management report of SMCP for 2024*. Retrieved from: https://www.smcp.com/app/uploads/2025/05/smcp-urd2024-en-mel-25-05-23.pdf, 01.02.2026.
32. Wilson, L. *Wanna sabotage your lean implementation effort? Try this*. Retrieved from: http://www.industryweek.com/lean-sabotage, 05.03.2013.
33. ZDHC Foundation (2026). *ZDHC contributors list*. Retrieved from: https://www.roadmaptozero.com/all-signatories?utm_source=chatgpt.com, 01.02.2026.

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PERCEPTION OF AI, ORGANIZATIONAL SUPPORT, AND READINESS IN SMES POLAND AND ITALY

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Purpose: The aim of the article is to analyze the relationships between the perception of artificial intelligence (AI) technologies, the perceived usefulness of AI, the level of organizational support, and employees' readiness to use AI at work in the SME sector in Poland and Italy.
Design/methodology/approach: The study was conducted using a quantitative approach in the fourth quarter of 2025 and the first quarter of 2026 among 244 employees of SMEs from Poland and Italy. Data were collected using a structured survey questionnaire. Based on respondents' answers, six indices were constructed concerning attitudes toward AI, technology perception, perceived usefulness, organizational support, readiness to use AI, and job satisfaction. Spearman's rank correlation coefficient was applied to analyze relationships between variables.
Findings: The results indicate significant positive relationships between the perception of AI technologies, their perceived usefulness, and employees' readiness to use them at work. The strongest relationship was observed between AI perception and readiness to use it. No significant relationships were found between AI-related variables and job satisfaction.
Research limitations/implications: The limitations of the study include purposive sampling and the use of correlational analysis, which does not allow for full causal inference. Given the non-random, purposive sampling approach, the findings should be interpreted with caution.
Practical implications: The findings highlight the importance of fostering a positive perception of AI technologies and ensuring organizational support in the process of implementing new technologies in SMEs.
Social implications: A better understanding of employees' adaptation mechanisms to AI technologies may support a more sustainable digital transformation of organizations.
Originality/value: The article combines psychological and organizational perspectives and presents a comparative analysis of employees' attitudes toward AI technologies in the SME sector in Poland and Italy.
Keywords: AI technologies, organizational support, job satisfaction, SMEs, Poland and Italy.
Category of the paper: research paper.

1. Introduction

The dynamic development of artificial intelligence (AI) technologies significantly affects the functioning of contemporary organizations. Solutions based on machine learning, process automation, and big data analytics are increasingly applied in management, decision-making, and work organization. A particularly important area of their implementation is the small and medium-sized enterprise (SME) sector, which constitutes the backbone of European economies. At the same time, enterprises in this sector often operate with limited organizational and technological resources, which means that the process of adopting new technologies may differ from that observed in large organizations.

The implementation of AI technologies in the workplace has not only a technological dimension but also organizational and social implications. Employees' responses to technological change depend not only on the functionality of tools but also on psychological factors and the way the digital transformation process is managed. AI technologies can enhance work efficiency by automating routine tasks and supporting decision-making processes; however, they may also generate concerns related to job loss, the need to acquire new competencies, or increased algorithmic control.

The literature emphasizes the importance of factors such as technology perception, perceived usefulness of digital tools, and the level of organizational support in the process of employees' adaptation to new technologies. A positive perception of technology and a belief in its usefulness increase employees' readiness to adopt new solutions at work, with organizational support—such as training, access to technological tools, and substantive assistance—playing a crucial role.

At the same time, the development of the Industry 4.0 economy expands the scope of personnel-related risks, including high employee turnover, shortages of digital competencies, and the phenomenon of burnout (Malinowski, 2025). These phenomena affect employees' well-being, which is becoming an important dimension in assessing the outcomes of digital transformation. Simultaneously, AI-based technologies may support HR departments in promoting employees' mental health, for example through sentiment analysis, mood monitoring, or the use of chatbots providing personalized advice (Niedbał, Pytel-Kopczyńska, 2024).

Despite the growing interest in the implementation of artificial intelligence, relatively few studies focus on the SME sector or compare employees' attitudes across different institutional contexts. Particularly interesting is the comparison of enterprises operating under diverse economic conditions.

The aim of this article is to analyze the relationships between employees' attitudes toward artificial intelligence technologies, the perception of their usefulness, the level of organizational support, and the readiness to use AI at work in the SME sector in Poland and Italy. On this basis, the following research hypotheses were formulated:

- H1: The perception of artificial intelligence technologies is positively associated with employees' readiness to use AI at work.
- H2: The perceived usefulness of AI technologies is positively associated with employees' readiness to use them at work.
- H3: Perceived organizational support for the implementation of AI technologies is positively associated with the perception of artificial intelligence technologies.

2. Literature overview

2.1. Psychological Determinants of Adaptation to AI Technologies

The implementation of artificial intelligence technologies in organizations constitutes one of the key dimensions of contemporary digital transformation in enterprises. The literature emphasizes that AI is gradually evolving from a tool supporting operational processes into a universal technological paradigm that redefines strategic management models and decision-making processes based on real-time analysis of large datasets (Hauke, Perechuda, 2024). The significance of these changes is particularly evident in the small and medium-sized enterprise (SME) sector, where digital technologies can enhance operational efficiency, enable process automation, and expand customer bases (Szwajca, 2025). At the same time, firms in this sector often face barriers related to limited financial resources, a shortage of digital competencies, and insufficient knowledge regarding the potential applications of new technologies (Szwajca, 2025).

The impact of AI technologies on employee experience is not linear and depends both on the level of technological implementation and on employees' individual psychological resources. Research indicates the presence of an inverted U-shaped relationship between the intensity of AI implementation and job satisfaction. In the initial phase of implementation, the automation of routine tasks may increase satisfaction by reducing workload and enabling employees to focus on tasks requiring higher-order cognitive skills. However, as the intensity of AI usage increases, employees may begin to perceive it as a threat to their competencies or job security, which leads to a decline in job satisfaction (Wu et al., 2025).

The literature suggests that the impact of technology on employee attitudes is mediated by cognitive processes and psychological resources related to adaptation to career changes. A key resource in this context is career adaptability, understood as an individual's ability to

cope with dynamic changes in the work environment. From the perspective of Conservation of Resources (COR) theory, career adaptability constitutes a psychological resource that enables effective responses to the demands of a changing labor market and facilitates investment of energy in the development of professional competencies (Leong, Li, Chen, 2025).

The role of career adaptability in the context of AI technologies is moderated by two opposing psychological mechanisms: AI self-efficacy and AI anxiety. Technological self-efficacy refers to an employee's belief in their ability to effectively use digital tools, which fosters a positive perception of technology and a greater willingness to use it at work. In contrast, AI anxiety—associated with fear of job loss or feelings of technological inadequacy—may limit employees' propensity to adapt, although it does not entirely eliminate the influence of positive psychological resources (Leong, Li, Chen, 2025).

Research also indicates that employees' declared openness to technology does not always translate into its deep or advanced use in organizational practice. Studies conducted among public relations specialists show that AI tools—such as ChatGPT or Canva AI—are often used superficially, primarily as operational support rather than as an integral component of work processes (Kozakiewicz, 2025). Technological transformation is also accompanied by concerns related to the dehumanization of communication, loss of control over decision-making processes, and the limited transparency of algorithmic operations (Kozakiewicz, 2025). At the same time, contemporary research suggests that employee attitudes toward organizational change are gradually evolving toward greater flexibility and a higher readiness to acquire new competencies (Kaczkowska-Serafińska, 2025).

2.2. Managerial Strategies in Digital Adaptation

In the context of increasing digitalization, the role of management extends beyond the mere implementation of technology and includes shaping an organizational environment conducive to employee acceptance of technological change. One of the key mechanisms mitigating tensions associated with AI implementation is perceived organizational fairness. Research indicates that when employees perceive decision-making processes and resource distribution as fair, the negative consequences of technological implementation are reduced, and the decline in job satisfaction is delayed (Wu et al., 2025).

Contemporary organizations are also increasingly utilizing incentive systems supported by artificial intelligence algorithms. Reward systems based on real-time data analysis can enhance transparency in employee evaluations and strengthen motivation to achieve better performance. However, the effectiveness of such solutions depends on their perceived fairness in both procedural and distributive dimensions (Batool, Rafiq, Haider, 2025).

Leadership style also plays a significant role in the process of technological adaptation. In the SME sector, particular importance is attributed to transformational leadership, which, through inspiring a vision of organizational development and intellectually stimulating employees, fosters positive attitudes toward technological change. Research shows that

transformational leadership influences employee performance both directly and indirectly through increased job satisfaction (Roy, Swargiary, 2025).

2.3. Perceived Organizational Support and the Technological Environment

Perceived organizational support refers to employees' belief that the organization values their contributions and cares about their well-being. In the SME sector, this factor is particularly significant due to limited organizational resources and a relatively low level of formalization in management structures. According to social exchange theory, employees who experience organizational support demonstrate higher levels of work engagement and greater job satisfaction (Al Balushi, Jais, 2025; Siregar et al., 2024).

Organizational support may take both emotional and instrumental forms, including opportunities for competency development, assistance in solving work-related problems, and initiatives that promote work–life balance. Organizations offering flexible working arrangements and well-being initiatives contribute to increased job satisfaction and reduced stress levels (Al Balushi, Jais, 2025).

In the context of digital transformation, organizational support also involves providing employees with appropriate technological tools. Research conducted in European SMEs indicates that the implementation of knowledge management systems, such as wiki-based knowledge repositories, enhances job satisfaction by improving access to information and reducing uncertainty associated with the execution of technology-related tasks (Schober, Stampfl, Geyer, 2025). This suggests that employee job satisfaction depends not only on the implementation of AI technologies themselves but also on the quality of the organizational environment in which these technologies are embedded.

3. Research Methodology

The empirical study was conducted in the fourth quarter of 2025 and the first quarter of 2026 in Poland and Italy. A quantitative approach was employed, using a structured survey questionnaire as the research instrument. Data were collected using the CAWI method as well as in paper form.

The questionnaire was prepared in two equivalent language versions: Polish and Italian. The research instrument included questions related to employees' attitudes toward artificial intelligence technologies, the perception of their usefulness, the level of organizational support, and overall job satisfaction.

Given the non-random, purposive sampling approach, the findings should be interpreted with caution, as their generalizability to the broader population of SME employees is inherently limited.

Based on respondents' answers, six analytical indices were constructed by calculating the arithmetic mean of the relevant questionnaire items:

- AI_Individual_Attitude Index – individual attitude toward AI technologies.
- AI_Organizational_Support Index – perceived organizational support.
- AI_Perception Index – perception of AI technologies.
- AI_Usefulness Index – perceived usefulness of the technology.
- AI_Readiness Index – readiness to use AI.
- Job_Satisfaction Index – overall job satisfaction.

Respondents' answers were measured using a five-point Likert scale (1 – strongly disagree, 5 – strongly agree). The sampling procedure was purposive and classified as a non-probability sampling method. In total, 244 economically active employees from the SME sector participated in the study, including 110 respondents from Poland (Mazowieckie Voivodeship) and 134 respondents from Italy (Lombardy region). The sample included 67 individuals in managerial positions and 177 operational employees.

Data analysis was performed using Stata (version 9.1), SPSS, and MS Excel. Relationships between variables were analyzed using Spearman's rank correlation coefficient (ρ), which is appropriate for examining relationships between ordinal variables and in cases where the assumption of normal distribution is not met. The level of statistical significance was set at $p < 0.05$ for all analyses.

4. Characteristics of Respondents

To characterize the research sample, a percentage distribution analysis was conducted for respondents from Poland and Italy with respect to selected demographic and organizational variables, including firm size, job position, year of birth, and gender. Percentages were calculated within each country, enabling a direct comparison of sample structures.

The respondents represent enterprises of varying sizes and different organizational levels—from operational employees to managerial staff. The sample also includes diverse age cohorts, allowing for the analysis of attitudes toward artificial intelligence across different generations of employees. The gender structure includes both women and men, supporting a more balanced analysis of attitudes toward AI and job satisfaction.

In the Polish sample, the majority of respondents were employed in companies with 50-249 employees (62.7%), whereas in the Italian sample, firms with 10-49 employees predominated (78.4%). Among Polish respondents, 38.2% held managerial positions, while in Italy the share of managerial staff amounted to 18.7%. Gender distribution differed between the countries—women constituted the majority in Poland (54.5%), whereas men predominated in Italy (59.7%). The largest age group in Poland consisted of respondents born between 2001 and 2005

(32.7%), while in Italy the largest share was represented by respondents from the 1971-1980 cohort (20.9%).

5. Correlation Analysis Results

For the purposes of the analysis, six indices were constructed by calculating the arithmetic mean of the questionnaire items: *AI_Individual_Attitude*, *AI_Organizational_support*, *AI_perception*, *AI_usefulness*, *AI_readiness*, and *Job_satisfaction*. Subsequently, relationships between variables were examined using Spearman's rank correlation coefficient (ρ). In all analyses, a statistical significance level of $p < 0.05$ was adopted, and the results are presented in Table 1.

Table 1.
Correlation Analysis Results

Variable	1	2	3	4	5	6
1. AI_Individual_Attitude	1					
2. AI_Organizational_support	0,327**	1				
3. AI_perception	0,397**	0,311**	1			
4. AI_usefulness	0,290**	0,408**	0,664**	1		
5. AI_readiness	0,402**	0,331**	0,756**	0,683**	1	
6. Job_satisfaction	−0,114	0,115	0,017	0,023	0,049	1

Note. Based on the results of the author's study for N = 244; * $p < 0.05$, ** $p < 0.01$.

Source: Own elaboration.

The Spearman rank correlation analysis revealed statistically significant positive relationships among most of the analyzed variables related to the perception and use of AI technologies. The strongest correlation was observed between AI perception and readiness to use it ($\rho = 0.756$; $p < 0.01$). Strong relationships were also identified between perceived usefulness of AI and readiness for its use ($\rho = 0.683$; $p < 0.01$), as well as between AI perception and its usefulness ($\rho = 0.664$; $p < 0.01$).

Moderate positive correlations were found between individual attitudes toward AI and AI perception ($\rho = 0.397$; $p < 0.01$), as well as readiness to use AI ($\rho = 0.402$; $p < 0.01$). In contrast, no statistically significant relationships were identified between AI-related variables and job satisfaction, suggesting that factors associated with AI perception and implementation do not constitute direct predictors of job satisfaction levels in the analyzed sample.

The results indicate clear interdependencies between the perception of AI technologies, the evaluation of their usefulness, and employees' readiness to use them in the workplace. The strongest relationship was again observed between AI perception and readiness for its use ($\rho = 0.76$), indicating that individuals who perceive AI technologies more positively also demonstrate a higher willingness to implement them in professional practice. Strong positive correlations were also found between AI_usefulness and AI_readiness ($\rho = 0.68$), as well as between AI_perception and AI_usefulness ($\rho = 0.66$).

Moderate relationships were observed between individual attitudes toward AI and both perception and readiness to use it ($\rho \approx 0.40$). Relatively weaker correlations were identified between organizational support and the remaining indices, although a noticeable relationship exists with perceived AI usefulness ($\rho \approx 0.41$). At the same time, the analysis did not reveal any significant relationships between AI-related variables and job satisfaction; correlation coefficients between Job_satisfaction and the other indices were very low (ρ ranging from -0.11 to 0.05).

6. Comparative Analysis

The correlation analysis conducted on the Polish and Italian samples indicates positive relationships among most of the analyzed variables related to the perception and use of artificial intelligence technologies, although their strength varied between countries. In the Polish sample, moderate relationships were observed between AI perception, its perceived usefulness, and readiness to use it at work ($\rho \approx 0.52$-0.59), suggesting that a positive evaluation of the technology fosters greater willingness to implement it in the workplace. Individual attitudes toward AI showed weaker but still positive correlations with perception and readiness to use the technology ($\rho \approx 0.24$-0.27), while organizational support remained positively, albeit relatively weakly, associated with the other variables.

In the Italian sample, these relationships were considerably stronger, particularly between AI perception and readiness to use it ($\rho \approx 0.82$), as well as between perceived usefulness and readiness for implementation ($\rho \approx 0.74$), indicating greater coherence of attitudes toward AI. Individual attitudes toward technology also exhibited moderate correlations with perception and readiness to use it ($\rho \approx 0.38$-0.42).

A comparison of the results suggests that the relationships between AI perception, its usefulness, and readiness for its use are stronger in the Italian sample than in the Polish one. This may indicate greater consistency in attitudes toward AI among employees of Italian SMEs. At the same time, in both countries, attitudes toward artificial intelligence do not show a direct relationship with job satisfaction, suggesting that technological factors may play a less significant role in shaping occupational well-being than traditional organizational determinants.

7. Directions for Further Analysis

The conducted Spearman rank correlation analysis made it possible to identify relationships between the perception of artificial intelligence technologies, their perceived usefulness, organizational support, and employees' readiness to use them at work. At the same time, the obtained results indicate relatively weak relationships between AI-related variables and the level of job satisfaction.

However, correlation analysis only allows for the assessment of the strength and direction of relationships between variables and does not enable the determination of their relative predictive roles in explaining job satisfaction. Therefore, it is justified to conduct regression modeling in subsequent stages of the research, which would allow for the identification of factors that most strongly determine job satisfaction among SME employees.

In particular, it is advisable to estimate linear regression models in which the dependent variable would be the Job_satisfaction index, while the independent variables would include the indices constructed in the study: AI_Individual_Attitude, AI_Organizational_support, AI_perception, AI_usefulness, and AI_readiness. Including these variables in a regression model would make it possible to determine which psychological and organizational factors actually influence employees' job satisfaction.

Given the international nature of the study, it would be particularly valuable to estimate separate regression models for Poland and Italy. Such an approach would enable the identification of potential cross-country differences in the mechanisms shaping job satisfaction in the context of AI implementation. This analysis could deepen the understanding of how AI adoption affects occupational well-being among SME employees across different economic and cultural contexts.

8. Conclusion

The aim of the article was to analyze the relationships between employees' attitudes toward artificial intelligence technologies, their perceived usefulness, the level of organizational support, and readiness to use AI at work in the SME sector in Poland and Italy. The empirical study made it possible to identify significant relationships among the analyzed variables and to assess the role of psychological and organizational factors in the process of employee adaptation to new technologies.

The results of the correlation analysis indicate clear interdependencies between the perception of AI technologies, their perceived usefulness, and employees' readiness to use them in the workplace. The strongest relationship was observed between AI perception and readiness

for its use, confirming the importance of a positive evaluation of technology in the process of its organizational adoption. Strong relationships were also found between perceived usefulness and readiness to use AI, as well as between AI perception and its usefulness.

In relation to the research hypotheses, the results indicate that hypotheses H1 and H2 were confirmed, while hypothesis H3 was partially supported. This means that both a positive perception of AI technologies and the belief in their practical usefulness significantly increase employees' readiness to use these tools at work. Organizational support, in turn, shows a positive but moderate relationship with technology perception, suggesting its rather indirect role in shaping attitudes toward AI.

At the same time, no statistically significant relationships were found between AI-related variables and job satisfaction. This suggests that attitudes toward artificial intelligence do not constitute a direct predictor of job satisfaction, which may instead be more strongly influenced by organizational and social factors.

The comparative analysis of results obtained in Poland and Italy further indicates differences in the strength of relationships between the analyzed variables. In the Italian sample, the relationships between AI perception, perceived usefulness, and readiness to use the technology were clearly stronger than in the Polish sample, which may reflect greater consistency in attitudes toward new technologies among employees of Italian SMEs.

The findings point to the need for further research on the mechanisms of employee adaptation to artificial intelligence technologies, particularly in the context of organizational factors influencing job satisfaction. The application of regression models in future research stages could enable the identification of factors that most strongly determine employees' occupational well-being and deepen the understanding of the role of AI in the digital transformation processes of SMEs.

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References

1. Al Balushi, B.K.B., Jais, J. (2025). Impact of supervisory and organizational support on work-life balance and job satisfaction in manufacturing SMEs in Oman. *TPM: Testing, Psychometrics, Methodology in Applied Psychology, 32*(S8), 1756-1766. Retrieved from: https://www.tpmap.org, 06.03.2026.
2. Batool, F., Rafiq, M., Haider, G. (2025). AI-based reward system and job satisfaction: The mediating role of motivation. *International Journal of Management Research and Emerging Sciences, 15*(3), 47-72. https://doi.org/10.56536/ijmres.v15i3.795
3. Hauke, K., Perechuda, K. (2024). Sztuczna inteligencja w naukach o zarządzaniu i jakości – narzędzie czy paradygmat? *Zeszyty Naukowe Akademii Górnośląskiej*, *9*(21), 13-23. https://doi.org/10.53259/2024.09.02
4. Kaczkowska-Serafińska, M. (2025). Analiza porównawcza determinantów satysfakcji z pracy i nastawienia do zmiany wśród pracowników w Polsce i we Włoszech. *Zeszyty Naukowe Akademii Górnośląskiej, 28*(4), 78-87. https://doi.org/10.53259/2025.04.08
5. Kozakiewicz, P. (2025). AI w pracy specjalistów PR: od znajomości narzędzi i praktyki wykorzystania po emocje i kompetencje adaptacyjne – raport z badań. *Zeszyty Naukowe Akademii Górnośląskiej*, *36*(12), 147-158. https://doi.org/10.53259/2025.12.15
6. Leong, F.T.L., Li, X., Chen, E.M. (2025). The relationship between career adaptability and work engagement among young Chinese workers: Mediating role of job satisfaction and moderating effects of artificial intelligence self-efficacy and anxiety. *Behavioral Sciences*, *15*(12), 1-32. https://doi.org/10.3390/bs15121682
7. Malinowski, J. (2025). Identification and Assessment of Personnel Risk in SME – Theoretical and Research Perspective. *Optimum. Economic Studies, 2*(120), 283-298. https://doi.org/10.15290/oes.2025.02.120.14
8. Niedbał, R., Pytel-Kopczyńska, M. (2024). The prospect of AI using in shaping the employees' well-being. *Scientific Papers of Silesian University of Technology. Organization and Management Series, 196*, 345-356. https://doi.org/10.29119/1641-3466.2024.196.23
9. Roy, K., Swargiary, K. (2025). Transformational leadership, job satisfaction, and employee performance in Southeast Asian SMEs. *International Research Journal of Business Studies*, *18*(2), 253-270. https://doi.org/10.21632/irjbs.18.2
10. Schober, L., Stampfl, R., Geyer, B. (2025). Unlocking potential: The effects of knowledge databases on work performance and job satisfaction in SMEs. *The Electronic Journal of Knowledge Management*, *23*(2), 61-75. https://doi.org/10.34190/ejkm.23.2.3900
11. Siregar, Z.M.E., Lubis, T., Syamsuri, A.R., Siregar, D.I., Supriadi, Y.N. (2024). Job satisfaction as mediator in the effect of perceived organizational support on employee

engagement: Evidence from SMEs in Indonesia. *Journal of Applied Management, 22*(3), 767-782. https://doi.org/10.21776/ub.jam.2024.022.03.11

12. Szwajca, D. (2025). Trends and Dilemmas of Digital Transformation of SMEs in Selected OECD Countries. *Zeszyty Naukowe Akademii Górnośląskiej, 35*(11), 278-290. https://doi.org/10.53259/2025.11.26
13. Wu, W., Yang, Y., Yang, L., Su, L., Chen, Z. (2025). The inverted U-shaped relationship between AI and job satisfaction: Empirical evidence from China's CLDS microdata. *Emerging Markets Finance and Trade,* 1-16. https://doi.org/10.1080/1540496X.2025.2548427

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INTRA-GENERATIONAL DIVERSITY AMONG GENERATION Z REPRESENTATIVES – ANTECEDENTS OF POSITIVE AND NEGATIVE WORK EXPERIENCES

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Purpose: The aim of the study was to analyse the intra-generational variation among Generation Z representatives in terms of job crafting and to identify the relationship between the level of job crafting and positive and negative work experiences.
Design/methodology/approach: In order to address the hypotheses, set out in the article, a literature analysis and semi-structured interviews were conducted among Generation Z representatives.
Findings: The results of the study indicate intra-generational variation in the level and forms of job crafting among Generation Z representatives. Higher levels of job crafting fostered engagement, a sense of meaning and professional development, while a lack of organisational support increased the risk of overload and negative workplace experiences.
Research limitations/implications: This study is limited by its qualitative nature and the purposive sampling, which limits the possibility of generalisation of the results onto the entire population of Generation Z representatives. Despite these limitations, the study may inspire further analysis of intra-generational differences in relation to job crafting. In the future, it would be advisable to conduct research with a larger sample using quantitative methods and in-depth qualitative research, taking into account, for example, career stage or industry.
Practical implications: The research findings point to the need to create a work environment that fosters autonomy, competence development and relational support. Supporting job crafting activities can increase employee engagement, reduce overload and promote efficiency and job stability.
Originality/value: Research to date has mainly focused on intergenerational differences, while intra-generational variation is less recognised. The originality of the study consists in combining the concept of job crafting with an analysis of the intra-generational differentiation of Generation Z.
Keywords: Generation Z, job crafting, intra-generational differentiation.
Category of the paper: Research paper.

1. Introduction

Organisations are increasingly managing employees who represent up to four different generations simultaneously, adding to the complexity of human capital management processes. In recent years, Generation Z has become one of the emerging segments of the labour force. In many studies, Generation Z representatives are described as a relatively homogeneous cohort, characterised by high digital competence, innovation, need for flexibility, striving for work-life balance and sensitivity to psychological well-being issues (Oleksiak et al., 2019; Maj, Kasperek, 2020). Such an approach, however, leads to simplification, which in management practice may result in a mismatch between solutions and the real needs of employees.

The aim of this article is to identify and analyse the intra-generational variation of Generation Z representatives in terms of the ways they craft their work and the experienced positive and negative aspects of work. For the purposes of this study, the following hypotheses were formulated:

H1: Higher levels of job crafting in the area of structural resources are associated with higher levels of satisfaction, commitment and sense of purpose at work among Generation Z.

H2: Higher levels of job crafting in the area of social resources (feedback, relationships, support) are associated with more positive work experiences for Generation Z representatives.

H3: Limited opportunities to undertake job crafting activities are associated with higher levels of overload and negative work-related emotions among Generation Z.

H4: Lack of organisational support for job crafting increases the risk of negative work experiences.

2. Generation Z on the labour market

One of the criteria for classifying the different generations is demographics. Taking this into account, we can distinguish four basic categories of employees: 'Baby boomers', 'X', 'Y' and 'Z'. The temporal boundaries of a generation are not clearly established in the literature and vary according to the typology adopted. This article assumes, following other researchers (Bassiouni, Hackley, 2014; Hampton, Keys, 2017; Wiktorowicz, Warwas, 2016), that Generation Z includes people born in or after 1995. Generation Z is also referred to in the literature as Digital Natives, Multitasking (Generation M – multitasking), Connected Generation or Net Generation (Biernacki, 2014). Research on Generation Z often points to characteristics such as a high level of digital competence, an orientation towards rapid access

to information, greater sensitivity to issues related to psychological well-being and a need for flexibility in terms of time and place of work (Muster, 2020). They are characterised by their openness to dynamic, cross-border working environments and strongly personalised expectations of career and communication conditions, tailored to individual needs and preferences (Wawrzonek, 2023). Young people are mobile, multilingual and communicative, while at the same time they expect a high degree of autonomy, flexibility and the ability to craft their own time and place of work. Their propensity to change employment frequently is linked to labour market transformations, increasing individualisation of careers, flexibility and declining stability, as well as a limited willingness to conform to organisational demands over a prolonged time (Jankowiak, Czerwińska-Lubszczyk, 2024).

Generation Z is often treated as a homogenous segment requiring specific HR solutions such as flexible working, intensive feedback or development programmes (Schroth, 2019). The Oxford Economics report points to several characteristics of Generation Z representatives, singling out among them: agility (as the ease of absorbing information and the speed of response to emerging challenges); creativity; curiosity (as the willingness to use different forms of learning) (Oxford Economics, 2021).

Representatives of Generation Z show a willingness to combine values realised in their professional and private lives, treating career as an integral part of their lives. It is important for them to be able to pursue their passions (Piwowar-Sulej et al., 2025). They formulate expectations towards their employers that go beyond the aspect of remuneration and also include respect, a favourable working atmosphere, opportunities for development and effective use of their potential (Ławińska, Korombel, 2023).

The literature emphasises that Generation Z is not homogeneous but is characterised by an intra-generational variation due to different work experience, work status, career paths and individual and organisational resources (Benitez-Márquez et al., 2022; Scholz, 2019; Leslie et al., 2021). Work experiences can influence the fulfilment of work tasks, attitudes towards work or relationships in the work environment. Generational affiliation is not a clear explanation for differences in the quality of work experience. It is important to understand how Generation Z representatives actively co-create their working environment. This is the perspective presented by the concept of job crafting.

3. Job crafting – definition and meaning

The concept of job crafting refers to bottom-up, employee-initiated modifications to the way work is performed, the scope of tasks and the meaning given to them in order to increase job satisfaction and to make it more relevant to needs and abilities (Tims, Bakker, 2010; Oldham, Hackman, 2010). The term was introduced by Wrzesniewski and Dutton (2001), who pointed out that employees are not merely passive performers of work tasks, but active agents who co-shape their own work environment. In this view, work is an area of interaction between the demands of the job and the individual needs, values and competences of the employees. Researchers point to both organisational (e.g. level of autonomy, conditions conducive to innovation) and individual (e.g. propensity for proactive behaviour) determinants of job crafting (Kapica, Baka, 2021).

We can distinguish between different models of job crafting. The model developed by Wrzesniewski and Dutton (2001) assumes that employees craft their tasks (Task Crafting), interpersonal relationships (Relational Crafting) and the cognitive boundaries of their job role (Cognitive Crafting). By shaping their work experience, employees can increase the variety of tasks that make their work meaningful. In the area of interpersonal relationships, they can influence the quality and quantity of interactions. And the cognitive area of job crafting refers to the reinterpretation of its meaning and purpose (Berg et al., 2008).

The job crafting model proposed by Tims and Bakker (2010) captures job crafting as a process of modifying an employee's level of job-related demands and resources. The authors distinguished four basic forms of job crafting: increasing structural resources (e.g. competence development, increasing task variety, autonomy), increasing social resources (e.g. feedback, support), addressing professional challenges, and reducing impediments and excessive burdens. In this view, employees actively adapt their working environment to their needs and capabilities. Research shows a correlation between levels of job performance, job satisfaction or engagement (Rudolph et al., 2017).

The literature highlights various benefits following job crafting for both organisations and employees, which include: increased job engagement, job satisfaction, increased well-being, and an impact on employee productivity (Tims, Bakker, Derks, 2012; Boehnlein, Baum, 2020). The effectiveness of job crafting depends on the agency of employees, but also on the organisational culture of the business unit.

In the context of Generation Z, the job crafting strategy makes it possible to identify the adaptive diversity of young workers. Differences in the level of autonomy, access to feedback, quality of relationships with superiors/co-workers, or opportunities for professional challenges can lead to different development of human capital in an organisation. From a human capital perspective, job crafting is the process through which organisational conditions shape the experiences of workers. A high level of job crafting promotes resource accumulation and

strengthens commitment, while limited access to job modification opportunities can lead to frustration, overload and burnout. Thus, job crafting diversity may be a determinant of diversity within Generation Z.

4. Methodology

The study was qualitative and carried out in the form of semi-structured interviews. The choice of this method resulted from the exploratory nature of the research problem and the need for an in-depth analysis of the subjective experience of work and ways of shaping it among representatives of Generation Z. People belonging to Generation Z, defined as those born since 1995 and having any work experience, were qualified for the study.

The research tool was a proprietary interview questionnaire. It included questions on the dimensions of job crafting: crafting structural resources, shaping social resources, addressing challenges and reducing impediments to work. Interviews were conducted in the form of according to a semi-structured interview guide, with flexibility to expand selected themes. The interviews were recorded and transcribed and then coded based on the main theoretical categories. In a further step, a comparative analysis was carried out to identify the level (low, medium, high) and forms of job crafting.

The research sample consisted of 15 representatives of Generation Z, including eight women and seven men. Respondents represented diverse industries and forms of employment (employment contract – 9 people, civil law contracts – 6 people). Respondents were recruited by purposive sampling. Interviews were conducted between 15.12.2025 and 10.01.2026.

5. Results

The analysis of the results focuses on identifying the level and forms of job crafting among Generation Z representatives and their relationship to positive and negative work experiences. Table 1 presents the level of autonomy and structural resources at work among the Generation Z representatives surveyed.

Table 1.
Level of structural resources crafting

Level of job crafting	Statements
high	"Yes, I had quite a lot of freedom. I decided myself in which order I did the tasks and was able to suggest my own solutions if I saw that something could be done better."(A); "Working with people tends to be very individual, so apart from having to keep specific records of the work with the client, the way in which this work is done is to some extent arbitrary, so I can say that I am indeed in control"(C); "Yes, I have often proposed other solutions myself and they have sometimes been implemented."(I); "Yes, sometimes I have proposed other solutions myself and they have been implemented."(L); "The scope of work was clearly defined and the main objective was to meet the hourly standard of orders. Nevertheless, I was able to organise the pace of work to some extent on my own to achieve the required results."(M); "Yes, I have had the opportunity to influence the way I do my work myself. I positioned the products and ingredients in places that were convenient for me, which allowed me to prepare orders more quickly and efficiently."(N
limited	"I was able to propose my own solutions when it did not interfere with the work of the team."(H); "I was able to shape my working style, but not my scope of work."(K); "I could influence small things, like the way I organised my own work."(Ł)
low	"In theory yes, but in practice I was rather expected to do everything according to procedures. Any attempt at change was rather frowned upon."(B) "Rather not. I had a clear indication of what to do and how to do it."(E); "Not so much. The work was highly automated and everything was predetermined."(F); "Rather not, everything was planned in advance"(J).
low → high	"At the beginning I had no influence, but over time, as I gained confidence, I was already able to propose my own ideas" (D); "It was rigid at first, but then I started to suggest changes myself and found that the supervisor was open to them."(G)

Source: own elaboration.

Some respondents were characterised by a high level of job crafting, manifested in a real influence on the way tasks are performed and the ability to initiate change, which was associated with a sense of agency and a positive evaluation of their own professional work. For some respondents, autonomy was incremental - increasing with experience and trust of superiors, indicating the dynamic nature of job crafting. In contrast, those operating in highly formalised and automated environments experienced limited job crafting and a sense of lack of influence.

In the light of the findings presented above, hypothesis H1 is partially confirmed. Higher levels of job crafting in the area of structural resources are associated with more positive work experiences, but this relationship remains contingent on organisational context and the availability of real opportunities to influence work.

In the following section, the approach of Generation Z representatives in terms of shaping social resources was analysed. Table 2 presents the formation of relationships with superiors and colleagues.

Table 2.
Variation in the level of social resource formation.

Level of job crafting	Development of social resources	Relationships with superiors, colleagues
high	"Yes, I've tried to communicate my expectations clearly." (A); "Yes, I initiated conversations when disagreements arose."(D); "Yes, I encouraged the sharing of ideas."(H); "I was trying to build a good atmosphere in the team."(Ł); "I kept in touch with both foremen and people working in the same position as me. Communication within the team was not difficult and colleagues were helpful when problems arose." (M); "Yes, I have been taking steps to improve collaboration and communication within the team. I have tried to communicate clearly about the progress of the work, to offer more comfortable organisation of tasks and to help colleagues in more difficult moments."(N)	"I felt part of the team and had the feeling that we were all in the same boat."(A); "The supervisor was really interested in my development, not just my performance."(D); "The team helped me a lot when I started my work."(H); "The team was very close-knit."(Ł); "The atmosphere at work was normal and correct. The team was international, which was an interesting experience. The work was stressful at times, but relationships with my coworkers were good."(M); "Relationships with superiors and coworkers were good, there was mutual support. Coworkers helped me in more difficult moments and supervisors gave clear instructions and ensured a good working atmosphere."(N)
limited	"Sometimes, but rather informally." (B); "Relationships were satisfactory.(E)	"Co-workers were very helpful, but the relationship with the boss was rather cold."(B) "Relationships were satisfactory but quite superficial."(E)
low	"I currently have a close-knit team of colleagues, no matter who I am working with on any given day, the day passes in a pleasant atmosphere. As far as supervisors are concerned, I could expect more support and cooperation based on mutual respect and appreciation of efforts."(C); "There was a lack of openness in the team, everyone tended to look after their own interests."(F); "No, the communication was rather one-sided."(G); "Rather not – everyone worked separately."(I); "Rather not – I was concentrating on my work."(J); "I didn't have the space to change anything."(K); "Rather not – I stuck to my tasks and didn't get involved with the team."(L)	"I am not a conflict-prone person and I generally just try not to aggravate the situation if problems arise."(C); "No, I thought that was more the role of the supervisor."(F); "The relationship with the boss was correct, but rather formal."(G); "The supervisor often gave me feedback and was interested in how I was doing."(I); "The atmosphere was tense"(J); "Relationships were neutral, neither bad nor good.(K); "I felt I could make mistakes and learn without fear."(L)

Source: own elaboration.

About a third of the respondents were actively engaged in social job crafting, building cooperation and initiating communication. Low levels of activity were associated with neutral or formal relationships, often limited by organisational barriers. At the same time, isolated cases indicate that positive relationships can also occur when the individual's agency is low. The results obtained are consistent with the literature, which indicates that only some employees actively form relationships at work, while the rest function in an adaptive or withdrawn mode (Wrzesniewski, Dutton, 2001; Pichler, Kohli, Granitz, 2021).

Respondents with high levels of job crafting described the relationships as supportive and conducive to development, while those with low levels were more likely to function in conditions of formalised relations and limited support. This confirms hypothesis H2, according to which a higher level of job crafting is associated with more positive work experiences for representatives of generation Z. This is also confirmed by previous research by Hauk, Zwardoń-Kuchciak, (2025); Deci, Ryan, (2013).

Another dimension of job crafting analysed was taking on additional tasks and professional challenges, the results are presented in Table 3.

Table 3.
Taking on additional tasks as a manifestation of job crafting.

Level of job crafting	Statements
high	"The new challenges were a source of satisfaction for me."(A); "I took on extra tasks because I saw that I could learn something, and that motivated me a lot."(B) "The new projects made the work more interesting."(D); "Yes, because I wanted to show what I was capable of, and that motivated me a lot."(F); "New projects made the work less monotonous."(H); "The new challenges gave me a sense of moving forward."(K); "The extra tasks gave me satisfaction."(L); "When I had the opportunity to develop, I was more committed." (Ł); "Yes, the challenge was to perform above the standard, which was linked to the possibility of a bonus."(M)
limited	"Yes, there have been times when I have taken on additional tasks outside my formal job description."(N
low	"The nature of my work and the meticulous scrutiny of the ways in which I perform my duties does not provide opportunities for additional challenges, but I feel that I am an important part of the team."(C)
high → low	"I took on extra tasks, but without support this quickly became a burden."(E); "Over time, the excess of extra tasks made me lose energy to work."(G); "Over time, these additional responsibilities started to cause burnout."(I); "It was exciting at first, but then it turned into an overload."(J)

Source: own elaboration.

The analysis of statements regarding taking on additional tasks and challenges was associated with an increase in satisfaction, motivation and a sense of meaningful work. At the same time, the analysis revealed intra-generational variation. In the absence of adequate structural and social resources, the challenges led to overload and an energy loss. These results support hypothesis H1, indicating that the positive effect of undertaking challenges is conditional and dependent on the availability of resources. This is also confirmed by other studies (Kasprzak, Michalak, Minda, 2017).

To deepen the analysis of respondents' negative work experiences, the most frequently cited work burdens and impediments were juxtaposed with the organisation's responses to attempts to reduce them (Table 4).

Table 4.
The workload experienced and the organisation's response to attempts to reduce it

person	negative experiences	reaction of the organisation
A	"Lack of flexibility in working hours."	"I've been given more flexibility at work."
B	"Over-reporting."	"The reaction was rather indifferent."
C	"The most demotivating thing is unfair treatment from superiors/employers. This gives a sense of lack of support and makes it difficult to solve even small problems, because there is no one you trust to assess the situation correctly."	"It's hard to say whether there have been any reactions – the rule is that the superior is always right."
D	"Excessive control."	"The organisation was rather reluctant to change."
E	"The unclear communication within the team was very tiring."	"A meeting was held to discuss this."
F	"The lack of feedback meant that I didn't know if I was doing something right."	"I got more support after reporting problems."
G	"I found the lack of a clear development path very demotivating."	"The supervisor took the matter seriously."
H	"Lack of work-life balance."	"They said that I had to adapt."
I	"Lack of opportunity to express one's own opinion."	"I was listened to, but with no real follow-up."
J	"Lack of support in difficult situations."	"I have received real support."
K	"Too little feedback."	"Changes have only been partially implemented."
L	"Too few people in the team, too much work."	"Minor adjustments have been made."
Ł	"The feeling that my work doesn't matter."	"I have been given the tools to do a better job."
M	"The most taxing part was the physical fatigue associated with the nature of the warehouse work."	"The organisation took a neutral approach to these activities and allowed employees to organise their own work, as long as the standards were met."
N	"The most aggravating elements of the job for me were the fast pace and the heavy physical workload."	"The organisation responded positively – the shift managers were very supportive, joining in the work themselves, helping to allocate tasks and supporting the team."

Source: own elaboration.

Respondents whose attempts to change were met with indifference or resistance (B, C, D, H, I, M,) were more likely to experience feelings of lack of influence, frustration and helplessness. In contrast, in cases where the organisation provided real support or implemented changes (A, F, G, J, Ł, N), the negative effects of burden were clearly reduced. The results indicate that negative work experiences are not solely due to the level of demands, but to the relationship between workload and organisational support. These results provide support for hypotheses H3 and H4, indicating that low levels of job crafting and lack of organisational support foster an increase in overload and negative emotions among Generation Z representatives. This is also confirmed by the literature (Bednarska-Wnuk, 2018).

6. Conclusion

The aim of this article was to analyse intra-generational variation among Generation Z representatives in the context of job crafting and to identify the relationship between the level of job crafting and experienced aspects of work. The qualitative analysis carried out showed that the work experience of young workers is not homogeneous and cannot be explained solely by generational affiliation. The level of individual agency and the availability of organisational resources are crucial.

The high level of job crafting fostered engagement, a sense of meaningful work and development. Taking on challenges had a developmental function for employees, but only with the right organisational support. In the opposite situation, it could lead to a decrease in motivation and the inability to reduce work-related constraints could increase the risk of negative work experiences.

Research has shown that intra-generational variation in Generation Z, may result from the differences in the level of job crafting and organisational conditions in workplaces.

In the future, it seems reasonable to extend the research by using a larger research sample and employing quantitative methods, which would allow verification of the results obtained on a more representative population of Generation Z members. This could also be complemented by qualitative research, e.g. in the form of in-depth interviews, which would enable a better understanding of the motivations and ways in which Generation Z employees craft their work.

References

1. Bassiouni, D., Hackley, C. (2014). Generation Z Children's Adaptation to Digital Consumer Culture: A Critical Literature Review. *Journal of Customer Behaviour*, *13(2)*, 113-133, https://doi.org/10.1362/147539214X14024779483591
2. Bednarska-Wnuk, I. (2018). Job crafting w kreowaniu współczesnego środowiska pracy a wyzwania dla zarządzania zasobami ludzkimi. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, 512*, 26-35, https://doi.org/10.15611/pn.2018.512.02
3. Benitez-Márquez, M.D., Sánchez-Teba, E.M., Bermúdez-González, G., Núñez-Rydman, E.S. (2022). Generation Z within the workforce and in the workplace: A bibliometric analysis. *Frontiers in Psychology, 12, 736820,* https://doi.org/10.3389/fpsyg.2021.736820
4. Berg, J.M., Dutton, J.E., Wrzesniewski, A. (2008). *What is job crafting and why does it matter.* Retrieved from: https://www.researchgate.net/profile/Justin-Berg-4/publication/266094577_What_is_Job_Crafting_and_Why_Does_It_Matter/links/542a720d0cf27e39fa8e925c/What-is-Job-Crafting-and-Why-Does-It-Matter.pdf, 22.01.2026.

5. Biernacki, M. (2014). Social media – komunikacja ze studentami rachunkowości z pokolenia Z. *Folia Pomeranar Universitatis Technologiae Stentinensis, Oeconomica, 311(75)*2, 7-20.
6. Boehnlein, P., Baum, M. (2020). Does job crafting always lead to employee well-being and performance? Meta-analytical evidence on the moderating role of societal culture. *The International Journal of Human Resource Management, 33*(2), 1-39, https://doi.org/10.1080/09585192.2020.1737177.
7. Deci, E.L., Ryan, R.M. (2013). The importance of autonomy for development and well-being. In: B. Sokol, F.M.E. Grouzet, U. Muller (Eds.), *Self-regulation and autonomy: Social, developmental, educational, and neurological dimensions of human contact* (pp. 19-46), https://doi.org/10.1017/CBO9781139152198.005
8. Hampton, D., Keys, Y. (2017), Generation Z Students: Will They Change Our Nursing Classrooms? *Journal of Nursing Education and Practice, 7(4),* 111-115, https://doi.org/10.5430/jnep.v7n4p111.
9. Hauk, M., Zwardoń-Kuchciak, O. (2025). Cechy pracy a dobrostan zawodowy. *Human Resource Management/Zarządzanie Zasobami Ludzkimi*, *161*(2), 33-52, https://doi.org/10.5604/01.3001.0055.1977.
10. Jankowiak, N., Czerwińska-Lubszczyk, A. (2024). Pokolenia na rynku pracy-podejście teoretyczne. *Systemy Wspomagania w Inżynierii Produkcji, 13*(2), 123-134.
11. Kapica, Ł., Baka, Ł. (2021). Czym jest job crafting? Przegląd koncepcji teoretycznych dotyczących kształtowania pracy. *Medycyna pracy, 72*(4); https://doi.org/10.13075/mp.5893.01115.
12. Kasprzak, E., Michalak, M., Minda, M. (2017). Kwestionariusz kształtowania pracy–KKPracy. Polish adaptation of the tool. *Psychologia społeczna, 12(4),* 459-475, https://doi.org/10.7366/1896180020174308.
13. Ławińska, O., Korombel, A. (2023). Pokolenie Z jako wyzwanie współczesnego zarządzania przedsiębiorstwem. *Relacje, media społecznościowe, crowdsourcing*. Częstochowa: Wydawnictwo Politechniki Częstochowskiej, 18.
14. Leslie, B., Anderson, C., Bickham, C., Horman, J., Overly, A., Gentry, C. et al. (2021). Generation Z perceptions of a positive workplace environment. *Employee Responsibilities and Rights Journal, 33*, 1-17. https://doi.org/10.1007/s10672-021-09366-2
15. Maj, J., Kasperek, N. (2020). The Influence of Corporate Social Responsibility on the Attractiveness of Employers in the Perception of Generation Z. In: A. Michałkiewicz, W. Mierzejewska (Eds.), *Contemporary Organisation and Management* (pp. 241-251). Łódź University Press.
16. Muster, R. (2020). Pokolenie „Z" na współczesnym rynku pracy w opiniach pracodawców. *Humanizacja pracy*, *1*, 131-146.

17. Oldham, G.R., Hackman, J.R. (2010). Not what it was and not what it will be: The future of job design research. *Journal of Organisational Behavior, 31*(2-3), 463-479*,* https://doi.org/10.1002/job.678.
18. Oleksiak, P., Rogozińska-Pawełczyk, A., Cewińska, J., Lubrańska, A., Striker, M. (2019). *Pokolenia wobec wartości i zagrożeń współczesnych organizacji*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.
19. Oxford Economics (2021). *Gen Z's Role in Shaping the Digital Economy, Economic Consulting Team Oxford Economics*. Retrieved from: https://oeservices.oxfordeconomics.com/publication/open/349239, 22.01.2026.
20. Pichler, S., Kohli, Ch., Granitz, N. (2021), DITTO for Gen Z: A framework for leveraging the uniqueness of the new generation, *Business Horizons, 64*(6), https://doi.org/10.1016/j.bushor.2021.02.021.
21. Piwowar-Sulej, K., Bąk-Grabowska, D., Grzesik, K., Zając, C. (2025). *Kompetencje pracowników w kontekście współczesnych wyzwań zarządzania*. Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.
22. Rudolph, C.W., Katz, I.M., Lavigne, K.N., Zacher, H. (2017). Job crafting: A meta-analysis of relationships with individual differences, job characteristics, and work outcomes. *Journal of vocational behaviour, 102*(6), https://doi.org/10.1016/j.jvb.2017.05.008.
23. Scholz, C. (2019). The Generations Z in Europe – an introduction. In: C. Scholz, A. Rennig (Eds.), *Generations Z in Europe* (pp. 3-31). Bingley: Emerald Publishing Limited.
24. Schroth, H. (2019). Are you ready for Gen Z in the workplace? *California management review, 61*(3), https://doi.org/10.1177/0008125619841006
25. Tims, M., Bakker, A.B. (2010). Job crafting: Towards a new model of individual job redesign. *SA Journal of Industrial Psychology, 36*(2), 1-9, https://doi.org/10.4102/sajip.v36i2.841
26. Tims, M., Bakker, A. B., Derks, D. (2012). Development and validation of the job crafting scale. *Journal of vocational behaviour, 80*(1), 173-186, https://doi.org/10.1016/ j.jvb.2011.05.009.
27. Wawrzonek, A. (2023). Pokolenie Zet jako „wymagający gracz" współczesnego rynku pracy. *Studia Edukacyjne, 71,* 75-92, https://doi.org/10.14746/se.2023.71.5.
28. Wiktorowicz, J., Warwas, J. (2016). Pokolenia na rynku pracy. In: J. Wiktorowicz, J. Warwas, M. Kuba, E. Staszewska, P. Woszczyk, A. Stankiewicz, J. Kliombka-Jarzyna (Eds.), *Pokolenia – co się zmienia? Kompedium zarządzania multigeneracyjnego* (pp. 19-37), Warsaw: Wolters Kluwer.
29. Wrzesniewski, A., Dutton, J.E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of management review, 26*(2), 179-201, https://doi.org/10.5465/amr.2001.4378011

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CUSTOMER NEEDS ASSESSMENT – IN THE RECOMMENDATION OF THE PFSA CONCERNING INSURANCE DISTRIBUTION

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Purpose: The aim of this article is to present the obligation of insurance companies and their cooperating insurance distributors to assess customer needs under the current legal framework, to compare it with the principles set forth in the 2025 draft of the KNF's recommendations for insurance companies regarding insurance distribution, and to evaluate the impact of the proposed recommendations on insurance companies, cooperating insurance distributors, and customers.
Design/methodology/approach: The article was written using a legal-dogmatic approach.
Findings: The proposed changes highlight the need for insurance companies to take a proactive approach in identifying customers' current needs and requirements, thereby preventing the practice of trying to fit the customer to the insurance product rather than the other way around. These changes mean that assessing customer needs, which has often been treated merely as a formal obligation, will become a substantive obligation, the failure to fulfill which will be easy to prove. In the short term, the changes may increase the number of administrative sanctions imposed on insurance distributors and the number of civil claims filed by customers related to mis-selling. In the long term, however, they will result in a better match between products and customers, and thus in higher service quality, a better standard of advice, and greater trust in the financial sector.
Research limitations/implications: The limitations arising from the nature of the study were identified, and directions for further research were proposed.
Practical implications: The implementation of the draft will standardize the customer needs assessment process, which will increase compliance obligations for insurance companies and change the compensation model for insurance distributors.
Social implications: The implementation of the draft will help reduce the incidence of mis-selling in the sale of insurance policies, significantly improving the customer experience and boosting public confidence in the financial market.
Originality/value: To date, no academic study has been conducted comparing the assessment of customer needs and requirements as a tool for preventing mis-selling under the current legal framework with the Polish Financial Supervision Authority's (KNF) proposed recommendation for insurance companies regarding insurance distribution.
Keywords: customer needs assessment, mis-selling, insurance distribution.
Category of the paper: Research paper.

1. Introduction

The obligation to assess customers needs and requirements when concluding an insurance contract was introduced in 2018 by the Act of December 15, 2017, on Insurance Distribution, hereinafter referred to as the "U.D.U." (cons. text, Journal of Laws of 2026, item 12). The main objective of the aforementioned Act was to standardize customer protection regardless of the insurance distribution channel, and in particular to protect customers against so called mis-selling. The term "mis-selling" in insurance distribution refers to the offering of services that are not tailored to the needs and capabilities of customers, such as: financial situation, desired investment duration, customer age, acceptable risk level, and level of knowledge about the financial market. Mis-selling can occur both in the sales process and in marketing activities.

Although the obligation to assess customer needs is a noble idea, it has proven difficult to implement in practice both for insurance distributors (including insurance companies, insurance agents, agents offering supplementary insurance, and insurance brokers) and for customers. Insurance distributors had to establish procedures within their own companies to ensure that their employees and other entities cooperating with them in the course of their business activities would adhere to specific ethical standards of work in order to ensure proper fulfillment of the obligation. Customers, on the other hand, depending on the type of insurance distributor and distribution channel, received information about products of the same type at varying levels of detail, as neither the process nor the scope of information gathered during the needs assessment had been standardized.

In February 2025, a draft recommendation by the Polish Financial Supervision Authority (KNF) for insurance companies regarding insurance distribution, hereinafter referred to as the "draft," was submitted for public consultation. The draft aims to enhance the protection of customers' interests by ensuring uniform and consistent application by insurance companies of legal provisions regarding insurance distribution and by eliminating irregularities identified by the KNF related to the low value of the insurance products offered (KNF, 2025).

The aim of this article is to present the obligation of insurance companies and their cooperating insurance distributors to assess customer needs under the current legal framework, to compare it with the principles set forth in the 2025 draft of the KNF's recommendations for insurance companies regarding insurance distribution, and to evaluate the impact of the proposed recommendations on insurance companies, cooperating insurance distributors, and customers. The article was written using a legal-dogmatic approach.

2. Customer needs assessment at U.D.U.

The obligation of an insurance distributor to assess the customer's needs and requirements prior to concluding an insurance contract is regulated in Article 8(1) U.D.U. It is noted that this is a "new generation" obligation, as it provides the customer with personalized coverage, in contrast to the "previous generation" obligations which were informational in nature, formulated in general terms, and directed at the so called average consumer (Sokoli, 2025). The average consumer model assumes that the consumer is rational, well-informed and attentive (Wiewiórowska-Domagalska, Kunkiel-Kryńska, 2019). In the case of the financial market, characterized by a high degree of product complexity, it is difficult to assume that every consumer will thoroughly analyze an insurance contract proposal and draw rational conclusions from it. Therefore, when formulating new obligations, the legislature is increasingly moving away from the model of the average consumer toward the model of the vulnerable consumer, who is more susceptible to having their economic interests compromised by a professional and, consequently, requires broader legal protection (Mikłaszewicz et al., 2025). It can be assumed that the duty to assess the client's needs protects vulnerable consumers, as it shifts the burden of ensuring their interests from the client to insurance distributors (Szpurko, 2025).

The obligation to assess the client's needs provides a broader scope of protection than the consumer protection mentioned above, as the legislature used the term "client" in Article 8(1) U.D.U. Thus, protection is extended not only to the consumer that is, a natural person entering into an insurance contract with an insurance distributor, the subject of which is not directly related to their business or professional activity, but also to a client that is a company or a sole proprietorship.

Extending protection to all categories of customers and providing individualized protection for each customer represents a significant departure from other regulations. Prior to the introduction of the obligation to assess customer needs, since 2016 there has been only a general regulation protecting consumers purchasing financial services, contained in the Act of February 16, 2007, on Competition and Consumer Protection, hereinafter referred to as the "U.K.K." (cons. text Journal of Laws of 2025, item 1714). Pursuant to Article 24(2)(4) of the U.K.K., a practice infringing upon the collective interests of consumers is deemed to be offering consumers financial services that do not meet the needs of those consumers, as determined based on information available to the business regarding the characteristics of those consumers, or offering such services in a manner inconsistent with their nature.

This means that protection against mis-selling, as defined in this article, applies to consumers not in individual cases of infringement, but only when the infringement concerns the collective interests of consumers such as, for example, a poorly designed needs assessment survey. However, this does not account for situations where a single employee, in order to receive the highest possible bonus, engages in mis-selling with respect to customers purchasing

various insurance products, or with respect to customers who are not consumers, in order to avoid penalties. Given this definition of mis-selling, it was difficult for insurance distributors to establish procedures that would guarantee the identification of individual consumer needs. (Paduszyńska, 2019).

The introduction of the requirement to assess customer needs in U.D.U. was intended to address the aforementioned gap in the protection of individual customers; however, due to its vague wording, the practical implementation of this requirement raised doubts. Beyond the obligation to conduct such an assessment, the legislator merely points to the necessity of providing the client with objective information about insurance products in an understandable form to enable them to make an informed decision. Despite the importance of this obligation, the legislator does not specify the scope of the information to be provided to the client, nor does it outline how such an assessment should be conducted or how the process should be documented. U.D.U. also does not define the concepts of needs and requirements, leaving them open to interpretation by insurance distributors. It is indicated that, with respect to a specific client, a need should be understood as the primary value provided by a specific product, while requirements concern the product's parameters and the manner in which it will be used (Serwach, 2019).

It is worth noting the significant differences between insurance distributors. An insurance company may require its own employees to assess a client's needs according to a specific procedure. However, in the case of insurance agents and brokers, the matter is not so straightforward. In the case of an insurance agent, the insurance company may specify in the agency agreement the procedures for assessing the client's needs that the agent must follow. It should be emphasized, however, that an insurance agent is an independent entrepreneur who, pursuant to Article 760^1 § 1 of the Act of April 23, 1964, Civil Code, must follow the instructions of the principal—in this case, the insurance company—that are reasonable under the circumstances (cons. text, Journal of Laws of 2025, items 1071, 1172, 1508).

Therefore, it is possible that an insurance agent will apply their own procedures for assessing the client's needs, especially in the case of a multi-insurer agent who offers products from at least two insurance companies within the same line of business. In the case of an insurance broker, pursuant to Article 32(1)(4) U.D.U., they have a statutory obligation to conduct a thorough analysis of insurance products available on the market in sufficient numbers to develop a recommendation for the most appropriate policy. However, since an insurance broker acts on behalf of the client, no insurance company may impose a client needs assessment procedure on the broker.

The aforementioned concerns and the irregularities identified in the market prompted the Polish Financial Supervision Authority (KNF) to draft a proposal, which is discussed in more detail below.

3. Customer needs assessment in the draft

In the draft, the supervisory authority proposed a number of measures to address irregularities in the conduct of customer needs assessments; due to the length of this article, we have limited ourselves to discussing the most important ones.

The draft specifies that the insurance company is responsible for the conduct, form, and documentation of the customer needs analysis, referred to as "APK" for short[1]. At the same time, it stipulates that the insurance company is obligated to supervise insurance agents with regard to the performance of the APK[2]. The draft does not address how an insurance broker should conduct the APK.

It was initially established that an insurance company should inform the customer of the consequences of failing to provide information or providing information that is inconsistent with the facts[3]. In the past, the consequences of failing to conduct the APK were debated in legal scholarship. Doubts were raised regarding the practice of insurance distributors presenting customers with standard forms for waiving the APK to sign (Kucharski, 2020). It was pointed out that a customer's refusal to complete the APK should be an exception, not the rule. It was emphasized that such a refusal could pertain both to answering a question regarding a specific circumstance e.g., due to the need to disclose sensitive data and to refusing to complete the entire APK, e.g., due to lack of time (Kucharski, 2020). Furthermore, it was noted that assessing the client's needs and requirements is in the client's best interest, and therefore the client's informed decision not to undergo this assessment, even though it may be disadvantageous to them, is permitted (Orlicki, 2019).

The draft stipulates that the inability to identify a customer's needs prior to entering into a contract for example, due to a refusal to provide information precludes the presentation of a proposal to enter into an insurance contract[4]. The minimum scope of information has also been specified, that an insurance company must obtain as part of the APK. This includes: the circumstances for which the customer wishes to be covered; the expected sum insured; and any specific characteristics or circumstances of the customer, in order to assess whether they limit the insurance company's liability[5]. However, an insurance company may offer an insurance contract only if the customer belongs to the target group, or, if the customer does not belong to that group, only if the APK indicates that the product is suitable for the customer[6]. It can be presumed that, before offering a contract, the insurance company will also obtain from the customer the information necessary to verify whether the customer belongs to the target group for the product in question.

[1] Recommendation 10.
[2] Recommendation 18.
[3] Recommendation 10.1 and 10.2.
[4] Recommendation 10.10.
[5] Recommendation 10.8.
[6] Recommendation 11.1.

At the same time, the draft specifies the procedure to be followed if the APK reveals that none of the insurance products in the portfolio meet the customer's needs, or if several products are suitable for the customer's needs and requirements. In the absence of a suitable insurance product, the insurance company may not offer the customer a contract[7]. This solution is intended to prevent the insurance company from proposing alternative insurance products that are only partially suitable, which, given the authority and professionalism of the insurance company, may lead the customer to believe that since they have received a proposal to enter into a contract, it fully meets their requirements and needs. However, if the insurance company determines that several insurance products are suitable for the customer's needs, it is obligated to present them to the customer, clearly outlining the differences[8].

To avoid the appearance of conducting a risk assessment without actually analyzing the client's needs merely for the purposes of regulatory oversight or potential litigation the draft explicitly lists the circumstances that do not constitute a risk assessment. These include, among others, a customer statement certifying that the insurance company has obtained the information necessary for the APK, the submission of an insurance application, or the fact that an insurance contract has been concluded[9].

The draft does not specify the form in which the APK is to be conducted, but it does establish an obligation to document the conducted APK in a manner that ensures the preservation of the information and data obtained by the insurance company[10]. It is emphasized that the collected documentation is intended to allow the insurance company to reconstruct the process[11]. The retention period for the documentation is also specified until the statute of limitations expires for claims arising from the concluded insurance contract[12].

To ensure that insurance agents and their employees also comply with the proposed recommendations, insurance companies have been required to include provisions in their agency agreements that allow for verification of the insurance agent's compliance with the rules for conducting and documenting APK as recommended by the insurance company[13]. Since not all agents personally perform distribution activities, to ensure that their employees properly fulfill APK related duties, insurance companies have been required to use only those agents who supervise the performance of activities by OFWCAs (natural persons performing agency activities).

The draft does not address the situation where an insurance company distributes products through a multi-agent. Differences may arise in the recommended methodology for conducting APKs among various insurance companies, e.g. regarding the information collected. Therefore,

[7] Recommendation 11.2.
[8] Recommendation 11.4.
[9] Recommendation 10.20.
[10] Recommendation 10.17.
[11] Recommendation 10.19.
[12] Recommendation 10.22.
[13] Recommendation 18.3 and 18.4.

a multi-agent wishing to fulfill the obligations related to conducting APK for the insurance companies it represents will, in extreme cases, have to perform several APKs before proposing specific products to a client. It appears that in such a case, the multi-agent will be required to develop an internal procedure allowing for the conduct of its own preliminary APK to narrow down the number of products, and then conduct separate APKs in accordance with the rules of the selected insurance companies.

4. Conclusions and practical and social implications of the draft's implementation

If the draft were to take effect in its current form, it would help reduce the scale of mis-selling in the conclusion of insurance contracts, thereby significantly improving the customer's situation. The proposed solutions clearly indicate the need for insurance companies to take a proactive approach in identifying the customer's current needs and requirements, preventing the practice of matching the customer to the insurance product rather than the other way around. These changes mean that the APK, which has often been treated as a mere formality, will become a substantive obligation, the failure to fulfill which will be easy to prove. The importance of the APK is underscored by the exhaustive list of circumstances that cannot be considered a proper conduct of the APK, which prevents the mere appearance of fulfilling the obligation.

The most significant change is the prohibition on offering insurance contracts to customers without first conducting a risk assessment based on up to date information and documenting the risk assessment process. This change benefits the customer because, if there is no insurance product suitable for their needs and requirements, they will not receive an ill-fitting product that creates the illusion of coverage. The obligation to update data will also eliminate situations where suitability or unsuitability is based on historical data. This change may also be beneficial for the insurance company, as if a client initiates legal proceedings due to an unsuitable insurance contract, a documented APK can help the insurance company discharge itself from liability by demonstrating the data on which it based its decision to offer the product.

The draft's prohibition on offering insurance contracts that do not meet the customer's requirements and needs should be expanded to include a mandatory requirement to inform the customer of the reasons for refusing to offer a contract, in order to minimize the risk of an insurance gap. This could allow some customers to verify the feasibility of the requirements they set for an insurance product such as those involving a very high sum insured with a disproportionately low premium and, as a result, to align their expectations with market realities.

It is advisable to specify the minimum scope of information that an insurance company is required to determine as part of the APK. Standardizing the scope of information collected under the APK to this minimum extent appears to be a reasonable compromise between the need to obtain necessary information and the burden of the obligation on the customer. For simple, standard insurance products, this minimum scope of information helps prevent mis-selling without overburdening the customer with paperwork. However, for more complex products, the insurance company may freely expand the list of questions within the scope of the APK.

From the perspective of insurance companies and other insurance distributors, formalizing the APK procedure will impose new obligations and create new risks. The draft stipulates that the insurance company is responsible for the conduct, form, and documentation of the APK, and obligates it to supervise agents in this regard; however, it does not specify which entity bears responsibility for the mismatch between the insurance product and the client's needs and requirements due to an incorrectly conducted APK. Resolving this issue is particularly important in the case of multi-agent insurance brokers, who, by the nature of their business, will use different APK procedures.

It is difficult to predict the scale of refusals to present a contract proposal due to the lack of an insurance product in the portfolio that meets the client's needs and requirements. It appears that if this phenomenon becomes widespread, the new rules governing the conduct of the APK may lead to changes in the remuneration policies for insurance distributors to account for the completion of a needs and requirements assessment that does not result in an offer being presented. It may also create a temptation to formulate APK questions in such a way that the insurance product is suitable for as many customers as possible.

5. Summary

The concept of a personalized assessment of a client's needs and requirements is highly significant and necessary in light of the decline in trust in the financial market in recent years. The draft fills gaps in the law by addressing issues that are controversial in legal doctrine, although it does not resolve all uncertainties. For instance, the draft does not address the consequences of an erroneous APK on the validity of an insurance contract, does not separately regulate automated APK, nor does it account for a client's deliberate waiver of APK. It must be acknowledged, however, that the proposed standardization of APK rules, as well as making its superficial implementation more difficult, enhances client protection against mis-selling. It is important to exercise caution here so as not to cross the line between ensuring customer safety through the use of standard APK procedures and the possibility of their individual adaptation, as excessive formalization may lead to the creation of an insurance gap.

From the perspective of insurance companies, the implementation of the bill will lead to higher compliance costs due to the standardization and formalization of APK processes, and will also change the compensation model for insurance distributors working with them. It will also generate new risks related to liability for improperly conducted APK, which in the short term may increase the number of administrative sanctions imposed on insurance companies and civil disputes with customers regarding mis-selling. In the long term, however, these changes will result in better product customer matching, and thus higher service quality, improved advisory standards, and greater trust in the financial sector.

From the perspective of insurance distributors working with insurance companies, the most significant changes will affect multi-agency insurance brokers. To reliably fulfill their APK obligations toward all the insurance companies they represent, they will need to develop internal procedures allowing them to conduct their own preliminary APK to narrow down the number of products, and then conduct separate APKs in accordance with the rules of the selected insurance companies. This may result in a longer APK process, thereby discouraging clients from using their services, as well as a higher number of errors leading to the multi-agent's civil liability. For insurance agents, the greatest risk will be the shift from a quantity based to a quality based compensation model, as well as insurance company recourse claims arising from mis-selling. The smallest changes will affect insurance brokers, who, under the current legal framework, are required to conduct an in depth analysis of the client's needs and requirements to prepare a brokerage proposal. Therefore, the entry into force of the draft legislation will not result in significant changes to their operations.

With regard to customers' situations, the implementation of the project will reduce the risk of mis-selling and improve the alignment of products with customers' needs. Thanks to the standardized APK documentation process, customers will have a stronger legal position in the event of a dispute with an insurance company. At the same time, excessive formalization may cause frustration among some customers and lead them to opt out of purchasing voluntary insurance policies. In the short term, changes to the APK process may lead to higher prices for insurance products, which could widen the insurance gap. In the long term, however, this is likely to result in the elimination from the market of insurance products that do not meet customer needs and their replacement with new, more appropriate products. The concept of an in depth APK can also be viewed positively from the perspective of increasing customers' financial literacy, as they can verify their own insurance requirements and needs by analyzing the questions.

Since the draft recommendation is still in the consultation phase with market participants, changes to its content cannot be ruled out. It is also worth noting that recommendations are acts of so called "soft law," also referred to as "soft law with hard effects" (Maśniak, 2015). They are applied in accordance with the "comply or explain" principle, which means that if an insurance company does not intend to comply with the recommendations, it must inform KNF of this fact, indicating how it intends to achieve the objectives for which the KNF issued

the recommendations. This means that insurance companies may apply their own legal solutions to achieve the objectives of the recommendations. In light of the above, it should be proposed that, in view of the doubts raised, the legislature clarify Article 8 U.D.U., which should serve as a starting point for further analysis.

References

1. Act of April 23, 1964, Civil Code (consolidated text, Journal of Laws of 2025, items 1071, 1172, 1508).
2. Act of December 15, 2017, on Insurance Distribution (consolidated text, Journal of Laws of 2026, item 12).
3. Act of February 16, 2007, on Competition and Consumer Protection (consolidated text Journal of Laws of 2025, item 1714).
4. KNF (2025). *Projekt rekomendacji KNF dla zakładów ubezpieczeń dotyczący dystrybucji ubezpieczeń.* Warszawa.
5. Kucharski, B. (2020). O rezygnacji z analizy wymagań i potrzeb klienta w dystrybucji ubezpieczeń. *Prawo Asekuracyjne*, *nr 2(103)*, pp. 25-26, 32-33.
6. Maśniak, D. (2015). Rekomendacje i wytyczne KNF – dialog nadzorowany, czyli „miękkie prawo" z twardym skutkiem. *Prawo Asekuracyjne, nr 2(83)*, p. 3.
7. Mikłaszewicz, P., Dybiński, J., Jakubowski, A., Orzeł-Jakubowska, A. (2025). In: W. Borysiak (eds.), *Kodeks cywilny. Komentarz*, *wyd. 34, art. 221*. Retrieved from: https://sip-1legalis-1pl-100000dg801ba.han.wsb.poznan.pl/document-full.seam?documentId=mjxw62zogi3danjqg4zdoojoobqxalrxha4toobzgi4a&refSource=guide&legalActDocumentId=mfrxilrsgm4tanjoobqxalrrga3doojtgyzc45tfoixdembtga3a, 18.01.2026.
8. Orlicki, M. (2019). Analiza potrzeb klienta – rzeczywista czy pozorna? *Prawo Asekuracyjne, nr 2(99)*, p. 33.
9. Paduszyńska, M. (2019). Misselling jako nadużywanie zaufania klienta na rynku finansowym, *Annales. Ethics in Economic Life, Vol. 22, No. 3*, p. 50.
10. Serwach, M. (2019). Ustawowy obowiązek oceny potrzeb i wymagań klienta w ubezpieczeniach odpowiedzialności cywilnej. *Prawo Asekuracyjne, nr 2(99)*, p. 38.
11. Sokoli, E. (2025). Obowiązki eksploracyjno-doradcze – drugi poziom ochrony konsumenta. In: K. Południak-Gierz, P. Tereszkiewicz (eds.), *Umowa ubezpieczenia. Nowe technologie i prawo konsumenckie*, *rozdz. II § 2 pkt I*. Retrieved from: https://sip-1legalis-1pl-100000dg801ba.han.wsb.poznan.pl/document-full.seam?documentId=mjxw62zogi3danbzgu3domrogeyc4mroge&refSource=tocbook, 18.01.2026.

12. Szpurko, N. (2025). Postawy agentów i OFWCA wobec obowiązku przeprowadzania analizy potrzeb i wymagań klienta – badanie jakościowe. *Prawo Asekuracyjne, nr 2(123)*, p. 114.
13. Wiewiórowska-Domagalska, A., Kunkiel-Kryńska, A. (2019). In: K. Osajda (eds.), *Ustawa o przeciwdziałaniu nieuczciwym praktykom rynkowym*, *wyd. 1, art. 2*. Retrieved from: https://sip-1legalis-1pl-100000d1f0d81.han.wsb.poznan.pl/documentfull.seam?documentId=mjxw62zogi3damrsgyydgnboobqxalruga2dsnbsha3q&refSource=toc#srodtyt9, 15.01.2026.

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CSR UNDERSTANDING, ATTITUDES, AND ENGAGEMENT AMONG HR EMPLOYEES

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Purpose: The aim of the article is to explain how the attitude and understanding of the essence of corporate social responsibility (CSR) by HR employees affect the actions they take in this area – engaging in and initiating CSR activities in the organization.
Methodology: An original survey questionnaire was developed, aimed at identifying how the company's responsibilities are perceived, determining the degree and form of respondents' engagement in CSR, and their perception of workplace conditions. The survey was conducted among 46 employees of HR departments. The analysis was carried out using linear regression.
Findings: The results suggest that the extent to which ethical values are embedded in the way CSR is understood significantly differentiates respondents' attitudes: individuals with well-established normative beliefs are more inclined to engage in CSR programs offered by the employer. At the same time, they are less inclined to undertake their own CSR initiatives within the organization.
Research limitations/implications: The study is constrained by the relatively small, purposively selected sample. Furthermore, engagement in CSR and the promotion of CSR‑related attitudes are inherently polymotivational phenomena and may be influenced by a range of individual, situational, social, and cultural factors operating at both the individual and organizational levels. These limitations underscore the need for further research into the microfoundations of CSR.
Practical implications: The analyses show that how CSR is understood strongly shapes related actions. Involving HR in CSR implementation requires allowing initiative and building CSR awareness among both beneficiaries and initiators. The results also indicate a spillover of CSR-related behaviors from private to professional life, suggesting implications for workforce planning, recruitment, and employee development.
Originality: The research indicates the importance of the way CSR is understood as a key factor differentiating an individual's motivation to engage in CSR in the workplace.
Keywords: corporate social responsibility, CSR initiation, engagement in CSR activities, HR department, attitude toward CSR.
Category of the paper: research paper.

1. Introduction

Strengthening HR's role as a strategic business partner requires a deeper understanding of organizational expectations and challenges. The growing importance of Corporate Social Responsibility (CSR), sustainable development, and ESG (environmental, social, governance) reporting creates new demands for HR. As shapers of organizational culture, HR departments can support transformation by embedding values into HR procedures and by using internal communication and training. A key challenge for both scholars and practitioners is clearly defining CSR and ESG (Dahlsrud, 2008; Meyer, Murray, 2022). Research shows these socially constructed concepts are interpreted and implemented differently across organizations.

This article examines how HR employees' attitudes toward and understanding of CSR influence their CSR-related actions, including engagement and initiative. A study was conducted among 46 HR staff. The first part outlines the HR–CSR relationship, emphasizing HR's role in implementing CSR. The next part presents the research methods and linear regression results, followed by a discussion of the findings, their implications for management practice, and a conclusion.

2. The Role of HR in Implementing the CSR Strategy

The growing pressure to engage in CSR stems from a crisis of trust in business, rising stakeholder expectations, and new regulations, including mandatory ESG reporting (Polish ESG Association, IBRIS, Quality Watch, 2024). Although HR is seen as crucial, its potential in supporting CSR remains underused. One reason is HR's position in organisations, as senior management does not always treat it as a true business partner. In many organisations, CSR is linked mainly to compliance and risk management, and thus is not viewed as strategic (Stahl et al., 2020). Research also shows that HR directors, striving to be seen as strategic advisors, often overlook CSR and sustainability, delegating these areas to communication and external relations departments. Sarvaiya, Ewje, and Arrowsmith (2018) note that the role of HR in CSR depends, on the one hand, on the internal recognition and competences of the HR department and, on the other hand, on the organisational culture. In organisations where the HR department has a strong position and possesses knowledge in the field of sustainable development, it becomes a leader of change, implementing sustainable people management practices and setting directions for linking strategic goals with social goals. In companies where HR is perceived only as an administrative function, CSR initiatives are usually led by other departments (e.g., PR, marketing) and do not permeate people management practices. Although the literature includes publications on employee involvement in CSR (Mirvis, 2012), studies

directly aimed at identifying the motivations and engagement of HR specialists are rare. Parkes and Davis (2013), in their study of HR professionals in the United Kingdom, found that although respondents understand the role of HR in promoting ethics and CSR, they often do not fulfil this responsibility. They more frequently identify with the role of "ethical guardians" while at the same time pointing to barriers that hinder the realisation of this role, such as conflicts between business and ethical roles. As a consequence, despite awareness of misconduct, they often remain silent witnesses to unethical practices. Research conducted in Poland confirms that HR professionals view CSR in terms of ethical values, while at the same time expressing a strong belief in the rightness of CSR activities, regardless of the benefits (or lack thereof) for the company (Klimkiewicz, Staszkiewicz, 2022). This normative notion of CSR, which implies that companies internalize CSR values in terms of obligation and compliance with social values and norms (Basu, Palazzo, 2008), seems significant for determining the individual's participation in CSR related activities.

3. Methods

A study was conducted among 46 participants employed in positions related to the HR function. Data were collected between March and April 2022. A purposive sampling strategy was applied. Participants were intentionally selected as HR specialists, ensuring relevance to the study objectives. Data were collected using a structured survey questionnaire administered in paper form; questionnaires were distributed directly to the respondents and completed on paper. The analysis was aimed at verifying the following hypotheses:

H1. Individual normative perception and privet engagement in CSR, as well as perception of the workplace characteristics, jointly account for a significant proportion of the variance in the level of HR employees' involvement in CSR activities in the workplace.

H2. Individual perception and privet engagement in CSR, as well as perception of the workplace characteristics, jointly account for a significant proportion of the variance in the level of initiation of CSR activities by HR employees in the workplace.

The respondents held various HR-related positions in enterprises and had differing levels of professional and managerial experience. Data were self-reported and collected anonymously to improve response reliability. The questionnaire included questions on attitudes, beliefs, and perceived opportunities for action in CSR. The analysis covered the following variables:

– Engagement in pro-social and environmental activities in the workplace – this scale comprised two indicators assessing respondents' engagement in CSR activities initiated by the organization.

- Initiation of pro-social and environmental activities in the workplace – this scale comprised two indicators assessing respondents' initiative in implementing CSR activities.
- Normative understanding of CSR – this scale comprised four indicators challenging CSR principles (e.g., acceptance of unfair or unlawful practices) and was reverse-coded so that higher scores indicate stronger internalization of normative corporate obligations.
- Engagement in CSR in private life – this scale comprises seven indicators reflecting the importance of sustainable development and CSR in respondents' everyday lives, including attitudes, consumption choices, and personal engagement.

Given the specific nature of HR work, the possibilities for initiating social and environmental activities in this role were analysed separately, using the following indicators:

- Assessment of the possibilities of initiating activities for the natural environment in the position held.
- Assessment of the possibilities of initiating prosocial activities in the position held. All of the above variables were measured using a five-point Likert scale (1 – strongly disagree, 5 – strongly agree).

Data were analyzed using PS Imago Pro 10.0 based on total scale scores. Listwise deletion was applied, so only complete cases were included: 43 individuals in the first model and 45 in the second.

4. Results

The study included 46 participants, 6 men, and 40 women. The sample was dominated by middle-aged individuals with varying levels of work experience. Most of the respondents in the studied group worked in large and very large enterprises (Table 1). The largest proportion of respondents reported employment in the manufacturing sector, while other represented sectors included public administration, services, IT, sales, and finance and accounting. Nearly 60% of respondents had no managerial experience, whereas 40% were currently holding or had previously held managerial positions.

Table 1.
Characteristics of the research group

Variable	Category	N	Percentage share
Gender	Men	6	13%
	Women	40	87%
Age [years]	18–25	2	4,3
	26–30	14	30,4%
	31–35	10	21,7%
	36–40	10	21,7%
	41–45	8	17,4%
	46–50	1	2,2%
	50+	1	2,2%
Tenure [years]	<1	0	0
	1–3	4	8,7%
	3–5	9	19,6%
	5–7	6	13,0%
	7–10	8	17,4%
	10–15	12	26,1%
	15–20	3	6,5%
	20+	4	8,7%
Company size [number of employees]	Micro (1–9)	1	2,2%
	Small (10–50)	3	6,5%
	Middle (51–249)	7	15,2%
	Big (250–1000)	13	28,3%
	>1000	21	45,7%

Source: Own elaboration

First, a descriptive analysis was conducted. Table 2 presents the statistics for both models.

Table 2.
Descriptive statistics for the variables under study

	Model 1		Model 2	
Scales	**Mean [N=43]**	**Standard deviation [N=43]**	**Mean [N=44]**	**Standard deviation [N=44]**
Engagement in pro-social and environmental activities in the workplace [CSR ENGA]	3.27	1.26		
Initiation of pro-social and environmental activities in the workplace [CSR INITIATIVE]			3.02	1,22
Normative understanding of CSR [CSR normative]	3.27	1,69	3.35	1,68
Engagement in CSR in private life [CSR private]	3.12	0.91	3.16	0,84
In the position I work in, I can undertake pro-social activities [WORK soc]	3.16	1.43	3.20	1,41
In the position in which I work, I can take actions to reduce the organization's impact on the natural environment [WORK environment]	2,91	1,39	2,91	1,41

Source: Own elaboration

In the next step, a correlation analysis was carried out (Table 3).

Table 3.
Correlations of variables for Model 1 and Model 2

		[CSR INITIATIVE]	[CSR normative]	[CSR private]	[WORK environment]	[WORK soc]	[CSR ENGA]
Model 1	[CSR ENGA]		0.522** N=43	0,382** N=43	0,157 N=43	0,524** N=43	1,000
	[CSR normative]		1,000	0,300* N=43	-0,254* N=43	0,535** N=43	0,522** N=43
	[CSR private]			1,000	0,222 N=43	0,229 N=43	0,382** N=43
	[WORK environment]				1,000	0,211 N=43	0,157 N=43
	[WORK soc]					1,000	0,524** N=43
Model 2	[CSR INITIATIVE]	1,000	-0,368** N=45	0,195 N=45	0,405** N=45	0,106 N=45	
	[CSR normative]		1,000	0,324* N=45	-0,250* N=45	0,525** N=45	
	[CSR private]			1,000	0,176 N=45	0,161 N=45	
	[WORK environment]				1,000	0,184 N=45	
	[WORK soc]					1,000	

Note. **p < 0,01 (two-tailed), *p < 0,05 (two-tailed).

Source: Own elaboration.

The correlation analysis shows that in Model 1, employer-proposed CSR engagement is positively correlated with a normative understanding of CSR, CSR engagement in private life, and a positive assessment of opportunities for prosocial actions at work. A negative correlation appears between the normative understanding of CSR and perceived opportunities to act for the natural environment in one's current position: the stronger respondents' normative CSR beliefs, the less they see chances to reduce environmental harm in their role. In Model 2, a higher assessment of opportunities to reduce negative environmental impact is correlated with greater CSR initiative. However, normative perceptions of CSR are significantly and negatively correlated with such initiative, suggesting that viewing CSR primarily in normative terms reduces one's own CSR initiative.

To test H1, a linear regression analysis was conducted. The model was statistically significant, $F(4, 38) = 6.87$, $p < .001$, and explained 42.0% of the variance in CSR engagement ($R^2 = .420$, adjusted $R^2 = .358$). Although the predictors jointly accounted for a significant proportion of variance in the level of engagement in CSR activities proposed by the employer, only one variable reflecting a normative understanding of CSR emerged as a statistically significant predictor: unstandardized coefficient $b = 0.282$ ($SE = 0.129$), standardized coefficient $\beta = 0.379$, $t = 2.181$, $p < .05$. The remaining predictors did not reach the required level of statistical significance, but were included in the model with positive signs. The regression diagnostics did not indicate any violations of the key assumptions. The VIF values for the predictors ranged from 1.23 to 1.97, which falls within acceptable limits for assessing multicollinearity. Similarly, the Durbin–Watson statistic (DW = 1.76) lies within

the acceptable range (1.5–2.5), confirming the absence of substantial autocorrelation of residuals.

The second model, testing H2, was also statistically significant, $F(4, 40) = 6.248$, $p < .001$, with an explained variance of $R^2 = .385$ (adjusted $R^2 = .323$). In contrast to the previously tested model, in Model 2 a larger number of independent variables emerged as significant predictors of CSR initiative-taking. As in Model 1, the variable Normative understanding of CSR was a significant predictor, but in Model 2 the direction of the relationship was negative: unstandardized coefficient $b = -0.461$ (SE = 0.127), standardized coefficient $\beta = -0.633$, $t = -3.643$, $p < .001$. This indicates that a normative understanding of CSR is a factor that reduces initiative aimed at undertaking CSR-related activities in the workplace. Two further variables that significantly explained the initiation of CSR activities were Private engagement in CSR, $b = 0.463$ (SE = 0.199), $\beta = 0.320$, $t = 2.321$, $p < .05$, and Positive evaluation of the opportunities to undertake prosocial activities in one's position, $b = 0.317$ (SE = 0.138), $\beta = 0.364$, $t = 2.288$, $p < .05$. At the stage of correlation analysis, the variable related to the evaluation of opportunities to undertake prosocial activities at the workplace did not show a significant correlation with the dependent variable; however, in the regression analysis it turned out to be a significant positive predictor, which may indicate a suppression effect. This refers to a situation in which a predictor increases the predictive validity (regression weight) of another variable by removing noise, even if the suppressor itself has a low correlation with the dependent variable (Cohen et al., 2013). The regression model diagnostics did not reveal violations of the key assumptions. The VIF values for the predictors ranged from 1.24 to 1.96, and the Durbin–Watson statistic (DW = 2.16) fell within the acceptable range. In contrast, the factor reflecting perceived opportunities to reduce negative environmental impact at work, although significantly positively correlated with the dependent variable, did not reach statistical significance in the full model. The analyses confirmed both hypotheses but also revealed important differences between the models.

5. Discussion

The findings reveal two distinct psychological mechanisms underlying HR professionals' engagement in the domain of CSR. A normative understanding of CSR fosters involvement in activities initiated by the organization, while at the same time being associated with a lower propensity to proactively initiate one's own activities. This indicates that normative knowledge and motivation strengthen prosocial values but differentiate their translation into behavior: they facilitate participation in institutional initiatives, while constraining actions that require individual responsibility. This mechanism may stem from the fact that the development of moral motivation is associated with increasing internalization of norms, which enhances

internal behavioral control and shifts its regulation from the external to the internal level (Reykowski, 1979). As this process unfolds, individuals may begin to adhere to increasingly stringent and self-demanding moral standards, which constitutes a potential side effect of moral autonomization. This explains why a deeply normative understanding of CSR—grounded in a strong sense of moral obligation—may paradoxically inhibit personal initiative and self-directed action. Strong internal control may, in fact, promote caution, risk aversion, and fear of failing to meet one's own, highly demanding standards. A similar effect has been observed in research on moral self-awareness, where a high level of such awareness can lead to a critical evaluation of one's own behavior as insufficient and, consequently, reduce the willingness to undertake self-initiated action (Reynolds, 2008).

At the same time, a normative perception of CSR does not constrain participation in CSR activities proposed by the organization. The literature confirms that a deeper understanding of CSR fosters identification with organizational values, which in turn increases employees' willingness to engage in corporate initiatives (Aguinis, Glavas, 2012). CSR activities initiated by the organization may also be perceived as formal programs that employees regard as coherent with their expectations and meaningful (Mirvis, 2012). From this perspective, knowledge and understanding of the essence of CSR help distinguish substantive initiatives from merely symbolic practices, thereby encouraging participation in such initiatives (Glavas, 2016). The results of the first regression model support this line of reasoning: clearly defined tasks, structures, and accountability frameworks reduce decision-making burden, provide normative legitimation, and decrease the risk of ethical misconduct. In line with the classic concept of action regulation, situational conditions and organizational tasks guide individual behavior, reducing uncertainty and decision conflicts (Tomaszewski, 2002). Bottom-up initiatives, by contrast, require an independent assessment of the value of the goal, the anticipated probability of success, and the assumption of full moral responsibility for the decisions made. The results of the second regression model therefore suggest that, for individuals with high normative standards, taking personal initiative in the CSR domain may generate substantial strain, inhibit spontaneity, and foster withdrawal from action.

6. Practical implications

Research shows that internalizing CSR principles strongly shapes employees' workplace decisions and actions. A normative view of CSR increases participation in company CSR initiatives by enhancing their perceived value. For HR-related roles, it is therefore important to collaborate closely with departments that design and communicate CSR. Effective internal CSR communication promotes employees' cognitive, emotional, and behavioral engagement (Dong, Zhang, Ao, 2024). Likewise, integrating CSR into HR practices (e.g., recruitment, training,

development) strengthens engagement by embedding CSR values in organizational culture (Barrena-Martínez, López-Fernández, Romero-Fernández, 2019).

The findings indicate that extra-organizational prosocial and pro-environmental engagement promotes similar actions within organizations, suggesting a transfer of attitudes between private and professional life. Developing identity theory, Stryker and Burke (2000) argue that individuals seek behavioral continuity across life contexts. Recent research highlights a spillover effect, whereby phenomena originating in one domain have consequences in another (Bakker, Demerouti, 2013). Typically examined in work–life relations, this effect has also been linked to the emergence of Organizational Citizenship Behavior (OCB) (Erks et al., 2020). It helps explain why people involved in prosocial activities privately are more likely to draw on this experience to initiate similar actions at work. Pollack (2023) adds that this mechanism is bidirectional, as behaviors shaped in professional life also influence private attitudes.

The study shows that employees initiate CSR activities when they feel their role gives them enough autonomy. For organizations, this means that building structures and conditions that support CSR can strongly influence employees' behaviour. Bhatti, Iqbal, Santoro, and Rizzatto (2022) find that perceived organizational support and affective commitment mediate the link between CSR and OCB. When HR promotes a culture focused on social and environmental issues, it increases CSR awareness, facilitates participation in CSR initiatives, and can boost employee engagement. An empowering, autonomous HR environment that supports CSR strengthens individual initiative and helps build a coherent, values‑driven culture. Identifying—already at workforce planning and recruitment—and supporting employees who are highly engaged with environmental and social issues in their private lives introduces natural CSR ambassadors into the organization. This helps HR ensure the authenticity of CSR activities and address concerns about symbolic or superficial practices.

7. Limitations and future research directions

The study was based on a relatively small sample, which limits generalisability. It also relied on self-report measures, which may involve perceptual bias and declarative responses. To better understand the micro-foundations of CSR and related OCB, research on a larger sample is needed to verify effects that here appeared only at the threshold of statistical significance. Future studies should also consider additional individual and contextual factors. The literature suggests that HR specialists' readiness to act may be moderated by other dispositional traits not included in this study, e.g. self-esteem (Szpitalak, Polczyk, 2015), agentic and communal orientations (Szlendak, Wojciszke, 2010), self-efficacy (Bandura, 1997), and hope as a motivational resource (Snyder, 2002) may likewise strengthen the tendency to take initiative.

Research further shows that Big Five traits are important determinants of OCB (Baka, 2016; Chiaburu et al., 2011). This suggests that different personality dispositions may modify the relationship between understanding CSR and workplace activity, both in initiating and engaging in actions and in avoiding them.

8. Summary

The article examines how HR employees' understanding of CSR shapes their behaviour—both their participation in employer-led CSR and their own CSR initiatives. The findings show that a normative view of CSR strongly influences CSR-related behaviours, but its effect varies: it boosts engagement in employer-proposed initiatives while potentially discouraging employees from starting their own. The study also reveals a spillover effect: private-life CSR engagement increases initiative-taking at work. The results confirm the importance of perceived agency at work, with implications for job design and training. Managers aiming to involve HR in CSR strategies—either to raise engagement in existing programmes or encourage employee-led initiatives—should foster a shared organizational understanding of CSR among both target groups and initiators. Establishing a clear, common CSR perspective can increase the likelihood of achieving the organization's sustainable development goals.

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References

1. Aguinis, H., Glavas, A. (2012). What We Know and Don't Know About Corporate Social Responsibility A Review and Research Agenda. *Journal of Management, 38(4),* 932-968. https://doi.org/10.1177/0149206311436079
2. Baka, Ł. (2016). Osobowościowe wyznaczniki obywatelskich zachowań organizacyjnych – przegląd badań. *Czasopismo Psychologiczne, 22(2)*, 195-204.

3. Bakker, A.B., Demerouti, E. (2013). The spillover-crossover model. In: J.G. Grzywacz, E. Demerouti (Eds), *New frontiers in work and family research* (pp. 55-70). Psychology Press.
4. Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman/Times Books/ Henry Holt & Co.
5. Barrena-Martínez, J., López-Fernández, M., Romero-Fernández, P.M. (2019). Towards a configuration of socially responsible human resource management policies and practices: findings from an academic consensus. *International Journal of Human Resource Management, 30(17)*, 2544-2580. https://doi.org/10.1080/09585192.2017.1332669
6. Basu, K, Palazzo, G. (2008). Corporate social responsibility: a process model of sensemaking. *Academy of Management Review 33(1),* 122-136. doi:10.5465/AMR.2008. 27745504
7. Bhatti, S.H., Iqbal, K., Santoro, G., Rizzato, F. (2022). The impact of corporate social responsibility directed toward employees on contextual performance in the banking sector: A serial model of perceived organizational support and affective organizational commitment. *Corporate Social Responsibility and Environmental Management, 29(6)*, 1980-1994. https://doi.org/10.1002/csr.2295
8. Chiaburu, D.S., Oh, I.S., Berry, C.M., Li, N., Gardner, R.G. (2011). The five-factor model of personality traits and organizational citizenship behaviors: A meta-analysis. *Journal of Applied Psychology, 96(6),* 1140-1166, DOI: 10.1037/a0024004
9. Cohen, J., Cohen, P., West, S.G., Aiken, L.S. (2013). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*, *Third Edition*. https://doi.org/10.4324/9780203774441
10. Dahlsrud, A. (2008). How corporate social responsibility is defined: An analysis of 37 definitions. *Corporate Social Responsibility and Environmental Management, 15(1),* 1-13, https://doi.org/10.1002/csr.132
11. Dong, C., Zhang, Y., Ao, S. (2024). How to Engage Employees in Corporate Social Responsibility? Exploring Corporate Social Responsibility Communication Effects Through the Reasoned Action Approach. *Management Communication Quarterly, 38(1),* 27-59, https://doi.org/10.1177/08933189231161621
12. Erks, R.L., Allen, J.A., Harland, L.K., Prange, K. (2020). Do Volunteers Volunteer to do More at Work? The Relationship Between Volunteering, Engagement, and OCBs. *Voluntas, 32(6)*, 1285-1298. doi:10.1007/s11266-020-00232-7
13. Glavas, A. (2016). Corporate Social Responsibility and Organizational Psychology: An Integrative Review. *Frontiers in Psychology 7(144),* 1-13. https://doi.org/10.3389/fpsyg.2016.00144
14. Klimkiewicz, K., Staszkiewicz, M. (2022). Social sensitivity among HR business partners as determinant of CSR attitudes. *Scientific Papers of Silesian University of Technology*

Organization and Management Series, 164, 137-149. http://dx.doi.org/10.29119/1641-3466.2022.164.10

15. Meyer, D., Murray, A. (2022, June 21). "ESG" represents a fundamental shift in business strategy—but the term is unclear, unpopular, and increasingly polarizing. *Fortune*. https://fortune.com/2022/07/21/esg-fundamental-shift-unpopular-acronym/, 12.02.2026.
16. Mirvis, P. (2012). Employee engagement and CSR: Transactional, relational, and developmental approaches. *California Management Review, 54(4),* 93-117. https://doi.org/10.1525/cmr.2012.54.4.93
17. Parkes, C., Davis, A.J. (2013). Ethics and social responsibility - do HR professionals have the "courage to challenge" or are they set to be permanent "bystanders?" *International Journal of Human Resource Management, 24(12)*, 2411-2434. https://doi.org/10.1080/09585192.2013.781437
18. Pollack, L. (2023). *Spillover-Effekte zwischen OCB und freiwilligem Engagement in Non-Profit-Organisationen: Eine multimethodale psychologische Analyse*. Katholische Universität Eichstätt-Ingolstadt. https://doi.org/10.17904/KU.OPUS-861
19. Polskie Stowarzyszenie ESG, IBRIS, Quality Watch (2024). *Raport ESG. Szanse i Ryzyka*. www.polskiestowarzyszenieesg.pl, 12.02.2026.
20. Reykowski, J. (1979). *Motywacja, postawy prospołeczne a osobowość*. PWN.
21. Sarvaiya, H., Eweje, G., Arrowsmith, J. (2018). The Roles of HRM in CSR: Strategic Partnership or Operational Support? *Journal of Business Ethics, 153(3),* 825-837. http://www.jstor.org/stable/45022849
22. Snyder, C.R. (2002). Hope theory: Rainbows in the mind. *Psychological Inquiry, 13(4),* 249-275. DOI: https://doi.org/10.1207/S15327965PLI1304_01
23. Stahl, G.K., Brewster, C.J., Collings, D.G., Hajro, A. (2020). Enhancing the role of human resource management in corporate sustainability and social responsibility: A multi-stakeholder, multidimensional approach to HRM. *Human Resource Management Review, 30(3)*. DOI: https://doi.org/10.1016/j.hrmr.2019.100708
24. Stryker, S., Burke, P.J. (2000). The past, present, and future of an identity theory. *Social Psychology Quarterly, 63(4),* 284-297. https://doi.org/10.2307/2695840
25. Szlendak, M. A., Wojciszke, B. (2010). Skale do pomiaru orientacji sprawczej i wspólnotowe. *Psychologia Społeczna, 1(13),* 57-70.
26. Szpitalak, M., Polczyk, R. (2015). *Samoocena : geneza, struktura, funkcje i metody pomiaru*. Kraków: WUJ.
27. Tomaszewski, T. (2002). Struktura zachowania. In: I. Kurcz, D. Kądzielawa (Eds.), *Psychologia czynności: nowe perspektywy* (pp. 175-184). Scholar.

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THE IMPLICATIONS OF MANAGERIAL CAREER DEVELOPMENT ON PERSONALITY ACCORDING TO THE BIG FIVE MODEL

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Purpose: The study aims to examine the relationship between Big Five personality traits and preferred career orientations among managers in the education sector, addressing an identified research gap. It focuses on identifying psychological predictors of career orientations and determining the prevalence of career preference patterns within the study population.
Methodology: The study employed a quantitative, cross-sectional, and correlational design to examine the relationships between Big Five personality traits and preferred career orientations among managers in the education sector. Data were collected using the CAWI method from 83 middle- and senior-level managers. Personality was measured using the IPIP-NEO-FFI questionnaire, and career orientations were assessed using a tool based on the classical typologies proposed by Derr and Schein. Analyses included Cronbach's alpha coefficients, Spearman's rank correlations, and group comparisons. This approach integrates personality psychology with classical career orientation theories, enabling the identification of psychological predictors of managers' career preferences.
Findings: The study revealed significant associations between personality traits and career orientations. Extraversion and conscientiousness emerged as the strongest predictors of managerial career preferences and career management activity. Openness was associated with creative career choices, while neuroticism showed negative relationships with career management activity but did not confirm the expected association with security-oriented careers. The findings indicate the co-occurrence of personality trait configurations and their importance for differentiating career preferences and development strategies among managers.
Research limitations/implications: The cross-sectional and correlational design limits the ability to draw causal conclusions. The moderate sample size and lower reliability of several career orientation scales indicate that selected results should be interpreted with caution. Moreover, the specific nature of the education sector limits the generalizability of the findings. Future research should include larger samples, extend the analysis to other sectors, and improve the reliability of career orientation measures.
Practical implications: The results provide implications for human resource management practice. A personality profile based on extraversion, conscientiousness, and openness supports decisions related to recruitment, succession planning, and the design of individual development paths for managers. The findings may also inform the development of talent management programs, employee–role fit, and tools supporting career management.
Originality/value: This study advances research on the psychological determinants of managerial careers by integrating the Big Five Model with career orientation typologies and career management activity. Its originality lies in the profile-based analysis of co-occurring

patterns of traits and preferences in the education sector, which requires leadership, creativity, and adaptability but remains underexplored.
Keywords: Big Five; career orientations; career management; managerial careers; education sector.
Category of the paper: Research paper.

1. Introduction

Dynamic changes in the work environment and the growing complexity of organizations make professional development and conscious career shaping increasingly important. The literature emphasizes that an individual's career trajectory results from the interaction of individual, psychological, and contextual factors, rather than solely from organizational conditions (Hirschi et al., 2015, pp. 1-3; Woods, Hampson, 2010, pp. 1045-1050). Personality traits play a key role in this regard, consistently identified as a significant predictors of professional behaviors and decisions. Personality traits play a key role in this regard, as they are consistently identified as significant predictors of professional behaviors and career-related decisions.

Despite the growing body of research on the psychological determinants of careers, there remains a lack of studies integrating the Big Five Model with classical career orientation typologies within a profile-based approach. The education sector remains particularly underexplored, especially with regard to managerial roles. This article addresses this gap by examining the relationships between personality traits, career orientations, and career management activity among managers in the education sector. In doing so, it provides a more nuanced explanation of the mechanisms differentiating managerial career paths and supports the development of more tailored career models.

2. Theoretical Background

2.1. Professional Career

In everyday language, the concept of "career" is often equated with success and promotion; however, in the literature, it encompasses a much broader scope—including both behavioral and subjective aspects of professional development. Classical approaches define a career as a sequence of professional experiences and positions held over time, often linked to the attainment of higher positions and the development of specialization (Arthur et al., 1989; Greenhaus, 2003; Hall, 1976, p. 4; Ng et al., 2005, pp. 367-408). In organizational and management theory, a career is understood as a process of individual development

encompassing successive professional experiences and the roles and positions held within an organization, leading to the shaping of a career path over time (Arthur, Rousseau, 1996; Baruch, 2004). In a more synthetic view, it is emphasized as a sequence of professional experiences and roles undertaken by an individual over time (Adamson et al., 1998; Baruch, 2004).

In the traditional approach, a career was viewed as a product of the organization and the profession, whereas the agentic approach emphasized the individual's agency. Today, it is defined more broadly as a sequence of roles, activities, and experiences spanning the entire professional life, emphasizing the accumulation of career capital and the importance of job satisfaction in the relationship between aspirations and career progression (Adamson et al., 1998; Hirschi et al., 2015).

Contemporary approaches reject linearity, viewing a career as a dynamic process based on individual preferences and values. Career orientations—that is, relatively stable preferences regarding professional activity—play a key role (Wiernik, Kostal, 2019, p. 281). Research indicates that these orientations do not function in isolation but form profile-based configurations combining elements of traditional, protean, and boundaryless careers (Pfrombeck, Grote, 2026, p. 25). Panel analyses confirm the relative stability of career patterns and the importance of enduring individual factors (Biemann et al., 2012, p. 163), while theoretical approaches emphasize the role of psychological mechanisms in shaping career choices (Yates, 2020, p. 131). In this context, classical career orientation typologies (Derr, 1986; Schein, 1990) form the basis for identifying the main dimensions of career preferences, such as orientation toward management, competence, security, independence, creativity, or work-life balance. Contemporary research indicates, however, that these preferences do not occur in isolation but combine into recurring configurations of preferences (Myszka-Strychalska, 2018, pp. 95-97). From the perspective of Schein's career anchor theory (1990, pp. 15-20), professional development reflects an individual's relatively stable values and motives, which form the basis of these configurations. More recent findings, however, indicate that individuals more often exhibit multidimensional preference profiles than a single dominant anchor (Wils et al., 2015, pp. 820-828). Similar relationships are identified by Abessolo, Hirschi, and Rossier (2017, pp. 249-254), demonstrating that career orientations share a common psychological basis rooted in the individual's value system.

2.2. Personality as a predictor of career orientation

Personality is a significant predictor of occupational functioning and career preferences, influencing—alongside contextual factors—the choice of work environment and career trajectories (Judge et al., 1999, pp. 621-652; Woods, Hampson, 2010, pp. 1045-1057).

Contemporary approaches to career development emphasize the role of individual resources and proactive behaviors, such as career exploration and self-directed career management (Hirschi et al., 2015). The dominant paradigm explaining individual differences remains the

Five-Factor Model of Personality, which identifies five relatively stable and universal dimensions: neuroticism, extraversion, openness, agreeableness, and conscientiousness (Costa, McCrae, 1992, pp. 653-665). Its significance in career research stems from its high predictive value regarding occupational behaviors, including work performance and job satisfaction (Barrick, Mount, 1991, pp. 1-26; Judge, Heller et al., 2002, pp. 530-541).

Meta-analytic findings indicate that openness and conscientiousness promote career exploration, while extraversion is associated with actively seeking opportunities in the professional environment (Lee et al., 2023, pp. 49-52). At the same time, protean and boundaryless career orientations show strong links to proactivity and self-direction, which partially overlap with the influence of personality traits (Wiernik, Kostal, 2019, pp. 280-286). Consequently, the Big Five Model provides a coherent framework for explaining the diversity of career orientations and person–environment fit, thereby increasing the accuracy of predicting career trajectories.

3. Research Methodology

The aim of the study was to identify the psychological determinants of career orientation among managers in the education sector, with particular emphasis on Big Five personality traits and their relationships with preferred career types. Understanding these relationships provides insight into the mechanisms of career development and supports the design of interventions in human resource management (Lee et al., 2023, pp. 41-52; Wiernik, Kostal, 2019, pp. 280-303).

The following hypotheses were formulated:

H1: Big Five personality traits significantly differentiate preferred career types among managers.

H1a. Individuals with high openness to experience are more likely to choose creative or independent careers,

H1b. Individuals with high conscientiousness prefer competence- or management-oriented careers,

H1c. Individuals with high neuroticism tend to choose careers oriented toward security and stability.

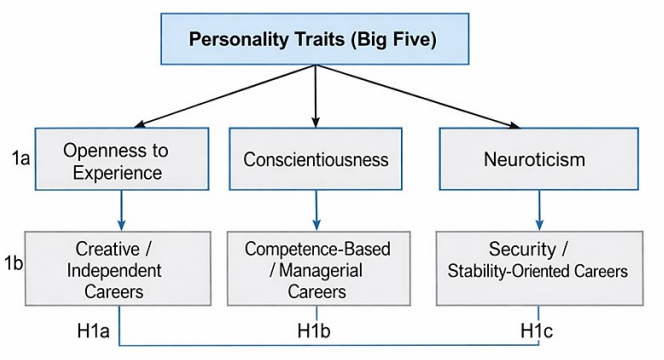

Figure 1. Research model.

Source: own study.

Data were collected in the first quarter of 2025 using the CAWI method. The study was conducted on a sample of 83 managers employed in administration within the education sector (N = 83). Invitations were sent to employees of six organizations, and the survey was distributed to 210 individuals. Responses were obtained from 83 participants, all of whom were included in the analysis.

Women constituted the majority of the sample (68.9%). The largest age group was 41-50 years (43.4%). Respondents were classified into three managerial categories: top management (10.8%), directors (28.9%), and supervisors/managers (60.2%).

Personality was measured using the Polish adaptation of the IPIP-NEO-FFI questionnaire (Goldberg, 1999; Strus et al., 2016). The instrument included 5 scales: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Responses were recorded on a 5-point Likert scale.

Preferred career types were measured using a tool based on classical career development concepts (Derr, 1986; Schein, 1990). The questionnaire covers six orientations: management, competence, security, independence, creativity, and harmony (*Osobowościowe i Sytuacyjne Wyznaczniki Sukcesu Zawodowego Kobiet i Typu Ich Kariery*, 2014). Responses were given on a 1–5 Likert scale, and the scale score was the sum or average of the items.

The study was correlational in nature, allowing for the simultaneous examination of independent and dependent variables. The collected data were subjected to the following analyses: Cronbach's alpha reliability (1951), Spearman's rank correlation (1904, pp. 72-101), and differences between groups. The analyses were performed in the SZTOS system (Hryniewicz, Milewska, 2023), and the results were visualized using the "ggplot2" package (Wickham, 2016). To verify the measurement accuracy of the variables, a reliability analysis was conducted using Cronbach's alpha for individual scales, which showed varying measurement accuracy (Cronbach's α value).

Table 1.
Results of the reliability analysis for scales W5, career management, and career types

Scale	α	*M*	*SD*	*N*
Neuroticism	0.85	2.12	0.63	10
Extraversion	0.85	3.47	0.63	10
Openness	0.70	3.83	0.53	10
Agreeableness	0.64	3.84	0.44	10
Conscientiousness	0.76	3.55	0.51	10
Career management	0.73	4.19	0.61	6
Type: Management	0.72	3.29	0.82	5
Competence Type	0.71	3.86	0.78	5
Safety type	0.40	3.58	0.54	5
Independence type	0.55	3.60	0.68	5
Creativity type	0.73	4.30	0.57	5
Harmony type	0.51	4.01	0.57	5

Source: own analysis.

Lower α values in some scales indicate the need for cautious interpretation of the results and treating them as exploratory[1].

4. Results

To examine the influence of personality traits on proactive career management, an analysis of the relationship between career type variables and personality types (W5) was conducted. Spearman's rank correlation coefficient was used[2] . The results of the analysis are presented in Table 2.

Table 2.
Results of the Spearman correlation analysis between the variables: W5 components, Career Management, Career Types

Variable	Id.	1	2	3	4	5	6	7	8	9	10	11
Neuroticism	1											
Extraversion	2	-0.34**										
Openness	3	-0.06	0.24*									
Agreeableness	4	-0.25*	0.19	-0.16								
Conscientiousness	5	-0.15	0.37**	-0.18	0.17							
Career management	6	-0.27*	0.58***	0.13	0.15	0.40***						
Management Type	7	-0.25*	0.38***	-0.05	0.01	0.44***	0.47***					
Competence type	8	0.18	0.07	0.14	0.11	0.08	0.15	-0.09				

[1] Cronbach's alpha coefficients for the dimensions of security (α = 0.40), harmony (α = 0.51), and independence (α = 0.55) are very low and well below the scientifically accepted threshold of 0.70. Such low internal consistency of these instruments in the study group limits the statistical reliability of the obtained results and requires caution in their interpretation.

[2] Significant correlations were identified, characterized by moderate strength of association (rho values ranging from 0.3 to 0.6 and a significance level of $p < 0.05$).

Cont. table 2.

Security type	9	0.11	-0.12	-0.24*	0.11	0.21	-0.05	0.01	0.17			
Type: Independence	10	0.03	-0.01	-0.01	-0.18	-0.16	-0.07	-0.10	0.33**	0.13		
Type of work	11	-0.21	0.63***	0.29**	-0.01	0.27*	0.64***	0.46***	0.13	-0.11	0.13	
Harmony type	12	-0.25*	0.00	-0.08	0.26*	0.10	0.02	-0.09	0.25*	0.16	0.18	0.08

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: own compilation.

The analysis revealed a pattern of statistically significant relationships between personality traits and career-related variables. First, it was noted that Extraversion was moderately and significantly negatively correlated with neuroticism, suggesting that individuals with higher levels of extraversion tend to report lower levels of emotional instability.

Conscientiousness was positively correlated with extraversion, indicating the co-occurrence of these traits in managerial personality profiles. Career management showed moderate positive associations with both extraversion and conscientiousness, suggesting that more socially active and organized individuals are more likely to engage in deliberate career management. The management career type was significantly and positively associated with extraversion, conscientiousness, and career management activity, indicating a preference for leadership-oriented career paths among individuals with these traits. Similarly, the creativity-oriented career type demonstrated moderate positive associations with extraversion, conscientiousness, career management, and the management orientation, suggesting that creative career preferences are more characteristic of active and development-oriented managers. In addition, the independence orientation was moderately positively correlated with the competence orientation, indicating that preferences for autonomy may co-occur with the aspiration to develop specialized skills.

The verification of the sub-hypotheses partially confirmed the assumed relationships between personality traits and preferred managerial career types. Openness to experience was positively associated with a preference for creative career orientations, consistent with theoretical expectations. Its negative relationship with the security orientation suggests a tendency to avoid stable and predictable career orientations. Conscientiousness showed a significant positive relationship with both the management orientation and career management, indicating a preference for structured, goal-oriented career orientations. No significant association was found with the competence orientation. The hypothesis regarding neuroticism was not confirmed. No significant relationship was found with the security orientation, while neuroticism was negatively associated with management orientation, harmony, and career management. This may indicate lower engagement in proactive career behaviors rather than a preference for stability.

The results indicate that openness favors the choice of creative careers, while conscientiousness favors managerial paths. Preferences for managerial career types co-occur with a personality profile that supports agency and proactivity, whereas neuroticism correlates negatively with these tendencies. The strongest associations involve extraversion and

conscientiousness, which are key predictors of both career types and career management strategies.

5. Discussion of the results

The aim of the study was to analyze the relationship between the Big Five personality traits and the preferred career type of managers in the education sector. The results confirm that personality traits play a key role in differentiating both preferred career orientations and career management approaches. This aligns with a growing body of literature pointing to the relatively stable nature of career orientations. Wiernik and Kostal (2019, pp. 281-284) demonstrated that protean and boundaryless career orientations form a coherent construct of a proactive approach to career, closely linked to personality traits and preferences regarding agency and self-direction in one's career. Similar conclusions were presented by Pfrombeck and Grote (2026, pp. 24-26), who identified stable career orientation profiles across various cultural contexts.

The study's findings indicate that extraversion and conscientiousness are key factors in active career management and in the preference for career paths that require engagement and social interaction. Extraversion promotes professional development, relationship building and proactivity (Judge, Heller et al., 2002, pp. 771-773; Kang et al., 2023, pp. 4-7; Lee et al., 2023, pp. 49-52). Conscientiousness remains one of the most consistent predictors of positive work outcomes, job satisfaction, and long-term achievements (Barrick, Mount, 1991, pp. 1-26; Kordsmeyer et al., 2024, pp. 1052-1056; Wilmot, Ones, 2019). Individuals with high conscientiousness are more likely to choose career paths requiring structure, responsibility and planning, in line with classical approaches to career orientation. Openness to experience also proved to be a significant variable, positively correlating with a preference for creative paths requiring creativity, innovation, and cognitive flexibility (Ivcevic, Brackett, 2015, pp. 480-487; Tan et al., 2019, pp. 109-119). At the same time, the negative correlation between openness with the "security" type indicates a tendency among open-minded individuals to avoid paths based on routine and predictability, which is consistent with the model of career values and orientations, in which openness to change forms the basis for preferences for protean and boundaryless career (Abessolo et al., 2017, pp. 249-254). In contrast to the other traits, neuroticism showed a negative relationship with career management activity and a tendency to avoid high – visibility roles. This relationship points to potentially greater emotional instability, lower self-efficacy, and a tendency to avoid situations perceived as stressful (Bullock-Yowell et al., 2015, pp. 333-347). Similarly, models of proactivity and career adaptability emphasize that negative evaluations and low tolerance for uncertainty weaken behaviors associated with conscious career management (Peng et al., 2021, pp. 3-10). The study's results did not confirm the hypothesized correlation between neuroticism and career stability, indicating that

neuroticism limits readiness for developmental activities and taking on complex roles. More broadly, the results confirm that personality traits do not function as independent predictors but rather form configurations that translate into distinct career orientation profiles. Modern approaches are moving away from unidimensional typologies in favor of profile analyses (Pfrombeck, Grote, 2026, pp. 6-10; Wils et al., 2015, pp. 820-824).

The configurations observed—combining, for example, high extraversion with a preference for managerial paths and high openness with a preference for creativity—align with the profile-based nature of career orientations. The results support an interactive approach, in which career development results from the interaction of individual traits and organizational contexts (Arthur, Rousseau, 1996, pp. 22-45), as well as integrated approaches that describe careers as dynamic systems (Yates, 2020, pp. 131-133).

6. Summary

Incorporating personality assessment into recruitment and succession planning processes improves the accuracy of matching candidates with leadership positions, while simultaneously enhancing team stability and management effectiveness (Barrick, Mount, 1991, pp. 3-8; Judge, Bono et al., 2002; Kang et al., 2023, pp. 4-7; Kordsmeyer et al., 2024, pp. 1052-1056; Wilmot, Ones, 2019). Designing career paths based on aptitudes enables the planning of professional development and the provision of adequate support to managers in the process of making career decisions (Pfrombeck, Grote, 2026, pp. 5-10; Wils et al., 2015, pp. 820-824).

Individuals with openness to experience are predisposed to roles requiring creativity and innovation, where they can initiate change and engage in development activities (Ivcevic, Brackett, 2015, pp. 480-487; Tan et al., 2019, pp. 219-225). Employees with high neuroticism require psychological support and mentoring, which helps build mental resilience and increases their engagement in development activities (Bullock-Yowell et al., 2015, pp. 333-340; Peng et al., 2021, pp. 3-10). Tailoring development paths to personality profiles increases motivation and job satisfaction (Pfrombeck, Grote, 2026, pp. 5-10; Wiernik, Kostal, 2019, pp. 281-284).

The originality of the study stems from the analysis of co-occurring patterns of personality traits and career preferences among managers, which offers a better understanding of the mechanisms of career choices and professional development in the education sector—an area requiring leadership, adaptability, and innovation competencies (Arthur, Rousseau, 1996, pp. 22-45; Yates, 2020, pp. 131-135). The comparison of career orientation profiles with personality measures and activity indicators demonstrates the influence of individual dispositions on career management, serving as a starting point for further research in other industries.

At the same time, the cross-sectional and correlational nature of the study limits the ability to draw causal conclusions. Moderate statistical power resulting from the sample size and low reliability of selected career orientation scales (particularly security and harmony) suggest that the results should be treated as exploratory. The specific nature of the education sector makes generalization difficult; therefore, it is recommended to increase the sample size and extend the analysis to other professional environments (sectors, industries), as well as to improve the measurement tools (reliability of career orientation scales).

References

1. Abessolo, M., Hirschi, A., Rossier, J. (2017). Work values underlying protean and boundaryless career orientations. *Career Development International*, *22*(3), 241-259. https://doi.org/10.1108/CDI-10-2016-0167
2. Adamson, S.J., Doherty, N., Viney, C. (1998). The Meanings of Career Revisited: Implications for Theory and Practice. *British Journal of Management*, *9*(4), 251-259. https://doi.org/10.1111/1467-8551.00096
3. Arthur, M.B., Hall, D.T., Lawrence, B.S. (Eds.) (1989). *Handbook of Career Theory* (1st ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511625459
4. Arthur, M.B., Rousseau, D.M. (Eds.) (1996). *The Boundaryless Career: A New Employment Principle for a New Organizational Era*. New York, NY: Oxford University Press. https://doi.org/10.1093/oso/9780195100143.001.0001
5. Barrick, M.R., Mount, M.K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, *44*(1), 1-26. https://doi.org/10.1111/j.1744-6570.1991.tb00688.x
6. Baruch, Y. (2004). Transforming careers:from linear to multidirectional career paths: Organizational and individual perspectives. *Career Development International*, *9*(1), 58-73. https://doi.org/10.1108/13620430410518147
7. Biemann, T., Zacher, H., Feldman, D.C. (2012). Career patterns: A twenty-year panel study. *Journal of Vocational Behavior*, *81*(2), 159-170. https://doi.org/10.1016/j.jvb.2012.06.003
8. Bullock-Yowell, E., Reed, C.A., Mohn, R.S., Galles, J., Peterson, G.W., Reardon, R.C. (2015). Neuroticism, Negative Thinking, and Coping With Respect to Career Decision State. *The Career Development Quarterly*, *63*(4), 333-347. https://doi.org/10.1002/cdq.12032
9. Costa, P.T., Jr., McCrae, R.R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI): Professional manual*. Psychological Assessment Resources.

10. Cronbach, L.J. (1951). Coefficient Alpha and the Internal Structure of Tests. *Psychometrika*, *16*(3), 297-334. https://doi.org/10.1007/BF02310555
11. Derr, C.B. (1986). *Managing the New Careerists: The Diverse Career Success Orientations of Today's Workers, Vol. 26*. Jossey-Bass.
12. Goldberg, L.R. (1999). A broad-bandwidth, public-domain personality inventory measuring the lower-level facets of several five-factor models. In: *Personality psychology in Europe, Vol. 7* (pp. 7-28). Tilburg University Press.
13. Greenhaus, J.H. (2003). Career Dynamics. In: I.B. Weiner (Ed.), *Handbook of Psychology* (1st ed., pp. 519-540). Wiley. https://doi.org/10.1002/0471264385.wei1220
14. Hall, D.T. (1976). *Careers in Organizations*. Scott, Foresman and Company.
15. Hirschi, A., Herrmann, A., Keller, A.C. (2015). Career adaptivity, adaptability, and adapting: A conceptual and empirical investigation. *Journal of Vocational Behavior*, *87*, 1-10. https://doi.org/10.1016/j.jvb.2014.11.008
16. Hryniewicz, K., Milewska, A. (2023). *SZTOS: System Zautomatyzowanego Tworzenia Opisu Statystycznego* (Version SZTOS) [Computer software]. https://sztos-it.com/
17. Ivcevic, Z., Brackett, M.A. (2015). Predicting creativity: Interactive effects of openness to experience and emotion regulation ability. *Psychology of Aesthetics, Creativity, and the Arts*, *9*(4), 480-487. https://doi.org/10.1037/a0039826
18. Judge, T.A., Bono, J.E., Ilies, R., Gerhardt, M.W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, *87*(4), 765-780. https://doi.org/10.1037/0021-9010.87.4.765
19. Judge, T.A., Heller, D., Mount, M.K. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology*, *87*(3), 530-541. https://doi.org/10.1037/0021-9010.87.3.530
20. Judge, T.A., Higgins, C.A., Thoresen, C.J., Barrick, M.R. (1999). The Big Five personality traits, general mental ability, and career success across the life span. *Personnel Psychology*, *52*(3), 621-652. https://doi.org/10.1111/j.1744-6570.1999.tb00174.x
21. Kang, W., Guzman, K.L., Malvaso, A. (2023). Big Five personality traits in the workplace: Investigating personality differences between employees, supervisors, managers, and entrepreneurs. *Frontiers in Psychology*, *14*, 976022. https://doi.org/10.3389/fpsyg.2023.976022
22. Kordsmeyer, T.L., Speer, A.B., Wilms, R., Kurz, R. (2024). Longitudinal Effects of Employees' Big Five Personality Traits on Internal Promotions Differentiated by Job Level in a Multinational Company. *Journal of Business and Psychology*, *39*(5), 1049-1065. https://doi.org/10.1007/s10869-023-09930-7

23. Lee, S.D., Aquino, A., Kuncel, N.R., Hansen, J.C. (2023). Personality predictors of career exploration: A meta-analysis. *The Career Development Quarterly*, *71*(1), 41-55. https://doi.org/10.1002/cdq.12315
24. Myszka-Strychalska, L. (2018). Typy, wzory i modele karier w przestrzeni elastycznego rynku pracy, *Problemy Profesjologii*, *1*, 85-103.
25. Ng, T.W.H., Eby, L.T., Sorensen, K.L., Feldman, D.C. (2005). Predictors of objective and subjective career success: a meta-analysis. *Personnel Psychology*, *58*(2), 367-408. https://doi.org/10.1111/j.1744-6570.2005.00515.x
26. *Osobowościowe i sytuacyjne wyznaczniki sukcesu zawodowego kobiet i typu ich kariery*. (2014). PhD thesis. Uniwersytet Śląski. https://sbc.org.pl/dlibra/publication/163592/edition/153657
27. Peng, P., Song, Y., Yu, G. (2021). Cultivating Proactive Career Behavior: The Role of Career Adaptability and Job Embeddedness. *Frontiers in Psychology*, *12*, 603890. https://doi.org/10.3389/fpsyg.2021.603890
28. Pfrombeck, J., Grote, G. (2026). The same, but different: Career orientation profiles in France, Germany, Italy and Switzerland. *Career Development International*, *31*(8), 24-48. https://doi.org/10.1108/CDI-05-2024-0226
29. Schein, E.H. (1990). *Career anchors: Discovering your real values* (Revised edition). University Associates.
30. Spearman, C. (1904). The Proof and Measurement of Association between Two Things. *The American Journal of Psychology*, *15*(1), 72. https://doi.org/10.2307/1412159
31. Strus, W., Cieciuch, J., Rowiński, T. (2016). *PIP-NEO-FFI (50/100) – Polish adaptation* [Psychological measure / adaptation]. International Personality Item Pool – Polish Version. https://www.ipip.pl
32. Tan, C., Lau, X., Kung, Y., Kailsan, R.A. (2019). Openness to Experience Enhances Creativity: The Mediating Role of Intrinsic Motivation and the Creative Process Engagement. *The Journal of Creative Behavior*, *53*(1), 109-119. https://doi.org/10.1002/jocb.170
33. Wickham, H. (2016). *ggplot2: Elegant Graphics for Data Analysis* [Computer software]. Springer-Verlag. https://ggplot2.tidyverse.org/
34. Wiernik, B.M., Kostal, J.W. (2019). Protean and boundaryless career orientations: A critical review and meta-analysis. *Journal of Counseling Psychology*, *66*(3), 280-307. https://doi.org/10.1037/cou0000324
35. Wilmot, M.P., Ones, D.S. (2019). A century of research on conscientiousness at work. *Proceedings of the National Academy of Sciences*, *116*(46), 23004-23010. https://doi.org/10.1073/pnas.1908430116

36. Wils, T., Wils, L., Tremblay, M. (2015). Revisiting the Career Anchor Model: A Proposition and an Empirical Investigation of a New Model of Career Value Structure. *Relations Industrielles*, *69*(4), 813-838. https://doi.org/10.7202/1028113ar
37. Woods, S.A., Hampson, S.E. (2010). Predicting adult occupational environments from gender and childhood personality traits. *Journal of Applied Psychology*, *95*(6), 1045-1057. https://doi.org/10.1037/a0020600
38. Yates, J. (2020). Career Development Theory: An Integrated Analysis. In: P. J. Robertson, T. Hooley, P. McCash (Eds.), *The Oxford Handbook of Career Development* (1st ed., pp. 131-142). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190069704.013.10

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CONFLUENT LOYALTY: A MODEL OF EMPLOYER – EMPLOYEE RELATIONSHIP IN MODERN LABOUR MARKETS

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Purpose: In the article employee loyalty is reinterpreted in the context of late modernity, characterized by job insecurity, increasing career mobility, and evolving organizational relationships. The empirical findings reveal differing interpretations of loyalty between employers and employees. To address this gap, the concept of *confluent loyalty* is proposed - a dynamic, relational construct based on perceived alignment of goals, reciprocity, and acceptance of the evolving nature of organizational ties.
Design/methodology/approach: The study was quantitative and cross-sectional, using a self-designed survey questionnaire on the understanding and manifestations of loyalty at work. Data were analyzed descriptively and comparatively, focusing on differences between employees (N = 500) and employers (N = 500).
Findings: The findings suggest that employee loyalty no longer implies long-term tenure in a single organization but is increasingly linked to contribution quality and goal alignment. The findings revealed differences in how employers and employees understand loyalty, highlighting a gap between functional and relational perspectives.
Research limitations/implications: The study was exploratory and based on self-reported data, limiting conclusions about the strength and structure of relationships between variables. Future research should develop and validate a scale for *confluent loyalty* and test the model in longitudinal studies to capture the dynamic nature of employee - organization relationships.
Practical implications: The results suggest that interpretive differences between employers and employees may weaken employment relationships and negatively impact organizations. Incorporating the relational dimension of loyalty in HRM practices may enhance goal alignment, improve team stability, and reduce turnover costs.
Social implications: The findings suggest that redefining loyalty in relational terms may support the development of a work model better suited to contemporary employment conditions. More broadly, it may help reduce tensions from mismatched expectations, enhancing job stability and quality of working life.
Originality/value: The article contributes to HRM literature by introducing *confluent loyalty* as a dynamic, relational extension of classical loyalty concepts. Its novelty also lies in

comparing employer and employee perspectives, revealing interpretive discrepancies that require further validation.
Keywords: employee loyalty; confluent loyalty; relational HRM; labour markets.
Category of the paper: research paper.

1. Introduction

Traditionally, employee loyalty - understood as a relatively stable commitment to a single organization - has lost its central role in describing employment relationships with the rise of flexible work arrangements and career mobility (Smarżewska, 2024). The literature has shifted toward individual career responsibility, adaptability, and readiness to change jobs (Arthur, 1994; Hall, 2004), redefining the employee-organization relationship as more temporary, flexible and sustainable (De Vos et al., 2020).

Contemporary organizations operate in conditions of environmental hyper-turbulence, characterized by overlapping strategic discontinuities (Czakon, 2024). In such circumstances, loyalty has regained attention in the context of growing uncertainty, labour shortages, and skill mismatches (Ketchand, Strawser, 2001). A volatile socio-economic environment does not support the development of stable ties and may even threaten traditional notions of loyalty (Bugdol, 2006). At the same time, organizations increasingly recognize the importance of stable, committed teams for maintaining efficiency and competitiveness (Meyer, Allen, 1997; Pfeffer, 1998; Boxall, Purcell, 2016).

Contemporary employment conditions challenge the view of loyalty as a unilateral and enduring commitment. The satisfactory employee-organization relationships and current careers become increasingly conditional and subject to renegotiation, requiring a relational and dynamic perspective (Eva et al., 2020). This article aims to redefine loyalty through the concept of confluent loyalty, understood as a relational bond sustained as long as both parties perceive the relationship as meaningful and mutually justified, in line with contemporary relational HRM (Moczydłowska, 2013; Wang et al., 2022).

2. Employee loyalty and the shift in career and fit paradigms

2.1. Classical approaches to employee loyalty

Early theoretical approaches to employee loyalty originate from social exchange theory developed by Homans (1958) and Blau (1964, 2009). In this view, the employee-organization relationship is based on reciprocity: employee effort and commitment are exchanged for

rewards, security and recognition. Loyalty is not moral in nature but results from perceived fairness, fulfilment of obligations, and trust built over time. Social exchange theory remains a key framework for understanding loyalty as a relational outcome of balanced contributions and benefits, although contemporary employment conditions modify this exchange.

Another classic perspective is Becker's (1960) side-bet theory, which explains loyalty as the result of rational cost calculations rather than emotional attachment. It arises from accumulated "side bets", such as tenure, benefits and firm-specific skills, whose loss increases the cost of leaving (Becker, 1960). This concept underpins later theories of organizational commitment, particularly continuance commitment (Meyer, Allen, 1991). However, it is increasingly viewed as less applicable in today's flexible and unstable employment contexts.

The most influential framework is Meyer and Allen's (1991, 1997) three-component model of organizational commitment, comprising affective ("want to stay"), continuance ("need to stay"), and normative ("ought to stay") elements. This model enabled empirical distinction between emotional, instrumental, and normative sources of loyalty and has informed extensive research on commitment and turnover intentions (Meyer, Allen, 1991; Meyer, Allen, 1997). Today, however, it is being reinterpreted in light of boundaryless careers (DeFillippi, Arthur, 1994; Arthur et al., 2005) and increasing labour mobility (Arthur, Rousseau, 1996), which reduce the relevance of continuance commitment while reinforcing the importance of voluntary, affective attachment (Zhu et al., 2025). There is a need to develop new HR and management concepts that enable sustainable use of opportunities in the modern labour market (Heinrich, 2026).

2.2. Contemporary understanding of loyalty in the context of evolving forms of employment and person-organization fit

Current shifts toward more flexible forms of employment and business relations (e.g. the B2B model, see: Ruiz-Martínez, Frasquet, Gil-Saura, 2019) significantly modify the classical logic of social exchange described by Homans (1958) and Blau (2009). Previously, the employee-organization relationship was based on relative stability, a predictable - though deferred - return on investment and long-term interaction. Today, this exchange has become more conditional and subject to revision: the time horizon of relationships is shortening, risk of asymmetry is increasing, and the expected "return" on commitment more often takes the form of development opportunities, meaningful work, or sustained employability (Fugate et al., 2004), rather than long-term security. As a result, loyalty is no longer a natural outcome of balanced contributions and benefits. Increasingly it depends on ongoing evaluations of relationship quality, perceived fairness and other characteristics, in conjunction with the underlying dimensions of protean, boundaryless and mobility preferences, as well as career attitudes (Kumar et al., 2023).

This shift is also reflected in person-environment fit theories, often conceptualized as the subjective experience of compatibility (Cable, DeRue, 2002). Classical approaches assumed relatively stable alignment between individual values, traits, and goals and the profile of the organization, job, or occupation. This allowed researchers to explain both positive outcomes of perceived fit - such as engagement, satisfaction, and well-being (e.g., Roczniewska, Retowski, 2014) - and negative consequences of misfit, including stress, burnout, absenteeism, and turnover (Verquer, Beehr, Wagner, 2003). In increasingly dynamic labour market conditions, however, fit is no longer a fixed state but becomes a process of continuous negotiation and maintenance (Van Vianen, 2018, p. 91).

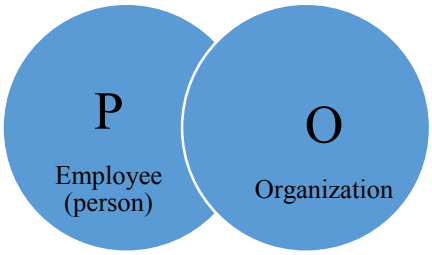
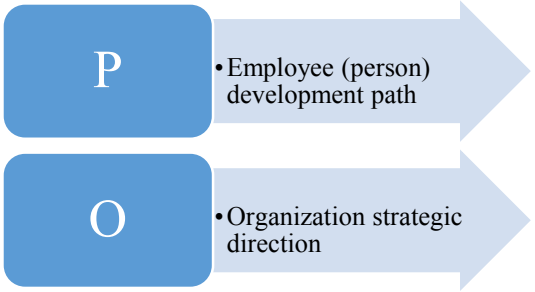
Recent studies indicate that employment relationships are now bilateral and dynamic, with their durability based on continuous renegotiation of expectations rather than a stable psychological contract (Bannya et al., 2023). In this context, relational HRM has emerged, emphasizing the quality of interactions and the resources generated between organizational actors. These include not only human capital (i.e. engagement, Juchnowicz, 2010) but also social capital - trust, norms of reciprocity, and the capacity for cooperation (Bugdol, 2006). These relational resources, shaped by HR practices that foster interaction and knowledge exchange, determine the durability of relationships and forms of loyalty that are increasingly conditional and negotiated (Edafioghor, Zhou, Wu, 2026).

3. Proposal of the concept of confluent loyalty

The above considerations indicate that classical approaches to loyalty - whether based on social exchange, cost calculations of leaving, multidimensional commitment, or person-organization fit models - assumed relative stability of employment relationships and durability of achieved alignment. However, contemporary organizational conditions, often described by the VUCA framework (Bennett, Lemoine, 2014), challenge this ontology of work relations, shifting the focus from one-time fit toward an ongoing process of negotiating and maintaining alignment. This shift is illustrated in Table 1, which presents the transition from a static model of fit to a relational view of alignment as a dynamic process.

A direct inspiration for outlining the concept of confluent loyalty was A. Giddens's (2001) notion of the reflexive relationship in late modernity. A review of HRM literature has not identified prior use of the terms "confluent employee loyalty" or "confluent organizational loyalty". The term is therefore proposed as a new conceptual framework, inspired by the idea of confluent social ties maintained as long as they remain meaningful and mutually sustained. Applied to employment relationships, this perspective frames loyalty not as a stable, structurally embedded commitment, but as the outcome of continuous, reflexive alignment of goals and dynamically updated expectations between employees and organizations.

Table 1.
From static fit to relational alignment

Loyalty as	
static fit	**relational alignment**
 **Characteristics:** • Stability • Consistent alignment of values and goals • Long-term contract • Loyalty as a result of fit **Interpretation:** If the employee and the organization fit, the relationship is assumed to be stable (a state).	 **Characteristics:** • Dynamic process • Renegotiation of expectations • Possibility of divergence • Loyalty as a result of maintained alignment **Interpretation:** The relationship lasts as long as alignment in direction is maintained (a process).

Source: own elaboration.

Giddens argues that in late modernity individuals no longer follow predefined roles or stable identity frameworks but must continuously answer questions such as "what to do", "how to act", and "who to be", which is reflected in the renegotiated nature of contemporary work relationships. A review of classical loyalty theories and modern career paradigms reveals growing tension between traditional loyalty - understood as long-term attachment to one organization - and current labour market realities. Loyalty however, has not lost its importance but has transformed: it shifts from employment stability and economic necessity toward relational, voluntary, and situational commitment based on value alignment, quality of collaboration, and opportunities to develop competencies enhancing employability. Employees remain in a relationship as long as the organization provides development, autonomy, value congruence, and a sense of agency; when these conditions are no longer met, leaving is seen not as a breach but as a rational career decision. Under structural uncertainty, the individual - rather than the organization - becomes the main guarantor of biographical continuity, fostering a shift from organizational to more self-directed (autotelic) loyalty.

In this context, it becomes pertinent to ask about the current meaning and scope of employee loyalty, as well as how it is defined, experienced, and practiced by participants in the contemporary labour markets. Answers to these questions are provided by the research presented in the following section, which aims to empirically reconstruct the meanings attributed to loyalty under a changing career paradigm.

4. Methods

This section presents selected findings from the authors survey research, analysed from two perspectives: employers and employees. The study was conducted on a nationwide sample using a mixed-method approach (CAWI and CATI). It was carried out in September 2025 on a sample of N = 1000, including employees (N = 500) economically active individuals aged 18-65, and employers (N = 500) representing 29 private-sector industries[1].

Participants included private-sector employees representing industries such as: research and development; banking and finance; biotechnology and chemistry; construction; consulting; journalism and media; energy; pharmaceuticals; geodesy, geology, and environmental protection; mining; internet and e-commerce; IT (administration, graphics, programming, web development, hardware); accounting; logistics; marketing; real estate; customer service and call centres; law; industrial production (other); construction industry (commercial and residential buildings); construction industry (industrial equipment and infrastructure); automotive industry (parts, sales, and repair services); advertising and PR; sales and trade; telecommunications; transport; and insurance.

5. Results

The chart below (Figure 1) compares selected responses from both samples - employers and employees - regarding interpretations of loyalty and their scope of meaning. A more detailed comparison is presented in the table (Table 2). Below is a commentary on the results for each respondent group.

[1] The study was conducted by the research agency Openfield on behalf of Trenkwalder.



Note: Values represent the percentage of respondents' indications.

Figure 1. Comparison of employers' and employees' perspectives.

Source: own elaboration.

The table below presents selected results along with commentary, highlighting the contrast between how employers and employees understand loyalty.

Table 2.
Contrast of loyalty perspectives: employers vs. employees

Dimension	Employers perspective (N = 500)	Employees perspective (N = 500)
Main definition of loyalty	High quality of work and task (52.4%)	Diligent and committed task performance (69.4%)
Primary focus	System efficiency and process continuity	Personal engagement and fulfilment, individual contribution
Secondary indicators	Remaining despite alternative offers (41.6%) Adherence to rules (41.2%)	Adherence to rules (55.6%) Responsibility for outcomes (51.4%)
Nature of loyalty	Functional, depersonalized, instrumental	Engaged, personalized, subjective
Level of reification	Loyalty perceived as a commodity that can be bought or lost (59%)	--
Dynamics of employee loyalty	Decline over the past 5 years (66.8%), intensified by the growth of well-being culture (46.6%)	--
Gender differences	--	Women: team responsibility (55%) Men: loyalty to the employer (47.3%)
Generational differences	--	Generation Z (18-24): rejecting counteroffers 55+: internalization of values (62.8%) and responsibility (57.7%)
Moment of reflection on loyalty	Becomes apparent mainly in its absence	Perceived as an ongoing expression of one's personal attitude toward work
Dominant logic	Organizational stability and efficiency	Individual commitment and responsibility

Source: own elaboration.

Employers' perspective (N = 500) The analysis of employers' responses indicates that loyalty is primarily defined in functional and performance-related terms. Its main manifestation is high-quality work and task fulfilment, followed by employment stability and adherence to procedures. This is particularly evident in flexible forms of employment, where effectiveness in task execution matters more than attachment to the employer. This perspective focuses on process continuity and organizational efficiency, while the relational dimension - such as employee well-being or identification - remains secondary. Thus, loyalty is perceived not as a component of the relationship, but as a condition for the smooth functioning of the system, becoming most visible when it is lacking.

Employees from the employers' perspective Employers observe a clear decline in employee loyalty (66.8%), and its durability is, in their view, dependent on consistent support from the organization for individual employee development (62.4% of responses). In this sense, confluent loyalty is realized as the ability to pursue one's own goals through attachment to a given organization. Moreover, according to employers, the strongly individualistic orientation of employees is associated with a shift in loyalty - from a specific company to the broader profession (46.2% of responses). There is also an increasingly common belief that long-term loyalty to a single employer may hinder employee development (51.2% of responses), supporting the view of loyalty as having an instrumental character.

Employees' perspective (N = 500) The analysis of employees' responses indicates that loyalty is primarily perceived as personal commitment and diligent task performance, with this category receiving a notably higher share of responses than among employers. It is followed by adherence to organizational rules and a sense of responsibility for team or company outcomes, particularly emphasized by women and older employees. Men more often associate loyalty with faithfulness to the employer and willingness to remain with the company despite competing offers, giving it a more instrumental character. Generational differences are also evident: younger respondents link loyalty to rejecting alternative job offers, while older employees stress internalization of values and responsibility toward the organization. Unlike the employer perspective, the employee view is more subjective and individualized, emphasizing personal engagement as the core expression of loyalty. Moreover, when such engagement is supported by favourable conditions - such as flexible work arrangements (e.g., home office or task-based work) - employee attachment clearly increases.

6. Conclusions

The comparison of both perspectives shows that although employers and employees identify similar manifestations of loyalty, they assign different meanings to them. For employers loyalty is primarily a guarantee of system efficiency and process continuity,

whereas for employees it appears as an expression of personal commitment and responsibility. It can be argued that the difference lies not in behaviours themselves, but in divergent interpretations of their meaning. This tension between functional and relational understandings of loyalty highlights the need for a model that captures it as a sustained alignment of expectations and actions between both parties - namely, confluent loyalty.

Additionally, as many as 59% of employers describe loyalty as a "commodity" that can be acquired, maintained, or lost depending on the conditions offered by the organization, while 51% believe that under conditions of economic uncertainty, loyalty to a single organization is losing its importance, giving way to career strategies based on limited attachment to a specific employer and a greater job mobility.

7. Discussion

The findings highlight a fundamental shift in the understanding of employee loyalty under contemporary labour market conditions. While employers and employees refer to similar behaviours, their interpretations diverge, reflecting a tension between functional and relational perspectives. This discrepancy suggests that loyalty is no longer a stable, universally shared construct but a context-dependent and negotiated phenomenon.

The results align with broader theoretical developments emphasizing the decline of long-term, organization-cantered commitment in favour of more flexible and self-directed career orientations. In this context, loyalty becomes conditional, grounded in perceived value, reciprocity, and opportunities for development rather than in permanence or obligation. The observed shift toward individual responsibility for career continuity further supports the idea that loyalty is increasingly decoupled from a single employer and embedded in a broader professional development. Following the results of Deloitte report (Smarżewska, 2024), the main activities were listed which companies can invest to aimed at strengthening employees' loyalty: a positive organizational culture, supportive role of leaders, appropriate motivational systems and attractive financial conditions, as well as flexible forms of employment (i.e. remote or hybrid work).

The proposed concept of confluent loyalty offers a useful framework for integrating these perspectives. By framing loyalty as a dynamic alignment of expectations and goals, it captures both the organizational need for stability and the individual need for autonomy and growth. This relational approach may be particularly relevant for HRM practices aimed at fostering sustainable engagement in conditions of uncertainty and mobility.

At the same time, the exploratory nature of the study calls for caution. Further empirical validation is needed to determine whether confluent loyalty constitutes a distinct construct and how it relates to key organizational outcomes such as retention, performance, and team cohesion. The presented findings are preliminary and descriptive, aiming to capture perceptual differences in how loyalty is understood by employers and employees rather than to test statistically significant relationships. The study did not use a validated loyalty scale but relied on declarative indicators, which limits conclusions about the structure and psychometric properties of the construct. Therefore, the results should be treated as exploratory and requiring further conceptualization and operationalization.

Future research should:

1. precisely define loyalty - including confluent loyalty - at theoretical and construct levels,
2. develop and validate a measurement tool distinguishing functional, relational, and instrumental dimensions,
3. conduct exploratory and confirmatory factor analyses to verify the construct's structure,
4. test the model quantitatively using relationship analyses and structural models,
5. include longitudinal designs to capture the dynamics of alignment over time.

Such an approach would enable empirical verification of whether confluent loyalty constitutes a distinct construct from classical organizational commitment and whether it is associated with variety of organizational outcomes such as retention, turnover, performance, effectiveness or team stability.

8. Summary

The article attempts to reinterpret employee loyalty in the context of late modernity, marked by job insecurity and increasing career mobility. A review of classical concepts - from social exchange theory to the three-component model of commitment - shows that loyalty has traditionally been understood as a relatively stable attitude based on fit, cost calculations of leaving, or emotional and normative attachment. However, the contemporary labour market challenges these assumptions, shifting the focus from enduring commitment to a conditional, reflexive relationship grounded in ongoing evaluation of expectations and alignment of development paths.

The empirical findings reveal interpretive differences between employers and employees. For employers, loyalty is primarily associated with organizational efficiency and goal achievement, and is sometimes even treated as a quasi-material value ("commodity"), whereas for employees it reflects personal commitment and responsibility. The divergence lies not in behaviors themselves but in their interpretation. Although the findings are exploratory and require further validation, they open space for an integrative model. In response, the concept of

confluent loyalty is proposed as a dynamic, relational construct based on perceived alignment of goals, reciprocity, and acceptance of the revisable nature of employment relationships. This model extends classical approaches and provides a framework for further research on the relational dimension of loyalty.

References

1. Arthur, M.B. (1994). The boundaryless career: A new perspective for organizational inquiry. *Journal of Organizational Behavior, 15*(4), 295-306.
2. Arthur, M.B., Khapowa, S.N., Wilderom, C.P. (2005). Career success in a Boundaryless Career World. *Journal of Organizational Behavior, 2*(26), 177-202.
3. Arthur, M.B., Rousseau, D.M. (1996). *The Boundaryless Career: A New Employment Principle for a New Organizational Era*. Oxford University Press.
4. Bannya, A.R., Bainbridge, H.T., Chan-Serafin, S. (2023). HR practices and work relationships: A 20 year review of relational HRM research. *Human Resource Management, 62*(4), 391-412.
5. Becker, H.S. (1960). Notes on the concept of commitment. *American Journal of Sociology, 66*(1), 32-40.
6. Bennett, N., Lemoine, G.J. (2014). What a difference a word makes: Understanding threats to performance in a VUCA world. *Business Horizons, 57*(3), 311-317.
7. Blau, P.M. (1964). Exchange and Power in Social Life. *Sociological Inquiry, 34*(2), https://doi.org/10.1111/j.1475-682X.1964.tb00583.x
8. Blau, P.M. (2009). *Wymiana i władza w życiu społecznym.* Kraków: Zakład Wydawniczy Nomos.
9. Boxall, P., Purcell, J. (2016). *Strategy and Human Resource Management*. 4th Edition, London: Palgrave Macmillan.
10. Bugdol, M. (2006). *Wartości organizacyjne. Szkice z teorii organizacji i zarządzania*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
11. Cable, D.M., DeRue, D.S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology, 87*(5), 875-884.
12. Czakon, W. (2024). Superburzliwość: splot różnych nieciągłości strategicznych. In: A. Tomaszewski (ed.), *Niepewność a strategia* (pp. 27-33). Warszawa: Oficyna Wydawnicza SGH.
13. De Vos, A., Van der Heijden, B.I., Akkermans, J. (2020). Sustainable careers: Towards a conceptual model. *Journal of Vocational Behavior*, *117*.
14. DeFillippi, R.J., Arthur, M.B. (1994). The boundaryless career: A competency-based perspective. *Journal of Organizational Behavior, 15*(4), 307-324.

15. Edafioghor, T.E., Zhou, Q., Wu, C.H. (2026). Leveraging employees' social capital for organizational resilience in small and medium-sized enterprises: The role of high-involvement work practices. *Human Resource Management, 65*(3), https://doi.org/0.1002/hrm.70052.
16. Eva, N., Newman, A., Jiang, Z., Brouwer, M. (2020). Career optimism: A systematic review and agenda for future research. *Journal of Vocational Behavior*, *116*, 103287.
17. Fugate, M., Kinicki, A.J., Ashforth, B.E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior, 65*(1), 14-38.
18. Giddens, A. (2001). *Nowoczesność i tożsamość: „Ja" i społeczeństwo w epoce późnej nowoczesności*. Warszawa: PWN.
19. Hall, D.T. (2004). The protean career: A quarter-century journey. *Journal of Vocational Behavior, 65*(1), 1-13.
20. Heinrich, D. (2026). Crowdsourcing Career - Current Research on Career in a Boundaryless Field. In: *Crowdsourcing - Innovations in Digital Collaboration [Working Title]*. IntechOpen. https://doi.org/10.5772/intechopen.1014211
21. Homans, G.C. (1958). Social behavior as exchange. *American Journal of Sociology, 63*(6), 597-606.
22. Juchnowicz, M. (2010). *Zarządzanie przez zaangażowanie*. Warszawa: PWE.
23. Ketchand, A.A., Strawser, J.R. (2001). Multiple dimensions of organizational commitment: Implications for future accounting research. *Behavioral Research in Accounting, 13*(1), 221-251.
24. Kumar, S., Bagherian, A., Lochab, A., Khan, A. (2023). Protean and boundaryless career attitudes as antecedents of organizational commitment - evidence from the Indian IT industry. *Businesses, 3*(1), 83-97.
25. Meyer, J.P., Allen, N.J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review, 1*(1), 61-89.
26. Meyer, J.P., Allen, N.J. (1997). *Commitment in the Workplace: Theory, Research, and Application*. Sage.
27. Moczydłowska, J.M. (2013). Zaangażowanie pracowników a aspekty psychologiczne i organizacyjne. *Myśl Ekonomiczna i Polityczna, 4*(42), 162-171.
28. Pfeffer, J. (1998). *The Human Equation: Building Profits by Putting People First.* Harvard Business School Press.
29. Roczniewska, M., Retowski, S. (2014). Rola satysfakcji z pracy w relacji między dopasowaniem człowieka do organizacji w zakresie strategii realizacji celów a zdrowiem psychicznym. *Medycyna Pracy, 65*(5), 621-631.
30. Ruiz-Martínez, A., Frasquet, M., Gil-Saura, I. (2019). How to measure B2B relationship value to increase satisfaction and loyalty. *Journal of Business & Industrial Marketing, 34*(8), 1866-1878, https://doi.org/10.1108/JBIM-10-2018-0289.

31. Smarżewska, D. (2024). Tools for managing loyalty of public hospital employees. *Zeszyty Naukowe. Organizacja i Zarządzanie, 199*. Politechnika Śląska, https://doi.org/10.29119/1641-3466.2024.199.41
32. Van Vianen, A.E. (2018). Person-environment fit: A review of its basic tenets. *Annual review of organizational psychology and organizational behavior, 5,* 75-101.
33. Verquer, M.L., Beehr, T.A., Wagner, S.H. (2003). A meta-analysis of relations between person–organization fit and work attitudes. *Journal of Vocational Behavior, 63*(3), 473-489.
34. Wang, F., Xu, Y., Zhou, X., Fu, A., Guan, Y., She, Z., Wang, Z., Bi, Y. (2022). Are adaptable employees more likely to stay? Boundaryless careers and career ecosystem perspectives on career adaptability and turnover. *Applied Psychology, 71*(4), 1326-1346.
35. Zhu, F., Guo, H., Xu, Y., Hu, H., Guan, Y. (2025). Commitment is not enough: how and when occupational commitment influence employees' organizational turnover intention. *Journal of Managerial Psychology, 40*(8), 1091-1105.

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THE INFLUENCE OF INDIVIDUAL PERSONALITY CHARACTERISTICS ON TRUST IN AN ORGANIZATION – AN EMPIRICAL ANALYSIS

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Purpose: The purpose of the work was the identification of cause-and-effect relationships between trust in the organisation (variable dependent) and characteristics, ingredients, personalities, and respondents according to the five-factor model (the so-called Big Five – variables independent).
Design/methodology/approach: The empirical material was obtained through a survey using a questionnaire. The survey was conducted in 2026 in the West Pomeranian province. 304 questionnaires were analysed. At work, they found application methods, descriptions, statistical analyses, correlations, and single-factor analysis of variance (ANOVA).
Findings: The ANOVA indicates three areas of personality analysis among individuals, in which statistically significant differences in trust levels are identified depending on self-assessment within a given personality component: neuroticism, conscientiousness, and agreeableness. The NIR tests conducted in the next stage of the analysis reveal the strongest differentiation in the synthetic measure of trust in the organisation across respondent groups. selecting individual personality characteristics was noted in the area of conscientiousness.
Research Limitations/implications: When pointing out research limitations, attention should be paid to the subjectivity of respondents' declarations and to the fact that they conduct subjective self-assessments within individual areas of personality analysis.
Practical Implications: Analysing the above, it should be noted that individual personality can influence trust within an organisation. Therefore, it is worthwhile to examine both analytical spheres, with particular emphasis on neuroticism, conscientiousness, and agreeableness.
Originality/value: The topic of such connections has not been explored in the literature. A query in the Scopus database identified one work (Ciganecova, Lukac, 2025), in which the analysed relationship was examined (although not in the enterprise segment but in public administration).
Keywords: trust in organisation, big five, personality characteristics.
Category of the paper: research paper.

1. Introduction

Many organisational relationships are established on trust. Trust can lead to cooperation among people, groups, and organisations (Fard, Karimi, 2015).

Trust in an organisation should be viewed as a positive process that promotes positive outcomes. Destructive relationships within an organisation are typically associated with distrust. It's important to remember that trust in an organisation isn't a homogeneous category. Rather, it encompasses several distinct constructs (institutional trust, trust in leadership or superiors, and trust in coworkers), which can, however, be studied in parallel.

It should be emphasised, however, that the individual constructs interpenetrating. The leader in an organisation is its key figure and representative; therefore, trust in the leader builds institutional trust. Trust in the leader can persist even in a climate of general distrust within the organisation. Opposite relationships are also possible. This study utilised the universal category of "trust in the organisation."

In this study, the influence of personality traits (independent variable) on organisational trust was considered. The analysis utilised the Big Five model, which characterises an individual's personality in five areas: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. The topic of such relationships has not been explored in the literature. A Scopus database search identified one study (Ciganecova, Lukac, 2025) that examined this relationship, though not in the enterprise segment but in public administration. Therefore, the analysis conducted in this study is groundbreaking.

The research presented in this paper fills this gap. The work begins with a theoretical introduction to the research topic. Methodological aspects of the research are then discussed, followed by a presentation of the results. These formed the basis for the discussion, which is presented in the next section, along with a presentation of the utilitarian aspects of the research, its limitations, and proposed directions for future research.

2. Theoretical Aspects

Trust should be viewed as a positive process. It induces positive expectations in individuals about others' intentions and behaviours. By trusting each other or the organisation, individuals are consequently more willing to take risks (without fear of deception), which can yield positive outcomes (e.g., higher levels of task performance or prosocial behaviour) (Mayer, Gavin, 2005; Dirks, Ferrin, 2001; Zhu, Akhtar, 2014). Using one widely accepted definition of trust, when people are in a trusting relationship, they are willing to expose themselves to vulnerability with

the other party, assuming that the other party will not exploit this vulnerability to act contrary to the individual's best interests (Meyer, Davis, Schoorman, 1995; Rousseau et al., 1998).

Destructive relationships in an organisation (e.g., ostracism, mobbing, or silence) are associated with distrust, reducing the previously mentioned willingness to take risks in specific actions, and inducing a negative perception of the environment and its members (Lazarus, 1995).

Trust in organisations is not perceived as a homogeneous category in the literature (Kunasz, 2025b). In various analyses, authors refer to different conceptual categories. The classic division includes institutional and interpersonal trust (Meyer, Davis, Schoorman, 1995). Institutional trust develops through a network of structured relationships and formalised organisational rules (Fox, 1974). Interpersonal trust refers to individual relationships between employees. In this case, a distinction should be made between vertical trust (to managers and leaders) and horizontal trust (to co-workers) (Ellonen, Blomqvist, Puumalainen, 2008). Interpersonal trust depends on individuals' personal characteristics and develops through (sometimes voluntary) frequent interpersonal contact.

Institutional trust refers to people's positive expectations regarding the behaviour of organisational employees, based on relationships, organisational roles, and interrelationships (Shockley-Zalabak, Ellis, Winograd, 2000). Institutional trust refers to an employee's belief in the power of institutional structures to achieve success and shape their own future (McKnight, Cummings, Chervany, 1998). This type of trust focuses on the organisation as a whole. The individual assumes that the organisation will act to their benefit, or at least not to their detriment (Saglam, 2016). A high level of trust in the organisation translates into low evaluation costs and other control mechanisms (Khanifar et al., 2009).

Organisational trust can be built on positive expectations of organisational members regarding competence, benevolence, and reliability (Meyer, Davis, Schoorman, 1995; Ellonen, Blomqvist, Puumalainen, 2008; Knoll, Gill, 2011). By trusting a leader, employees believe that the leader possesses the knowledge, skills, and experience required for the job and can ensure the organisation's success. Trust in a leader's benevolence is based on an individual employee's belief that the leader serves them well by caring for their well-being, understanding their needs, and helping without expecting compensation. Trust in leaders' reliability refers to their adherence to acceptable rules (Zwiech, 2024). Subordinates believe that leaders have a strong sense of justice and, as a result, are honest and keep their word (Abdillah et al., 2021).

When employees are treated fairly by a leader they trust, they are likely to view their relationship with that leader in terms of social rather than economic exchange. According to social exchange theory, the relationship-based perspective assumes that followers (in this case, subordinates) will reciprocate toward the other party in the relationship (the leader). They will be motivated to go beyond what is expected of them (Walumbwa, Schaubroeck, 2009; Dirks, Ferrin, 2002).

(Galford, Drapeau, 2003) categorise trust somewhat differently, though also using a three-component typology. Theoretically, the different types of trust are equally important. Employees refer to them when they use the word trust. The first type of trust is based on employees' perceptions of the organisation's competence to cope with challenges, achieve goals, and manage effectively. The second element of the typology is trust in leadership. This refers to subordinates' belief that senior managers are sufficiently competent at allocating resources and responsibilities within the organisation and at making decisions. At the third level, the category of personal trust is introduced. This still encompasses trust in superiors. Employees know that their immediate superiors are trustworthy and can manage people fairly. This concept does not account for horizontal trust among coworkers.

On the one hand, these distinct areas interpenetrate (Kunasz, 2025a). For example, trust in the leader builds trust in the organisation, as the leader is perceived as the organisation's key representative. Therefore, the leader plays a key role in building an atmosphere of mutual trust (Kim et al., 2019). On the other hand, each of the previously mentioned forms of trust is treated in the literature as a separate construct (with distinct determinants and consequences). However, there is a positive relationship between trust in the supervisor and trust in the organisation (Tan, Tan, 2000).

3. Method

The study aimed to identify the cause-and-effect relationships between trust in an organisation (dependent variable) and the characteristics of the respondents' personality components in accordance with the five-factor model of personality (the so-called Big Five – independent variables).

The analysed empirical material was collected during the period November 2025 - January 2026 (time scope of the research) from respondents in the West Pomeranian Voivodeship (spatial scope of the research). The empirical material was obtained from 304 respondents.

The dependent variable was a construct derived from respondents' answers to six sub-questions within a six-item scale. The scale did not include reverse-ended questions. The synthetic measure for a given respondent was the average of their individual choices on a five-point Likert scale, where 1 indicated complete disagreement, and 5 indicated complete agreement. To reflect the intensity of organisational trust in the population, the mean value of the synthetic measures was also calculated.

Respondents also self-assessed the intensity of personality traits within individual areas in accordance with the five-factor model of personality - the so-called Big Five (Fiske, 1949; Norman, 1963). Self-assessment took place within a semantic differential, where opposite characteristics were presented at the extremes within five distinct areas:

- extraversion (I am an extroverted – introverted person),
- agreeableness (I am a person: agreeable – quarrelsome),
- conscientiousness (I am a person: conscientious – unconscientious),
- neuroticism (I am a person: neurotic – emotionally stable),
- openness to experience (I am a person: creative – conventional).

The respondent could choose the following options:

- 1 - fully feature X,
- 2 - feature X dominates,
- 3 - the proportions of the intensity of both features are equal,
- 4 - feature Y dominates,
- 5 - fully Y feature.

To assess the intensity of individual characteristics within a given area, a weighted average of the responses for each response option was also calculated for the sample. A measure value approaching unity indicated significant intensity of characteristic Y, while an extreme value of 5 indicated significant intensity of characteristic Y.

The approach used in the data collection procedures determined the design of the subsequent analysis. Respondents in a given area could be divided into five groups based on the selected option (1-5). Within these groups, differences in trust in the organisation in the sample (measured using the mean measure presented earlier) were examined.

To determine the statistical significance of these differences, one-way analysis of variance (ANOVA) was used, as the number of distinct groups exceeded two (in such cases, Student's t-tests were sufficient). In the first stage of the analysis of trust in the organisation, it was generally determined whether such differentiation of mean measures in the sample in a given area existed. Then, based on post-hoc tests, the data were analysed within pairs of groups (e.g., groups 1 and 4). Post hoc testing procedures were performed using NIR tests. In both the overall analyses and intergroup comparisons, the cut-off p-value was set at $p = 0,05$.

The relevant calculations were performed using the Tibco statistical package. Statistica ver. 13.3.

4. Research results

The first stage of presenting the research results involved a statistical description of the variables used in the analyses. The study examined the relationship between organisational trust (dependent variable) and respondents' personality characteristics, consistent with the Big Five model (independent variable). Table 1 presents selected statistical measures for these variables. The subsequent tables present the distributions of the variables: the dependent variable, shown in the histogram in Figure 1 (a continuous variable ranging from 1 to 5), and the independent variables (5 choices within a semantic differential) in Table 2.

Table 1.
Selected measures of statistical description of dependent and independent variables

variables	mean	standard deviation	skewness	kurtosis
trust	3,40	0,99	-0,30	-0,62
extroversion	2,88	1,08	-0,08	-0,57
agreeableness	2,64	1,06	0,43	-0,33
conscientiousness	2,24	0,95	0,64	0,31
neuroticism	3,28	1,09	-0,32	-0,43
openness	2,39	1,07	0,34	-0,78

Source: Author's own compilation based on author's own research.

The strongest left-sided distribution among the individual's personality characteristics was identified for neuroticism (skewness -0,32). The highest weighted mean level for the analysed measure was observed in this category (3,28). 78.3% of respondents chose the neutral option and options close to emotional stability. It is also worth noting that a similar pattern of relationships (negative skewness and a relatively high mean) can be identified for the construct of trust in the organisation.

The lowest mean value (2,24) was observed in the analysis of respondents' responses regarding conscientiousness. This area also showed the highest positive skewness (right-skewed distribution, with responses indicating conscientiousness, with option 2 selected most frequently).

It should also be noted that in the analysed area of individual personality characteristics (conscientiousness), the variable's distribution is clearly platykurtic (positive kurtosis). In the remaining areas, negative kurtosis values are noted (ranging from -0,78 for openness to -0,33 for agreeableness – leptokurtic distributions).

A pattern with high positive skewness and relatively low mean values was also observed for agreeableness (dominance of agreeable individuals) and openness (dominance of creative individuals). A distribution without significant asymmetry was observed for extraversion.

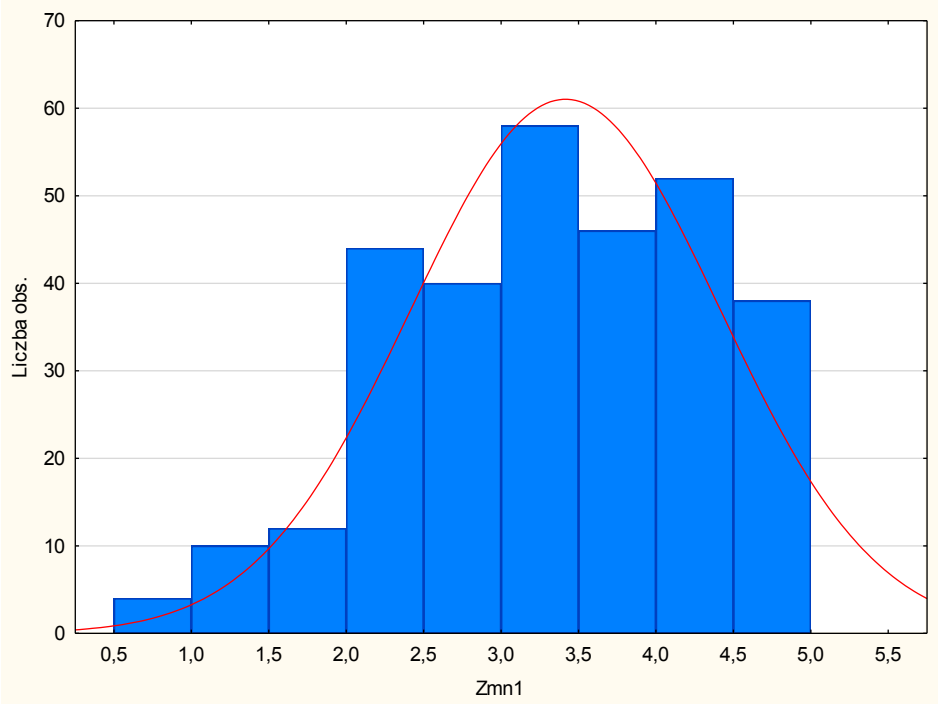

Figure 1. Histogram of the distribution of the dependent variable.

Source: Author's own compilation based on the author's own research.

Table 2.

The structure of respondents ' declarations regarding their self-assessment of their personality in selected areas

field	trait X	1	2	3	4	5	trait Y
extroversion	ekstroverted	12,5	21,1	38,2	22,4	5,9	introverted
agreeableness	conciliatory	12,5	36,8	30,9	13,8	5,9	quarrelsome
conscientiousness	conscientious	22,4	42,1	27,0	5,9	2,6	unscrupulous
neuroticism	neurotic	7,2	14,5	34,2	31,6	12,5	emotionally stable
openness	creative	23,7	33,6	25,0	15,8	2,0	conventional

Source: Author's own compilation based on author's own research.

A correlation matrix was constructed to capture the relationships among the variables analysed in the study. The data are presented in Table 3.

Table 3.

Correlation matrix of dependent and independent variables

variables	trust	extroversion	agreeableness	conscientiousness	neuroticism
extroversion	0,041				
agreeableness	-0,021	-0,026			
conscientiousness	0,075	0,092	**0,343**		
neuroticism	**0,156**	-0,090	**-0,448**	**-0,167**	
openness	0,077	**0,189**	-0,045	0,094	-0,013

Source: Author's own compilation based on author's own research.

No high correlations were observed between the dependent variable (organisational trust) and variables reflecting respondents' opinions on individual personality areas. The highest value was observed in the relationship between organisational trust and neuroticism. This relationship

is positive. However, the correlation measure was relatively low (0,156). Due to the large sample size, this relationship is statistically significant.

Slightly stronger correlations can be identified by analysing relationships among variables that reflect individual personality characteristics. The most strongly correlated variable from this group of characteristics is agreeableness. It exhibits a statistically significant negative relationship with neuroticism (correlation coefficient value of -0,448) and a statistically significant positive relationship with conscientiousness (correlation coefficient value of 0,343). The relationship between neuroticism and conscientiousness is also statistically significant, although the correlation coefficient is lower (a negative value of -0,167). A statistically significant positive relationship was also noted between extraversion and openness (correlation coefficient = 0,189).

Despite the relatively weak correlation coefficients recorded between the dependent and independent variables, and given the potential for significant variation in respondents' declarations within each area (due to the ability to choose one of five options), an analysis of differences in trust levels was conducted within the areas, based on responses, across groups of respondents with varying degrees of extreme traits. Data were collected using a semantic differential, but responses were coded on a Likert scale from 1 (highest intensity of trait X) to 5 (highest intensity of trait Y). Therefore, five such groups can be distinguished within each area. For more than two groups, a one-way analysis of variance (ANOVA) is used. Table 4 presents SS and MS for the effect and error term (for each case, the degrees of freedom are 4 for the effect and 299 for the error term), as well as data for determining the statistical significance of differences for all groups (F test statistic and p-value for this statistic).

Table 4.
ANOVA analysis for individual areas of personality analysis

variables	SS effect	MS effect	SS error	MS error	F	p
extroversion	3,02	0,76	296,16	0,99	0,76	0,550
agreeableness	**16,40**	**4,10**	**282,78**	**0,95**	**4,33**	**0,002**
conscientiousness	**19,97**	**4,99**	**279,21**	**0,93**	**5,35**	**0,000**
neuroticism	**12,03**	**3,01**	**287,15**	**0,96**	**3,13**	**0,015**
openness	3,50	0,87	295,68	0,99	0,88	0,474

Source: Author's own compilation based on author's own research.

Statistically significant differences in the mean level of the dependent variable (organisational trust) were identified across the selected respondent groups in three personality domains: conscientiousness, agreeableness, and neuroticism (in ascending order of p-value). In each case, the p- value for the F-test was lower than the accepted threshold of p = 0,05. For extraversion, the p- value for the F-test was 0,550 (F = 0,76), and for openness, it was 0,474 (F = 0,88).

The above analyses only allow us to identify areas where statistically significant differences in the averages reflecting the level of trust within the organisation are revealed in the identified groups. However, it is not possible to clearly determine which groups exhibit this phenomenon.

Such information can be obtained by conducting a series of post-hoc tests. There are many techniques for conducting such tests. In this study, NIR tests were selected for analysis.

For the areas of agreeableness, conscientiousness, and neuroticism, Tables 5-7 present matrices of NIR test values that represent all possible combinations of relationships among individual respondent groups within each area. These are areas where statistically significant relationships for selected combinations could be expected. Statistically significant differences in means within the groups comprising a given pair should be indicated by values below the threshold p-value of 0,05 (these cases are highlighted in Tables 5-7).

In the areas of extraversion and openness (where the p- value for the F test was clearly higher than the threshold value), the NIR tests performed did not indicate statistically significant differences in the means for all combinations of the identified groups of respondents; the effects of the procedures performed were not reported in the tables.

Table 5 presents data on the agreeableness dimension.

Table 5.
NIR test value matrix for the agreeability area

	1	**2**	**3**	**4**
2	0,414			
3	**0,004**	**0,004**		
4	0,430	0,898	**0,040**	
5	0,357	0,101	**0,002**	0,119

Source: Author's own compilation based on author's own research.

In this area, in each set of pairs with statistically significant differences in the mean of the dependent variable, a group of respondents who choose the neutral option (3) will appear. Statistically significant differences in the mean are shown here for each of the remaining groups (1, 2, 4, 5). The above findings correspond to the observed symmetry in this region of the variable's distribution (with skewness slightly below zero).

Table 6 presents data for the area of conscientiousness.

Table 6.
NIR test value matrix for the consistency area

	1	**2**	**3**	**4**
2	**0,018**			
3	0,075	0,643		
4	0,368	**0,018**	**0,042**	
5	**0,009**	**0,000**	**0,001**	0,078

Source: Author's own compilation based on author's own research.

The analysis of the examined relationships can be approached in two directions. In the first case considered, the axis for the analyses is Group 2. Statistically significant differences in means are observed in comparisons with Groups 1 (conscientiousness) and 4 and 5 (unconscientiousness). Statistically significant differences in means relative to Group 3 (neutral position) can be identified for Groups 4 and 5 (unconscientiousness). Additionally, statistically significant differences in means were also observed in the relationships between the opposing

Groups 1 and 5. This area clearly identified the largest number of statistically significant relationships. The distribution of the variable in this area is clearly right-skewed. 42,1% of respondents chose option 2 (closer to conscientiousness) in this area; therefore, the group choosing this option forms the main axis of differentiation in this area.

Table 7 presents data on the neuroticism domain.

Table 7.
NIR test value matrix for the neuroticism area

	1	2	3	4
2	0,834			
3	0,778	0,501		
4	0,173	0,142	**0,006**	
5	0,080	0,061	**0,005**	0,439

Source: Author's own compilation based on author's own research.

In the last area examined, a pattern familiar from previous analyses emerged – statistically significant differences in the mean between the group choosing the neutral option (3) and the options indicating emotional stability (i.e., 4 and 5). The distribution of this variable is left-skewed. The weighted mean for this area is significantly higher overall than in the other areas (3,28 vs values below 3 for all other areas). Statistically significant differences in group means were noted in this area only in these two cases. For the remaining eight cases, the analysed pairwise differences are not statistically significant. Therefore, it can be assumed that the differentiation of relationships in this group is relatively small.

5. Discussion

The topic of cause-and-effect relationships between trust in an organisation and the personality traits of individuals (the so-called Big Five model) was used in this work and is an unexplored topic, and can even be said to be innovative.

The study identified a statistically significant positive relationship (measured by the correlation coefficient) between the intensity of organisational trust and the saturation of individuals with given characteristics within the domain of neuroticism. Individuals' emotional stability promotes the perception of reality as trustworthy. Increases in individual neuroticism correlate with decreased levels of trust within the organisation. To some extent, this differentiation in the analysed area is confirmed by the univariate analysis of variance (at the overall level) conducted in the next stage. Still, NIR tests indicate statistically significant differences in the mean, reflecting the intensity of trust in only two cases (related to emotional stability). It is worth emphasising that individuals with a strong intensity of personality traits associated with the emotional stability factor dominate the sample.

Most NIR tests, in turn, indicate a discrepancy in means for individuals who choose different personality traits within the area of conscientiousness. Therefore, this area provides the strongest evidence of the influence of a specific personality type on perceptions of trust in an organisation. It is worth noting that the sample is clearly dominated by individuals who rate themselves as conscientious.

The ANOVA indicates yet another possible connection between the variables considered in this study and the relationship under study: agreeableness. It's worth emphasising that the distribution of this trait in the sample shows no significant asymmetry. The neutral option (3) is the axis of potential differentiation.

Research has failed to identify specific relationships between personality characteristics and the level of trust in organisations. In the case of the two personality domains introduced above (conscientiousness and agreeableness), the relevant correlation coefficients, which hovered practically around zero, indicated statistically insignificant relationships.

ANOVA also identified areas of personality analysis in which no statistically significant differences in trust intensity were observed across these characteristics. These are the areas of extraversion and openness to experience. Consequently, these areas make it difficult to direct actions that may influence trust levels within an organisation.

Analysing the above, it should be noted that individual personality can influence trust within an organisation. Therefore, it is worthwhile to examine both analytical spheres, with particular emphasis on neuroticism, conscientiousness, and agreeableness.

In identifying the limitations of the research, it is important to note the subjectivity of respondents' declarations and that they assessed themselves within specific areas of personality analysis. It is worthwhile to conduct research using a broader questionnaire assessing personality components to ensure greater objectivity in the assessment. It is also worthwhile to conduct analyses in further studies that separate trust into different categories: organisational trust, trust in leadership and the leader, and trust in colleagues.

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References

1. Abdillah, M.R., Anita, R., Hadiyati, Zakaria, N.B. (2021). Trust in leaders and employee silence behaviour: Evidence from higher education institutions in Indonesia. *Human Systems Management, Vol. 40, No. 4*, pp. 206-227.
2. Ciganecova, V., Lukac, M. (2025). Personality Traits, Trust in Institutions and Interpersonal Relationships Insights from Slovakia. *Politics in Central Europe, Vol. 21, No. 3*, pp. 433-455.
3. Dirks, K.T., Ferrin, D.L. (2002). Trust in leadership: meta-analytic findings and implications for research and practice. *Journal of Applied Psychology, Vol. 87, No. 4*, pp. 611-628.
4. Ellonen, R., Blomqvist, K., Puumalainen, K. (2008). The role of trust in organization innovativeness. *European Journal of Innovation Management, Vol. 11, No. 2*, pp. 160-181.
5. Fard, P.G., Karimi, F. (2015). The Relationship between Organizational Trust and Organizational Silence with Job Satisfaction and Organizational Commitment of the Employees of University. *International Education Studies, Vol. 8, No. 11*, pp. 219-227.
6. Fiske, D.W. (1949). Consistency of factorial structures for personality ratings from different sources. *Journal of Abnormal and Social Psychology, Vol. 44, No. 3*, pp. 329-344.
7. Fox, A. (1974). *Beyond Contract: Work, Power, and Trust Relations*. London: Faber & Faber.
8. Galford, R., Drapeau, A.S. (2003). The enemies of trust. *Harvard Business Review, Vol. 81*, pp. 89-95.
9. Khanifar, H., Moghimi, M., Jandaghi, Gh., Zarvandy, N. (2009). Analysis of Relation between Elements of Trust and Organizational Commitment of Personnel (social welfare organization of Qom state and education organization of Qom state). *Journal of Public Administration, Vol. 1, No. 2*, pp. 3-18.
10. Kim, S., Jung, K., Noh, G., Kang, L. (2019). What makes employees cynical in public organizations? Antecedents of organizational cynicism. *Social Behavior and Personality, Vol. 47, No. 6*, pp. 1-10.
11. Knoll, D., Gill, H. (2011). Antecedents of trust in supervisors, subordinates, and peers, *Journal of Managerial Psychology, Vol. 26, No. 4*, pp. 313-330.
12. Kunasz, M. (2025a). Employee silence and organizational trust – the context of artificial intelligence. In: K. Beyer, M. Łatuszyńska, K. Nermend, M. Piwowarski (Eds.), *Intelligent Management and Artificial Intelligence: Trends, Challenges, and Opportunities. Proceedings on 28th European Conference on Artificial Intelligence ECAI 2025 - InMan Workshop, Vol. 2* (pp. 210-222). Szczecin: Uniwersytet Szczeciński.

13. Kunasz, M. (2025b). Silence in an organization and trust in an organization - the role of the employee's gender. *Zeszyty Naukowe Politechniki Śląskiej, seria: Organizacja i Zarządzanie, No. 226*, pp. 615-627.
14. Lazarus, R.S. (1995). Psychological stress in the workplace. In: R. Crandall, P.L. Perrewé (Eds.), *Occupational stress: A handbook* (pp. 3-14). Taylor & Francis.
15. Mayer, R.C., Davis, J.H., Schoorman, F.D. (1995). An integrative model of organizational trust. *Academy of Management Review, Vol. 20, No. 3*, pp. 709-734.
16. Mcknight, D.H., Cummings, L.I., Chervany, N.I. (1998). Initial Trust Formation in New Organizational Relationship. *Academy of Management Review, Vol. 23, No. 3*, pp. 73-90.
17. Norman, W.T. (1963). Toward an adequate taxonomy of personality attributes: Replicated factor structure. *Journal of Abnormal and Social Psychology, Vol. 66, No. 6*, pp. 574-583.
18. Rousseau, D.M., Sitkin, S.B., Burt, R.S., Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review, Vol. 23, No. 3*, pp. 393-404.
19. Saglam, A.C. (2016). The Effects of Vocational High School Teachers' Perceived Trust on Organizational Silence. *Journal of Education and Training Studies, Vol. 4, No. 5*, pp. 225-232.
20. Shockley-Zalabak, P., Ellis, K., Winograd, G. (2000). Organizational trust: what it means, why it matters. *Organizational Development Journal, Vol. 18, No. 4*, pp. 35-49.
21. Tan, H.H., Tan, C.S. (2000). Toward the differentiation of trust in supervisor and trust in organization. *Genetic, Social, and General Psychology Monographs, Vol. 126, No. 2*, pp. 241-260.
22. Walumbwa, F.O., Schaubroeck, J. (2009). Leader personality traits and employee voice behavior: Mediating roles of ethical leadership and work group psychological safety. *Journal of Applied Psychology, Vol. 94, No. 5*, pp. 1275-1286.
23. Zhu, Y., Akhtar, S. (2014). How transformational leadership influences follower helping behavior: The role of trust and prosocial motivation. *Journal of Organizational Behavior, Vol. 35, No. 3*, pp. 373-392.
24. Zwiech, P. (2024). The impact of perception of organizational justice on employee attitude and behaviour. *Scientific Papers Of Silesian University Of Technology, Organization And Management Series, No. 199*, pp. 671-680.

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EMPLOYEE ENGAGEMENT OF THE YOUNGEST GENERATION IN THE LABOR MARKET

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Purpose: The purpose of this article is to attempt to analyze employee engagement in the context of age, seniority, education, and occupational group, and on this basis, to formulate research problems for further broader scientific research.
Design/methodology/approach: The research was conducted among 193 respondents from the youngest generation in the labor market, who completed a prepared survey questionnaire. The standardized Utrecht Work Engagement Scale (UWES-17) tool was used.
Findings: As the survey results indicate, respondents from the youngest generation in the labor market indicate a fairly high level of engagement. The generational change in attitudes toward observing working hours and the emphasis on fulfilling one's private life means that these employees do not get carried away with extreme emotions in the workplace, if they find it interesting and challenging, they are able to work longer.
Practical implications: These results provide guidance to employers on how to create jobs to increase the engagement of young workers in particular. It is important to pay attention to the attractiveness and complexity of tasks that, at the same time, are also challenging for the younger generation**.**
Originality/value: The use of a standardized worksheet makes it possible to compare the results with other surveys. What provides an added value are tips for employers and HR specialists on how to organize workplaces in order to increase employee engagement
Keywords: absorption, dedication, engagement, UWES, vigor**.**
Category of the paper: research article.

1. Introduction

Low levels of employee engagement are now a worldwide problem, with some even indicating that there is an engagement crisis (Mann, Harter, 2016). Engagement is crucial to the success of any organization, it means that employees are motivated, satisfied and active, which leads to higher productivity, better quality of work and greater loyalty to the organization.

With competition in the labor market intensifying and changes in the business market accelerating, the importance of engagement is increasing even more - organizations that can create favorable working conditions and motivate their employees can gain a competitive advantage faster and increase their chances of maintaining it. One of the measures and evidence of the effectiveness of motivational activities undertaken in organizations resulting from the process of shaping employee attitudes and behavior is precisely the level of employee engagement (Armstrong, 2009). Achieving the expected high level of engagement is based mainly on identifying employees with the organization through working relationships based on stability, shared responsibility or participation in decision-making, referring to a wide range of needs, professional and personal goals of employees (Stachowska, 2018). Some researchers indicate that job engagement is positively correlated with job satisfaction, organizational engagement, or civic behavior (Saks, 2006). It can be positively influenced by benefits, fair treatment by the management, results and feedback, the characteristics of the job itself (Abraham, 2012) or satisfaction with assigned tasks and responsibilities (Garg, Dar, Mishra, 2018). These elements provide a supportive environment to the employee, and so, for example, employees whose work is constantly enriched and made challenging feel compelled to become more involved. Open and supportive working relationships are a source of psychological security for employees, which, as a consequence, provides the opportunity to do new things, and in addition, when an employee is convinced that the organization cares about their well-being, they try to fulfill their responsibilities to the organization with greater engagement (Saks, 2006). An additional source of engagement is the perceived support from the supervisor, a broad sense of fairness and friendly working relationships (Jin, McDonald, 2017; Jin, McDonald, Park, 2016; Smythe, 2012).

2. Theoretical Approaches to Employee Engagement

The term "engagement" can be used when employees are interested in their work, have a positive and sometimes even enthusiastic attitude toward their work in their work environment, demonstrate voluntary behavior and are motivated to achieve high performance (Armstrong, Taylor, 2016). Employee engagement is multifaceted - it can be viewed as a state, behavior or disposition, and is associated with perseverance, vigor, energy, dedication, absorption, enthusiasm and even pride. As a state, it relates to organizational dedication, participation and satisfaction, as a behavior it manifests itself in innovative and proactive attitudes, as a trait it is evident by conscientiousness and having an autotelic personality (Macey, Schneider, 2008; Schaufeli, Bakker, 2004).

Employee engagement is a complex and multidimensional concept described in various ways in the literature. It may be understood as a multifaceted construct including cognitive, emotional and behavioral components, or as a positive state of dedication and willingness to work (Sun, Chanchai Bunchapattanasakda, 2019). Engagement is also defined as an attitude toward work involving knowledge about the organization, emotions toward its values and goals, and behavioral orientation toward the company (Juchnowicz, Kinowska, 2018). Many authors link engagement with identification with the organization and the use of employees' competencies to achieve its goals (Juchnowicz, 2010; Pocztowski, 2018). It is associated with willingness to exert additional effort and act beyond required standards (Kołodziejczyk-Olczak, 2014; Mrówka, 2010). Engagement may also involve strong psychological bonds with the organization and active participation in its development (Bańka et al., 2002; Skowron-Mielnik, 2014). It can also function as a mechanism influencing employee and organizational performance (Truss et al., 2011) and is conceptually distinct from traditional work attitudes (Herscovitch, Meyer, 2002), with roots in the idea of expressing oneself physically, cognitively and emotionally in work roles (Cook, Wall, 1980; Kahn, 1990).

3. Shaping employee engagement

As research to date indicates, increasing employee engagement can have a positive impact on maintaining a productive workforce, reducing turnover (McCarthy, Moonesinghe, Dean, 2020), organizational and individual performance, including employee satisfaction, increased productivity and profitability (Bakker, 2017; Kidron, Vinarski Peretz, 2018). The more the employees are confronted with positive work experiences and daily interesting demands, while having access to sufficient resources, the greater the work engagement. Complex tasks at work, demanding customers as well as time pressures can be a positive challenge when they receive sufficient support from co-workers and supervisors, have decision-making freedom and can use the skills they have acquired (Bakker, 2017).

The factors influencing employee engagement levels include, among others, their identification with the organization, which allows them to understand and create the organization's goals, a sense of impact on the effectiveness of actions, stability related to a strong desire to stay in one job, and passion arising from the work being performed. (Kaczyńska, Kałuziak, Stankiewicz-Mróz, 2015).

Building employee engagement is influenced by factors that depend on both the employer and the employee. Some of them are presented in table 1.

Table 1.
Factors affecting employee engagement that depend on both the employee and the employer

	CATEGORY	FACTORS AFFECTING ENGAGEMENT
FACTORS DEPENDENT ON THE EMPLOYER	career development	The organization enables learning and development opportunities for employees. The employee has the possibility of promotion in the future. Satisfaction with learning opportunities. Company assistance in identifying skills helpful for development. Managerial support in the employee's career.
	identification with the organization	The company shares financial success. The employee treats the goals of the department as their own. The company fosters a sense of participation in success. The employee is satisfied with their involvement in the decision-making process. The employee is proud of the quality of their work.
	a rewarding work environment	The organization offers a positive, enjoyable work environment. Employees receive recognition for their contributions. The employee feels encouraged to seek newer solutions. The supervisor has the skills to motivate employees. The employee is empowered to make necessary decisions in their work.
FACTORS DEPENDENT ON THE EMPLOYEE	personal	age gender interpersonal relations health condition competencies personal desire for development the need for self-actualization family situation housing situation
	work-related	type of work performed (mental, manual) nature of work - routine work, creative work autonomy at work type of position held organization of work schedule organization's personnel policy: • opportunity for development • clear criteria for promotion • use of an appropriate incentive system
	relational	interpersonal relations in the organization adaptation to the organizational culture employee-organization relationship

Source: own elaboration based on: (Borkowska, 2014; Roberts, Davenport, 2002; Smarżewska, 2018).

To increase employee engagement, regular communication with employees, especially regarding organizational goals and the role of employees in achieving them, as well as work-life balance can also be used (Revuru, Bandaru, 2024).

Croston (2008) and Smythe (2012) identify slightly different factors shaping employee engagement (fig. 1).

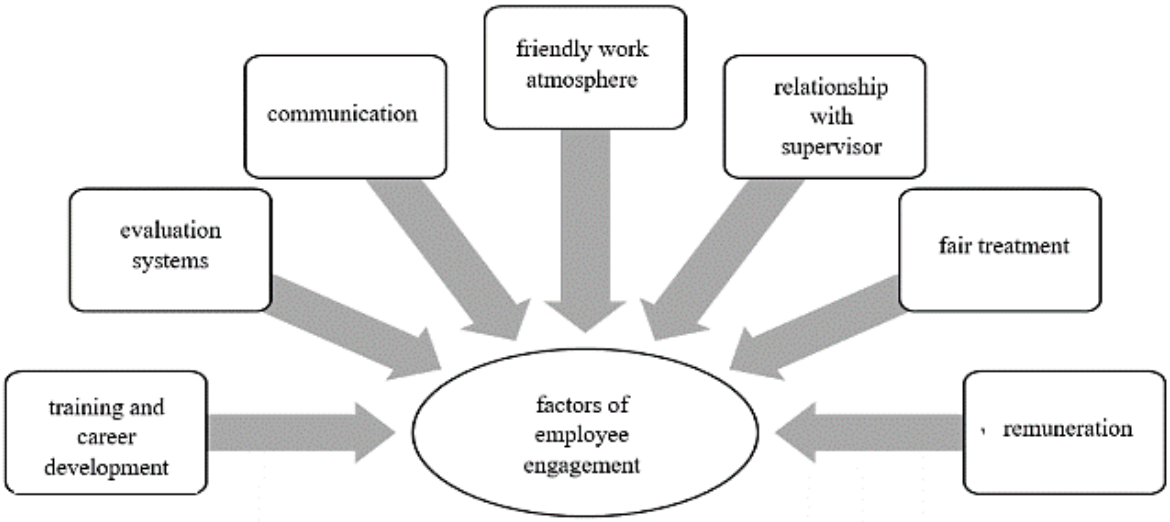

Figure 1. Factors affecting employee engagement.

Source: own elaboration based on: (Croston, 2008; Smythe, 2012).

The benefits of employee engagement serve as an incentive for organizations to make efforts to increase it not only through directly motivational means such as remuneration or benefits, but it is suggested that a caring HRM system can bring high benefits (Boon, den Hartog, Lepak, 2019; Cooper-Thomas, Xu, Saks, 2018; Saks, 2022). This system is designed and implemented to meet basic psychological needs of employees, improve their physical and mental health, provide assistance in learning, development, and achieving success, and generally improve well-being (Houghton et al., 2015). It is indicated that a lack of engagement is evident in the case of poor leadership and low levels of trust in relationships between managers and subordinates (Pech, Slade, 2006), which leads to a crisis in relationships between managers and subordinates (Kmiotek, 2013).

There are four main groups of factors that are potential underlying causes of employee disengagement (Pech, Slade, 2006; Widodo et al., 2025):

1) External environmental factors: instability and uncertainty.
2) Psychological factors: lack of sense of purpose, identification, trust, feeling of being undervalued, unfulfilled desires, sense of injustice, lack of interest, stress and anxiety.
3) Organizational factors: restructuring, inadequate conditions, poor management and leadership, bureaucratic red tape, insufficient resources, acceptance and tolerance of poor performance, complexity of work.
4) Other factors: substance abuse, competency issues, laziness, illnesses, interpersonal problems.

High employee engagement can lead not only to positive effects, but can also have negative consequences such as overwork (Borkowska, 2014), burnout and workaholism (Bakker, Albrecht, Leiter, 2011; Macey, Schneider, 2008) and leaving the company (Kmiotek, 2013). The phenomenon of low employee engagement is not always due to mistakes on the part of the organization and managers, and therefore the actions taken may not always be sufficient. It may turn out that the causes may stem from other factors, beyond the organization itself.

4. Research methodology

The broadly used *UWES-17* scale was used to measure employee engagement. It includes the following three dimensions: vigor, dedication and absorption (Schaufeli, Bakker, 2004). The survey questionnaire prepared based on the UWES-17 also included quite broad metric data, including: gender, education, length of employment, occupation, company size, industry in which it operates, and also the way of performing work (online, stationary, hybrid). All elements were evaluated by respondents on a 6-point Likert scale (from never = 1 to always = 6).

The study covered representatives of the youngest generation in the labor market. After rejecting incomplete questionnaires, a total of 193 responses were obtained, which were then subjected to statistical analysis. Researching Generation Z's engagement is crucial so that companies can take appropriate measures to retain them and retain their valuable skills (Lee et al., 2021).

5. Results

First, the level of engagement of respondents was analyzed based on the percentage values of the given answers, which are presented in Table 2.

Table 2.
Engagement levels for all respondents

	ITEM No	ITEM	never	very rarely	rarely	occasionally	very often	always
VIGOR	1.1	At my work, I feel bursting with energy	2%	4%	7%	32%	49%	6%
	1.2	At my job, I feel strong and vigorous	1%	7%	8%	35%	41%	8%
	1.3	When I get up in the morning, I feel like going to work	7%	13%	16%	26%	33%	5%
	1.4	I can continue working for very long periods at a time	4%	4%	9%	25%	47%	11%
	1.5	At my job, I am very resilient, mentally	2%	5%	12%	20%	46%	15%
	1.6	At my work I always persevere, even when things do not go well	1%	6%	7%	16%	40%	30%

Cont. table 2.

DEDICATION	2.1	I find the work that I do full of meaning and purpose	2%	5%	7%	26%	42%	18%
	2.2	I am enthusiastic about my job	-	5%	8%	25%	42%	20%
	2.3	My job inspires me	6%	7%	18%	23%	30%	16%
	2.4	I am proud of the work that I do	3%	5%	7%	28%	40%	17%
	2.5	To me, my job is challenging	5%	7%	11%	26%	35%	16%
ABSORPTION	3.1	Time flies when I'm working	1%	2%	5%	20%	51%	21%
	3.2	When I am working, I forget everything else around me	4%	5%	14%	31%	41%	5%
	3.3	I feel happy when I am working intensely	3%	7%	10%	27%	41%	12%
	3.4	I am immersed in my work	2%	5%	7%	23%	51%	12%
	3.5	I get carried away when I'm working	11%	20%	25%	28%	13%	3%
	3.6	It is difficult to detach myself from my job	7%	14%	21%	35%	21%	2%

Source: own elaboration based on research findings.

As indicated by the results of the research, respondents from the youngest generation in the labor market demonstrate a fairly high level of engagement - except for two scale factors - *I get carried away when I'm working* (3.3) and *It is difficult to detach myself from my job* (3.6), which occur rather sporadically or rarely, all other factors are rated as occurring with a high frequency, some even more than 50% of respondents.

In the next stage, the average level of engagement was calculated for all respondents (UWES-17). The results are presented in Table 3.

Table 3.
Average assessment of the level of engagement for all respondents

	ITEM No	MEAN	STANDARD DEVIATION
VIGOR	1.1	4.39	1.01
	1.2	4.34	1
	1.3	3.77	1.35
	1.4	4.4	1.15
	1.5	4.47	1.15
	1.6	4.8	1.17
DEDICATION	2.1	4.56	1.1
	2.2	4.65	1.04
	2.3	4.11	1.38
	2.4	4.46	1.19
	2.5	4.28	1.31

Cont. table 3.

ABSORPTION	3.1	4.82	0.94
	3.2	4.15	1.15
	3.3	4.34	1.18
	3.4	4.54	1.06
	3.5	3.21	1.28
	3.6	3.54	1.22

Source: own elaboration based on research findings.

The lowest-rated factor among the respondents was element 3.5 of absorption, which received an average score of 3.21.

Due to the increasing importance of work-life balance, the average score for element 3.6 at the level of 3.54 does not come as too much of a surprise for the respondents coming from the younger generation. The generational shift in approach towards adhering to working hours and emphasis on private life seems to have an influence on the obtained result.

As for the study of the standard deviation values carried out by the authors - their high level says that the values of the variable are strongly dispersed around the mean that is, there is high variation, while low values of this measure indicate low dispersion of values (low variation). In the conducted study, the highest dispersion was found for the element:

- 2.3 (My job inspires me) – deviation level 1.38.
- 1.3 (When I get up in the morning, I feel like going to work) – deviation level 1.35.
- 2.5 (To me, my job is challenging) – deviation level 1.31.

In this study, there was no variation in responses for item 1.2 (At my job, I feel strong and vigorous). There was a slight variation for 1.1 and 3.4.

The next stage of the study was to examine the average rating of vigor, dedication and absorption levels by different occupational groups (see Table 4).

Table 4.
Levels of vigor, dedication and absorption for various occupational groups

	N	MEAN	STANDARD DEVIATION
VIGOR			
All respondents	193	4.36	
Manager	41	4.37	1.14
White-collar worker	114	4.36	1.14
Blue-collar worker	38	4.36	1.14
DEDICATION			
All respondents	193	4.42	
Manager	41	4.44	1.2
White-collar worker	118	4.42	1.2
Blue-collar worker	38	4.44	1.19
ABSORPTION			
All respondents	193	4.1	
Manager	41	4.11	1.13
White-collar worker	118	4.1	1.14
Blue-collar worker	38	4.1	1.14

Source: own elaboration based on research findings.

The average ratings of the engagement components presented above do not show significant differences in terms of the relationship with belonging to a particular professional group. The averaged result shows differences at the general level encompassing all respondents when comparing vigor, dedication, and absorption, where the highest average was recorded for dedication (4.42), followed by vigor (4.36) and absorption (4.1) respectively. The differences in the average levels of engagement between different occupational groups are relatively small, generally not exceeding the standard deviation. Nevertheless, a particular pattern was observed in which the lowest level of engagement in all professional groups is visible in the dimension of absorption.

At a further stage of the research, the respondents' metric data was analyzed. It turned out that the previously planned study of the correlation of respondents' answers with their level of education would not be purposeful because 87% of respondents had a university degree. A similar situation occurred in the case of work experience - 81% of respondents had not worked for more than 3 years. Therefore, correlation studies were conducted between individual respondents' answers in relation to each other, using the pairwise approach.

The Pearson correlation coefficient was used in the analysis of the research conducted. This is an indicator whose value ranges from -1.0 to +1.0 inclusive, and reflects the degree of linear dependence between two sets of data. The greater its absolute value, the stronger the linear relationship between the variables (0 - indicates no linear relationship, 1 - indicates a positive relationship, and -1 indicates a negative relationship between the characteristics). Extreme negative deviation means that the higher the value of one variable, the lower the value of the other, while extreme positive deviation means that both values will increase or decrease synchronously. A value of 0 indicates a complete lack of relationship between the variables (Iwasiewicz, Paszek, 2004; Śleszyński, 2020).

The study adopted the following ranges to indicate the strength of the correlation (identical for negative and positive results):

- from 0 to 0.2 - very weak correlation,
- above 0.2 to 0.4 - weak correlation,
- above 0.4 to 0.6 - moderate correlation,
- above 0.6 to 0.8 - strong correlation,
- above 0.8 to 1 – very strong correlation.

The relationships between successive elements of the UWES research tool were examined.

Table 5.
Results of the correlation study

	1.1	*1.2*	*1.3*	*1.4*	*1.5*	*1.6*	*2.1*	*2.2*	*2.3*	*2.4*	*2.5*	*3.1*	*3.2*	*3.3*	*3.4*	*3.5*	*3.6*
1.1	1																
1.2	0.98	1															
1.3	0.93	0.93	1														
1.4	0.99	0.94	0.88	1													
1.5	0.94	0.87	0.81	0.98	1												
1.6	0.71	0.65	0.45	0.80	0.86	1											
2.1	0.95	0.93	0.80	0.97	0.96	0.88	1										
2.2	0.92	0.90	0.75	0.95	0.96	0.91	1.00	1									
2.3	0.91	0.91	0.84	0.92	0.91	0.75	0.93	0.92	1								
2.4	0.96	0.95	0.81	0.96	0.94	0.84	0.99	0.99	0.93	1							
2.5	0.96	0.96	0.84	0.97	0.96	0.83	0.99	0.98	0.96	0.99	1						
3.1	0.90	0.84	0.70	0.95	0.97	0.94	0.98	0.98	0.86	0.95	0.95	1					
3.2	0.98	0.97	0.96	0.96	0.91	0.62	0.91	0.87	0.93	0.92	0.94	0.83	1				
3.3	0.99	0.97	0.90	0.99	0.96	0.78	0.98	0.96	0.94	0.98	0.99	0.93	0.97	1			
3.4	0.97	0.91	0.84	0.99	0.99	0.84	0.98	0.96	0.89	0.96	0.96	0.97	0.92	0.98	1		
3.5	0.18	0.30	0.51	0.06	-0.03	-0.43	-0.03	-0.08	0.23	0.02	0.07	-0.22	0.33	0.13	-0.02	1	
3.6	0.63	0.73	0.83	0.52	0.41	0.01	0.45	0.40	0.63	0.51	0.55	0.27	0.74	0.59	0.44	0.86	1

Source: own elaboration based on research findings.

Most of the obtained results of the correlation study showed a very strong correlation. However, a very weak correlation was observed in the following situations:

- individuals feel full of energy while performing their tasks, but without displaying any particular emotions,
- employees can work longer, are mentally resilient to emerging difficulties, perceive their work as meaningful, take pride in it, view work as a challenge, and work intensively, but do not let themselves be carried away by emotions - either positive or negative,
- individuals perform their tasks even when the environment is not conducive to it.

6. Conclusions

Referring to the analyzed research results, it can be said that young people are engaged in their work. This is evidenced by a high average rating in the indicated areas. Young people perform their work in which, above all, they see meaning, which is a challenge for them, and they are proud of it. They carry out tasks full of energy, sometimes disregarding inconveniences. Contrary to the group of factors developed by Peach and Slade (Peach, Slade, 2006), it can be stated that:

- External factors are not fully perceived by young people in the labor market - this is related to their potential for rapid career mobility.
- Psychological factors - the sense of purpose in the tasks being performed is important, at the same time there is identification with the organization and pride in work.

- Organizational factors - the complexity of the work and the length of work hours are not factors that reduce engagement.
- Other factors - 61% of respondents claim to be mentally resilient when performing tasks and are not carried away by emotions - positive or negative - at work.

These results provide guidance for employers on how to create workplaces that increase employee engagement. It is important to pay attention to the attractiveness and complexity of tasks, which at the same time present a challenge for the younger generation.

Research designed in this way should be continued in the future. The research group should be expanded to include older individuals with longer work experience. The industry in which respondents perform their tasks may also be significant.

References

1. Abraham, S. (2012). Job satisfaction as an antecedent to employee engagement. *SIES Journal of Management*, *8*(2), 27-36.
2. Armstrong, M. (2009). *Armstrong's Handbook of Human Resource Management Practice*. London: Kogan Page Limited.
3. Armstrong, M., Taylor, S. (2016). *Zarządzanie zasobami ludzkimi*. Warszawa: Wolters Kluwer.
4. Bakker, A.B. (2017). Strategic and proactive approaches to work engagement. *Organizational Dynamics*, *46*(2), 67-75. https://doi.org/10.1016/j.orgdyn.2017.04.002
5. Bakker, A.B., Albrecht, S.L., Leiter, M.P. (2011). Key questions regarding work engagement. *European Journal of Work and Organizational Psychology*, *20*(1), 4-28. https://doi.org/10.1080/1359432X.2010.485352
6. Bańka, A., Wołowska, A., Bazińska, R. (2002). Polska wersja Meyera i Alen Skali Przywiązania do Organizacji. *Czasopismo Psychologiczne*, *8*(1), 65-74.
7. Boon, C., den Hartog, D.N., Lepak, D.P. (2019). A Systematic Review of Human Resource Management Systems and Their Measurement. *Journal of Management*, *45*(6), 2498-2537. https://doi.org/10.1177/0149206318818718
8. Borkowska, S. (2014). Rola zaangażowania pracowników. *Zarządzanie Zasobami Ludzkimi*, *2*(97), 9-26.
9. Cook, J., Wall, T. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfilment. *Journal of Occupational Psychology*, *53*(1), 39-52. https://doi.org/10.1111/j.2044-8325.1980.tb00005.x
10. Cooper-Thomas, H.D., Xu, J., M. Saks, A. (2018). The differential value of resources in predicting employee engagement. *Journal of Managerial Psychology*, *33*(4/5), 326-344. https://doi.org/10.1108/JMP-12-2017-0449

11. Croston, D. (2008). *Employee Engagement. „The People First" Approach to Building a Business*. Sydney: Moonstone Media.
12. Garg, K., Dar, I. A., Mishra, M. (2018). Job Satisfaction and Work Engagement: A Study Using Private Sector Bank Managers. *Advances in Developing Human Resources*, *20*(1), 58-71. https://doi.org/10.1177/1523422317742987
13. Górniak, L. (2016). Preferowane wartości organizacyjne a zaangażowanie pracowników. *E-Mentor*, *5*(67), 21-29.
14. Herscovitch, L., Meyer, J.P. (2002). Commitment to organizational change: Extension of a three-component model. *Journal of Applied Psychology*, *87*(3), 474-487. https://doi.org/10.1037/0021-9010.87.3.474
15. Houghton, J.D., Pearce, C.L., Manz, C.C., Courtright, S., Stewart, G.L. (2015). Sharing is caring: Toward a model of proactive caring through shared leadership. *Human Resource Management Review*, *25*(3), 313-327. https://doi.org/10.1016/j.hrmr.2014.12.001
16. Iwasiewicz, A., Paszek, Z. (2004). *Statystyka z elementami statystycznych metod sterowania jakością*. Kraków: Wydawnictwo AE.
17. Jin, M.H., McDonald, B. (2017). Understanding Employee Engagement in the Public Sector: The Role of Immediate Supervisor, Perceived Organizational Support, and Learning Opportunities. *The American Review of Public Administration*, *47*(8), 881-897. https://doi.org/10.1177/0275074016643817
18. Jin, M., McDonald, B., Park, J. (2016). Followership and job satisfaction in the public sector. *International Journal of Public Sector Management*, *29*(3), 218-237. https://doi.org/10.1108/IJPSM-05-2015-0101
19. Juchnowicz, M. (2010). Zarządzanie kapitałem ludzkim a poziom zaangażowania pracowników. *Zarządzanie Zasobami Ludzkimi*, *3-4*, 57-66.
20. Juchnowicz, M., Kinowska, H. (2018). Compensation justice and employee engagement. *Studia i Prace WNEiZ*, *52*, 199-209. https://doi.org/10.18276/sip.2018.52/3-19
21. Kaczyńska, M., Kałuziak, K., Stankiewicz-Mróz, A. (2015). Motywowanie pozapłacowe jako czynnik budowania zaangażowania pracowników z pokolenia Y. *Zeszyty Naukowe Politechniki Łódzkiej. Organizacja i Zarządzanie*, *1200*(60), 61-79.
22. Kahn, W.A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*(4), 692-724. https://doi.org/10.2307/256287
23. Kidron, A., Vinarski Peretz, H. (2018). Organizational political climate and employee engagement in political behavior in public sector organizations. *International Journal of Organizational Analysis*, *26*(4), 773-795. https://doi.org/10.1108/IJOA-09-2017-1243
24. Kmiotek, K. (2013). Źródła i konsekwencje zaangażowania pracowników. *Zarządzanie i Finanse*, *4*(2), 181-190.
25. Kolodziejczyk-Olczak, I. (2014). Zaangażowania pracowników w różnym wieku. *Zarządzanie Zasobami Ludzkimi*, *2*(97), 84-96.

26. Lee, C.C., Aravamudhan, V., Roback, T., Lim, H.S., Ruane, S.G. (2021). Factors Impacting Work Engagement of Gen Z Employees: A Regression Analysis. *Journal of Leadership, Accountability and Ethics*, *18*(3). https://doi.org/10.33423/jlae.v18i3.4414
27. Macey, W.H., Schneider, B. (2008). The Meaning of Employee Engagement. *Industrial and Organizational Psychology*, *1*(1), 3-30. https://doi.org/10.1111/j.1754-9434.2007.0002.x
28. Mann, A., Harter, J. (2016). *The Worldwide Employee Engagement Crisis*.
29. Marzec, I. (2014). Zaangażowanie organizacyjne jako czynnik sukcesu zawodowego pracowników socjalnych w województwie śląskim. *Problemy Polityki Społecznej. Studia i Dyskusje*, *27*(4), 129-145.
30. McCarthy, I.O., Moonesinghe, R., Dean, H.D. (2020). Association of Employee Engagement Factors and Turnover Intention Among the 2015 U.S. Federal Government Workforce. *SAGE Open*, *10*(2), 215824402093184. https://doi.org/10.1177/2158244020931847
31. Mrówka, R. (2010). Pojęcie zaangażowania pracowników we współczesnych naukach ekonomicznych i praktyce gospodarczej. In: R. Bartkowiak, J. Ostaszewski (Eds.), *Nauki ekonomiczne w świetle nowych wyzwań gospodarczych* (pp. 405-416). Warszawa: Oficyna Wydawnicza SGH.
32. Pech, R., Slade, B. (2006). Employee disengagement: is there evidence of a growing problem? *Handbook of Business Strategy*, *7*(1), 21-25. https://doi.org/10.1108/10775730610618585
33. Pocztowski, A. (2018). *Zarządzanie zasobami ludzkimi*. Warszawa: PWE.
34. Revuru, I., Bandaru, K.K. (2024). Leadership Practices for Sustaining Work Engagement: A Gen-Z Perspective. *International Journal of Organizational Leadership*, 451-466. https://doi.org/10.33844/ijol.2024.60424
35. Roberts, D.R., Davenport, T.O. (2002). Job engagement: Why it's important and how to improve It. *Employment Relations Today*, *29*(3), 21-29. https://doi.org/10.1002/ert.10048
36. Saks, A.M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology*, *21*(7), 600-619. https://doi.org/10.1108/02683940610690169
37. Saks, A.M. (2022). Caring human resources management and employee engagement. *Human Resource Management Review, 32(3),* 100835. https://doi.org/10.1016/j.hrmr.2021.100835
38. Schaufeli, W. (2006). The Balance of Give and Take: Toward a Social Exchange Model of Burnout. *Revue Internationale de Psychologie Sociale, 1(19),* 75-119.
39. Schaufeli, W.B., Bakker, A.B. (2004). Job demands job resources and their relationship with burnout and engagement: a multi-sample study. *Journal of Organizational Behavior, 25(3)*, 293-315.
40. Schaufeli, W., Bakker, A. (2004). *Utrecht Work Engagement Scale.* Utrecht University.
41. Skowron-Mielnik, B. (2014). Budowanie zaangażowania pracowników w proces doskonalenia przedsiębiorstwa z wykorzystaniem employer brandingu.

Prace Naukowe Uniwersytetu Ekonomicznego We Wrocławiu, 358. https://doi.org/10.15611/pn.2014.358.02

42. Smarżewska, D. (2018). Zarządzanie zaangażowaniem pracowników jako nowa koncepcja zarządzania. *Akademia Zarządzania, 2(4),* 29-39.
43. Smythe, J. (2012). *CEO dyrektor do spraw zaangażowania*. Warszawa: Wolters Kluwer .
44. Stachowska, S. (2018). Jakość relacji z przełożonymi jako czynnik determinujący zaangażowanie pracowników (na przykładzie uczelni wyższej). *Kwartalnik Ekonomistów i Menedżerów, 48(2)*, 113-130. https://doi.org/10.5604/01.3001.0012.2083
45. Stankiewicz, J., Moczulska, M. (2014). Zaangażowanie pracowników i jego „druga strona": pracoholizm i wypalenie zawodowe. *Przegląd Organizacji*, 25-30. https://doi.org/10.33141/po.2014.02.04
46. Sun, L., Chanchai Bunchapattanasakda (2019). Employee engagement: A literature review. *International Journal of Human Resource Studies, 9(1),* 63-80.
47. Śleszyński, Z. (2020). The basics of determining the coefficients of a linear correlation. Wiadomości Statystyczne. *The Polish Statistician, 65(6)*, 69-87. https://doi.org/10.5604/01.3001.0014.2347
48. Truss, K., Soane, E., Delbridge, R., Alfes, K., Shantz, A., Petrov, G. (2011). Employee engagement, organisational performance and individual well-being: exploring the evidence, developing the theory. *The International Journal of Human Resource Management, 22(1)*, 232–233. https://doi.org/10.1080/09585192.2011.552282
49. Widodo, T., Wening, N., Nakuloadi, H., Rustiana, E., Saifuddiin, M.R. (2025). Work Engagement in Generation Z Employees: Organizational Commitment, Perceived Organizational Support and Work Meaningfulness. *Journal of Lifestyle and SDGs Review, 5(2),* e02610. https://doi.org/10.47172/2965-730X.SDGsReview.v5.n02.pe02610

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PERCEPTIONS OF FAIRNESS IN AI-BASED RECRUITMENT AMONG GENERATION Z REPRESENTATIVES

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Purpose: The purpose of this article is to analyze the perception of fairness in recruitment processes supported by artificial intelligence among representatives of Generation Z and to empirically verify the structure of this construct.
Methodology: The study was conducted using the CAWI method on a sample of 441 respondents representing Generation Z. An original adaptation of the Organizational Justice Scale was applied. The structure of the construct was verified using Confirmatory Factor Analysis (CFA).
Findings/Conclusions: The results indicate that procedural and distributive justice form a common component. Interpersonal and informational justice retain a relatively distinct character.
Research limitations / implications: The study is cross-sectional and based on self-reported data, which limits the possibility of causal inference. The focus on a single generational cohort restricts the generalizability of the findings.
Practical implications: Organizations should enhance the transparency of decision-making mechanisms, ensure the possibility of obtaining explanations for decisions, and design communication interfaces that strengthen candidates' sense of agency.
Social implications: The study highlights the importance of the social legitimacy of algorithmic decision-making processes in HR. Transparency and explainability of AI systems may strengthen the trust of Generation Z and reduce concerns related to the automation of personnel decisions.
Originality/Value: The article provides an empirical verification of the structure of organizational justice in the context of algorithmic recruitment.
Keywords: recruitment fairness, artificial intelligence, Generation Z, organizational justice, algorithmic recruitment.
Category of the paper: Conceptual paper.

1. Introduction

Artificial intelligence (AI) is playing an increasingly significant role in human resource management (HRM), particularly in the area of recruitment and employee selection. Algorithmic tools are used for the automated analysis of application documents, CV screening, competency assessment, and the analysis of video interviews. Their implementation is commonly justified by increased process efficiency, shorter recruitment cycles, and the standardization of candidate evaluations (Pan et al., 2022; Tambe et al., 2019). At the same time, the use of AI in personnel decision-making raises important ethical and social concerns, including the risk of algorithmic bias and the limited transparency of decision-making mechanisms (Köchling, Wehner, 2020; Raghavan et al., 2020; Miller, 2019).

The automation of personnel decisions raises the question of the adequacy of classical models of organizational justice in situations where the decision-making actor becomes an algorithm. Organizational justice, encompassing the procedural, distributive, interpersonal, and informational dimensions (Colquitt, 2001; Gilliland, 1993), provides a framework for analyzing candidates' reactions to selection decisions. Previous research on AI in recruitment has focused primarily on technology acceptance and the effectiveness of algorithmic tools, while less attention has been devoted to the structure of perceived fairness under conditions of automation.

It remains unclear whether candidates distinguish between the evaluation of procedures and the evaluation of outcomes when the transparency of AI systems is limited. A shift in the nature of the decision-making actor may alter the cognitive schemas through which fairness is assessed. This gap has both theoretical and practical implications, as it affects the social legitimacy of algorithmic recruitment.

The purpose of this article is to identify how representatives of Generation Z perceive the fairness of AI-supported recruitment, to systematize this perception, and to empirically verify the structure of this construct. The study addresses the following research questions: (1) whether algorithmic recruitment fairness retains the classical four-dimensional structure, (2) whether the procedural and distributive dimensions remain empirically distinguishable, and (3) which measurement model provides the best fit to the data.

Focusing on Generation Z allows the study to capture the reactions of a cohort particularly sensitive to issues of transparency and the ethical use of technology (Schroth, 2019). The article contributes by providing an empirical verification of the classical model of organizational justice in the context of the digital transformation of HR and by examining the potential reconfiguration of its structure under conditions of automated personnel decision-making.

2. Literature Review

2.1. Artificial Intelligence in Recruitment

The literature indicates that AI-based tools are increasingly used in processes involving the automated analysis of application documents, CV screening, competency assessment, and the prediction of candidate–job fit (Tambe et al., 2019; Jarrahi, 2018; Malik et al., 2023; Pan et al., 2022).

The implementation of algorithmic systems is primarily justified by instrumental considerations, such as increasing the efficiency of selection processes, shortening recruitment cycles, reducing costs, and standardizing candidate evaluations (Pan et al., 2022; Tambe et al., 2019). AI enables the processing of large volumes of data and the reduction of subjectivity in decision-making; however, the effectiveness of these solutions remains strongly dependent on data quality, the design of algorithms, and the organizational context in which they are applied (Malik et al., 2023).

Personnel decisions differ from other business decisions in that their consequences have a direct and long-term impact on individuals' life situations (Tambe et al., 2019; Jarrahi, 2018). For this reason, the evaluation of AI applications in HRM should not be limited to predictive accuracy or cost efficiency. It is necessary to consider the social and psychological reactions of stakeholders, particularly candidates' perceptions of fairness in the recruitment process.

2.2. Organizational Justice as a Framework for Analyzing Algorithmic Recruitment

Organizational justice constitutes a theoretical framework used to analyze individuals' reactions to personnel decisions. The classical model distinguishes four dimensions: procedural, distributive, interpersonal, and informational, referring respectively to the fairness of procedures, the adequacy of outcomes, the quality of interpersonal treatment, and the transparency and completeness of information provided (Colquitt, 2001; Colquitt et al., 2001; Gilliland, 1993). This model has been widely applied in research on recruitment and selection (Bauer et al., 2001; Hausknecht et al., 2004).

In the context of algorithmic recruitment, the meaning of fairness may be transformed because decisions are made with the involvement of systems perceived as less transparent and more difficult to understand (Acikgoz et al., 2020; Langer et al., 2019). Limited explainability of the decision-making mechanism and the absence of direct interaction with a human decision-maker may influence how both the procedure and its outcomes are evaluated (Ötting, Maier, 2018; Lee, 2018).

Procedural justice refers to the fairness of decision-making rules (Colquitt, 2001; Gilliland, 1993). In algorithmic recruitment, this dimension encompasses perceived impartiality, consistency of criteria, and transparency of the process, and constitutes an important predictor of the acceptance of AI-driven decisions (Langer et al., 2019; Acikgoz et al., 2020).

Distributive justice concerns the perceived adequacy of the decision outcome relative to a candidate's competencies and effort (Colquitt, 2001). In the context of AI, particular importance is attached to the belief that the decision is based on substantive criteria rather than biases or arbitrary technical factors (Raghavan et al., 2020; Lee, 2018).

Interpersonal justice refers to the quality of treatment experienced by individuals during the decision-making process (Colquitt, 2001). Although AI systems are not social actors, interactions with them may still be evaluated in relational terms, including politeness, respect, and professionalism in communication (Lee, 2018; Langer et al., 2019).

Informational justice concerns the quality and clarity of information provided to candidates (Colquitt et al., 2001). In the context of algorithmic recruitment, it includes explanations regarding the scope of AI use, evaluation criteria, and the justification of decisions, which are crucial for building trust in the system (Miller, 2019; Ananny, Crawford, 2018).

Under conditions of automated personnel decision-making, however, the classical distinction between the dimensions of justice may undergo modification. The limited transparency of algorithmic systems and the changing nature of the decision-making actor justify the need for empirical verification of the structure of this construct in the context of AI-based recruitment.

The analysis conducted provided the basis for assuming that fairness in AI-supported recruitment comprises four dimensions: procedural, distributive, interpersonal, and informational (Figure 1).

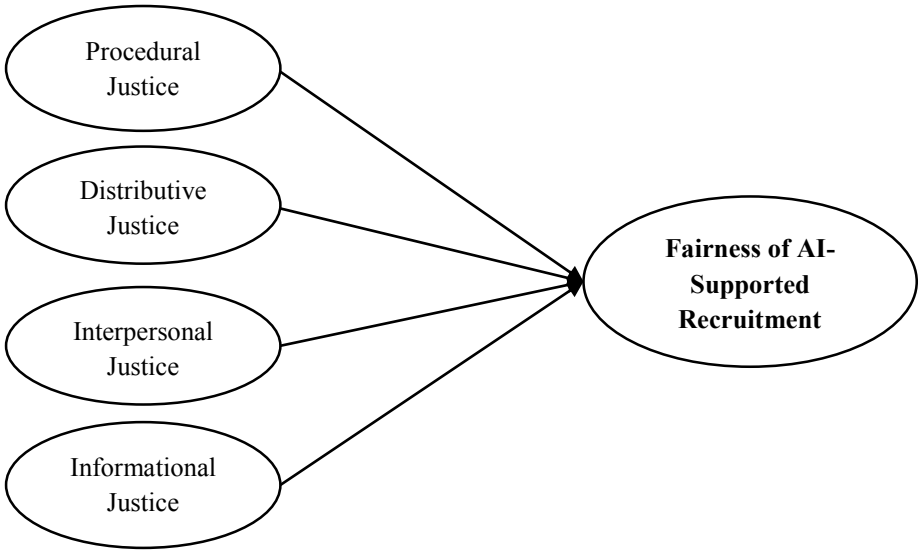

Figure 1. Conceptual model.
Source: authors' own elaboration.

2.3. Generation Z and the Perception of AI-Based Recruitment

Representatives of Generation Z constitute an important research group in the analysis of AI-supported recruitment due to their technological experiences and the specific nature of their attitudes toward automation and digitalization. They have grown up in an environment strongly saturated with digital and algorithmic technologies, which fosters high levels of technological competence and frequent interaction with automated decision-making systems (Schroth, 2019). At the same time, technological proficiency does not necessarily imply uncritical acceptance of automation, particularly in domains of high personal and professional significance, such as recruitment decisions (Lee, 2018; Langer et al., 2019).

The literature indicates that Generation Z demonstrates heightened sensitivity to transparency, equal treatment, and the ethical aspects of technology use in organizations (Schroth, 2019). In the recruitment context, particular importance is attached to the clarity of evaluation criteria, the possibility of obtaining understandable explanations for decisions, and the quality of communication with candidates (Acikgoz et al., 2020; Langer et al., 2019).

Therefore, analyzing perceptions of fairness in algorithmic recruitment within this cohort makes it possible to capture the specificity of its responses and to verify the adequacy of the classical model of organizational justice under conditions of highly automated decision-making.

3. Research Methodology

3.1. Sample Characteristics

The quantitative study was conducted in December 2025 and January 2026 using the CAWI method among 441 respondents representing Generation Z. Participation in recruitment processes involving AI was declared by 14% of respondents, 62% reported no such experience, and 24% were unable to determine this unequivocally.

Due to the inclusion of individuals who were not currently employed, some questions related to job and organizational characteristics recorded a high proportion of “not applicable” responses. The detailed structure of the sample is presented in Table 1.

Table 1.
Structure of the research sample

Criterion	Specification	Share
Participation in AI-supported recruitment	No	62%
	Do not know	24%
	Yes	14%
Gender	Female	45%
	Male	53%
	Prefer not to say	2%
Employment status	No	44%
	Yes	56%
Working time	Full-time	25%
	Part-time	28%
	Not applicable	47%
Form of employment	Employment contract	16%
	Civil-law contract	36%
	Self-employment	3%
	Not applicable	45%
Company size	Micro (up to 9 employees)	8%
	Small (10-49 employees)	11%
	Medium (50-249 employees)	9%
	Large (250-500 employees)	4%
	Very large (more than 500 employees)	23%
	Not applicable	45%
Sector	Public	5%
	Private	42%
	Foundations, associations and other	1%
	Not applicable	52%

Source: authors' own elaboration.

3.2. Variables

The measurement instrument used in the study was an adaptation of the Organizational Justice Scale (Wnuk, 2017). The questionnaire was modified so that it referred specifically to recruitment processes supported by AI.

The model included four dimensions: procedural justice (7 items), distributive justice (5 items), interpersonal justice (4 items), and informational justice (4 items). Procedural justice referred to the evaluation of the rules and procedures of decision-making supported by AI; distributive justice concerned the adequacy of the decision in relation to the candidate's competencies; interpersonal justice related to the quality of communication mediated by the system; and informational justice referred to the transparency and clarity of information regarding the role of AI in the process. Respondents evaluated the statements using a five-point Likert scale (1 - strongly disagree, 5 - strongly agree). The full wording of the items is presented in Table 2.

The means for individual items ranged from 2.43 to 3.95 (SD = 0.9-1.25), indicating a moderate assessment of fairness in algorithmic recruitment with noticeable variability in responses. The highest-rated aspect concerned the politeness of AI-mediated communication, while the lowest-rated related to the possibility of fully presenting one's competencies.

Table 2.
Estimates for the measurement models

Statement	Mean	Standard deviation	Model 4D		Model 1D		Model 3D	
			Dimension	Coefficient	Dimension	Coefficient	Dimension	Coefficient
The recruitment process using AI is conducted in an impartial manner.	3,18	1,038	Procedural justice	0,578	Fairness of AI-supported recruitment	0,531	Procedural and distributive justice	0,541
The recruitment process using AI is transparent for candidates.	2,86	1,128		0,693		0,658		0,676
AI in the recruitment process minimizes the risk of errors or incorrect assessments.	2,75	1,172		0,640		0,585		0,624
AI provides the candidate with a full opportunity to present their competencies in the recruitment process.	2,43	1,183		0,705		0,649		0,700
AI takes into account all relevant information about the candidate.	2,78	1,186		0,710		0,660		0,684
AI consistently applies evaluation criteria to all candidates.	3,47	1,156		0,456		0,447		-
The candidate has the possibility to challenge a recruitment decision made with the use of AI (e.g., appeal).	3,32	1,189		0,414		0,426		-
The recruitment decision made using AI is adequate to the candidate's competencies.	2,76	1,084	Distributive justice	0,740		0,677		0,696
The recruitment decision made using AI reflects the effort invested by the candidate in completing recruitment tasks.	2,61	1,182		0,731		0,680		0,713
The recruitment decision made using AI is independent of random technical factors (e.g., equipment quality, lighting, microphone, internet connection).	2,93	1,245		0,480		0,438		-
The recruitment decision made using AI is consistent — the same level of competence leads to the same decision.	3,19	1,065		0,649		0,618		0,595

Cont. table 2.

The recruitment decision made using AI is free from bias (e.g., related to gender, age, appearance, origin, accent).	3,73	1,155		0,486		0,503		0,604
AI in the recruitment process communicates with the candidate in a polite and respectful manner.	3,95	0,971		0,527		0,411		0,633
AI messages are tailored to the needs of the candidate.	3,19	1,086		0,760		0,653	Interpersonal justice	-
Interactions with AI in the recruitment process are comfortable for the candidate.	3,04	1,209	Interpersonal justice	0,759		0,653		-
Communication conducted by AI in the recruitment process does not contain inappropriate, unprofessional, or unsuitable expressions.	3,88	1,089		0,402		0,338		0,606
The candidate receives clear information about the scope of AI use in the recruitment process.	3,25	1,165		0,733		0,681		0,739
Information about the operation and use of AI in the recruitment process is tailored to the candidate's needs and level of knowledge.	3,05	1,061		0,768		0,734		0,762
Information about the stages of recruitment using AI is presented in a way that is understandable for the candidate.	3,27	1,106	Information al justice	0,742		0,667	Information al justice	0,746
The candidate receives a transparent explanation of the recruitment decision made using AI.	3,22	1,118		0,785		0,727		0,783
Model fit indices								
Chi-square and df			531,940, df=164		742,944, df=170		338,650, df=87	
GFI			0,873		0,837		0,906	
AGFI			0,837		0,798		0,870	
CFI			0,894		0,835		0,905	
SRMR			0,058		0,064		0,061	
RMSEA			0,071		0,088		0,081	

Source: Authors' own elaboration.

3.3. Results of the Empirical Study

The measurement model for fairness in AI-supported recruitment was estimated using Confirmatory Factor Analysis (CFA) conducted in AMOS (SPSS).

The baseline model for the analysis was a four-dimensional model (4D) assuming the existence of four distinct dimensions of fairness in AI-supported recruitment: procedural, interpersonal, distributive, and informational justice.

Table 3.
Correlations for the 4D model

Dimension	1	2	3	4
1. Procedural justice	1			
2. Interpersonal justice	0,754	1		
3. Distributive justice	0,859	0,783	1	
4. Informational justice	0,812	0,740	0,833	1

Source: Authors' own elaboration.

3.4. Results of the Empirical Analysis

In the first stage, standardized factor loadings for the four-dimensional model (4D) were estimated (Table 2). The loadings varied across dimensions: for procedural justice they ranged from 0.414 to 0.710, for distributive justice from 0.480 to 0.740, for interpersonal justice from 0.402 to 0.760, and for informational justice from 0.733 to 0.785.

Despite acceptable parameters at the item level and moderate model fit indices (Table 2), the analysis of correlations between factors revealed strong relationships among the dimensions (Table 3). In particular, the correlation between procedural and distributive justice reached 0.859, and between distributive and informational justice 0.833. This indicates that respondents differentiated these dimensions only to a limited extent, which makes it difficult to demonstrate discriminant validity within the four-factor structure.

Correlations between interpersonal justice and the remaining dimensions were also high (ranging from 0.740 to 0.783); however, compared with the other relationships they suggested a relatively greater distinctiveness of this dimension.

During the analysis, two alternative models were tested:

- a one-dimensional model (1D), in which all items form a single factor representing fairness of AI-supported recruitment, and
- a three-dimensional model (3D) including: a combined procedural–distributive dimension, an interpersonal dimension, and an informational dimension.

The three-dimensional model (3D) produced the best results, in which procedural and distributive justice were combined into a single dimension. This model achieved the most favourable fit among the tested solutions (Table 2).

Furthermore, the analysis of correlations in the 3D model (Table 4) confirmed that combining the procedural and distributive components is justified. The correlation between this combined dimension and informational justice remained high (0.843), while the correlation with interpersonal justice was moderate (0.520). The correlation between the interpersonal and informational dimensions equaled 0.626, indicating that although these dimensions are related, they retain conceptual distinctiveness.

Table 4.
Correlations for the 3D model

Dimension	**1**	**2**	**3**
1. Procedural and distributive justice	1		
2. Interpersonal justice	0,520	1	
3. Informational justice	0,843	0,626	1

Source: Authors' own elaboration.

As a result, it was assumed that the perceived fairness of AI-supported recruitment can be conceptualized as a three-dimensional construct, in which procedural and distributive justice form a combined dimension, while interpersonal and informational justice remain distinct. The lack of separation between procedural and distributive justice at the measurement level does not imply that these categories cease to exist as theoretical constructs (Figure 2).

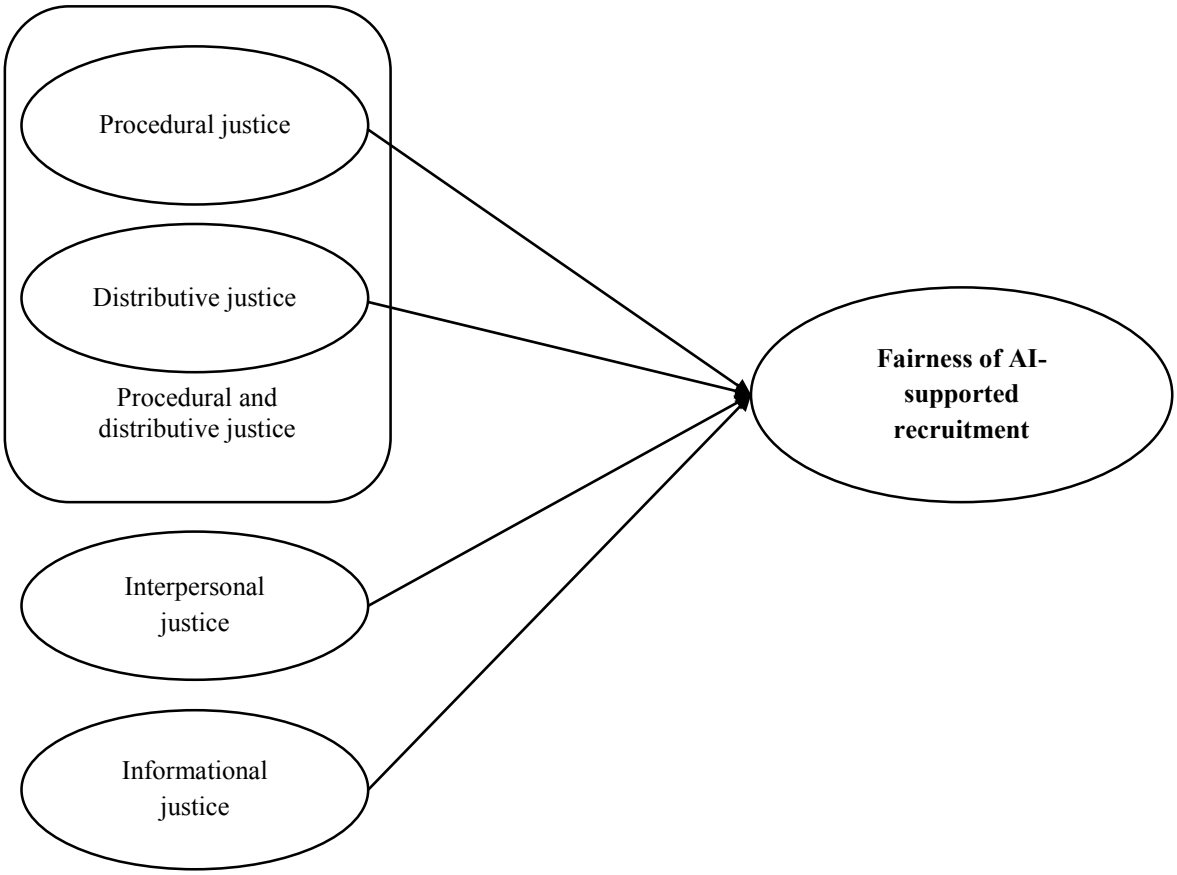

Figure 2. Verified model.
Source: Authors' own elaboration.

3.5. Discussion of Results

The results indicate that the classical four-dimensional model of organizational justice (procedural, distributive, interpersonal, and informational) is not fully supported under conditions of highly automated personnel decision-making among representatives of Generation Z. In particular, procedural, and distributive justice form a common perceptual dimension.

In traditional research on recruitment, procedural and distributive dimensions were distinguishable, which was interpreted as evidence of the cognitive independence of evaluations of decision-making procedures and the outcomes of selection (Gilliland, 1993; Bauer et al., 2001). In the context of algorithmic recruitment, however, candidates do not separate the assessment of the fairness of procedures from the adequacy of outcomes. This may be interpreted as a consequence of the limited transparency of the algorithmic mechanism. In situations where individuals lack insight into the logic of an AI system, the evaluation of the outcome becomes the basis for a global assessment of the entire process. This mechanism is consistent with research on the perception of opaque technological systems (Lee, 2018; Ötting & Maier, 2018) and with the concept of simplified, holistic evaluations of algorithmic systems under conditions of limited explainability (Newman et al., 2020).

The strong relationship between the informational dimension and the combined procedural–distributive dimension indicates that transparency and the quality of explanations function as a mechanism of legitimacy. The clarity of information regarding the role of AI and the comprehensibility of the justification for decisions jointly shape the evaluation of both the procedure and its outcome. This finding extends the literature by demonstrating that AI explainability affects not only the level of trust in the system (Miller, 2019; Ananny & Crawford, 2018) but also the structure of perceived organizational justice (Langer et al., 2019; Acikgoz et al., 2020).

The relatively high evaluation of AI impartiality and the absence of discriminatory elements in communication suggest that algorithms are perceived as potentially more objective than human decision-makers. This result is consistent with studies showing that automated systems are sometimes interpreted as reducing subjectivity and bias (Lee, 2018; Acikgoz et al., 2020).

The findings suggest that algorithmic recruitment does not merely change the level of perceived fairness but may also modify its cognitive structure. In the case of Generation Z, understanding the logic of decisions and maintaining a sense of personal agency constitute key conditions for the social acceptance of AI in selection processes.

4. Conclusion

The analyses conducted indicate that the concept of organizational justice remains a useful analytical framework for research on algorithmic recruitment. However, its structure undergoes partial reconfiguration under conditions of automated personnel decision-making. In the analyzed sample, procedural and distributive justice form a common perceptual component, suggesting a cognitive integration of evaluations of procedures and outcomes when the transparency of the AI system is limited. At the same time, informational and interpersonal justice retain relative distinctiveness, highlighting the importance of explainability and the quality of communication in algorithm-supported selection processes.

The article contributes to the theory of organizational justice by providing an empirical verification of its structure in the context of algorithmic recruitment. The results indicate that the classical four-dimensional model is not universal. The study extends existing conceptualizations of organizational justice by pointing to the need for its reinterpretation under conditions of the digital transformation of HR.

Practical implications arise from the need to design recruitment systems that incorporate mechanisms supporting perceptions of fairness. Transparent communication of the principles governing algorithmic decision-making, the possibility of obtaining clear explanations for decisions, and ensuring candidates' sense of agency constitute key conditions for the acceptance of algorithmic recruitment.

The study is cross-sectional in nature, which limits the possibility of drawing causal conclusions. Furthermore, the focus on a single generational cohort restricts the generalizability of the findings. An additional limitation is the relatively low proportion of respondents who had direct experience with AI-supported recruitment (14%). This means that a substantial part of the evaluations is based on subjective beliefs and perceptions of algorithmic recruitment rather than on direct experience.

Future research should include samples with a larger proportion of individuals who have direct experience with AI-supported recruitment and compare the perceptions of these groups. Experimental designs manipulating the level of automation and explainability of AI systems would also be valuable, as would comparative analyses across generations and longitudinal studies capturing changes in fairness perceptions over time.

References

1. Acikgoz, Y., Davison, K.H., Compagnone, M., Laske, M. (2020) Justice perceptions of artificial intelligence in selection. *International Journal of Selection and Assessment*, *28(4),* pp. 399-416. https://doi.org/10.1111/ijsa.12306
2. Albassam, W.A. (2023). The Power of Artificial Intelligence in Recruitment: An Analytical Review of Current AI-Based Recruitment Strategies. *International Journal of Professional Business Review, 8(6),* https://doi.org/10.26668/businessreview/2023.v8i6.2089
3. Ananny, M., Crawford, K. (2018). Seeing without knowing: Limitations of the transparency ideal and its application to algorithmic accountability. *New Media & Society*, *20(3),* pp. 973-989. https://doi.org/10.1177/146144481667
4. Bauer, T.N., Truxillo, D.M., Sanchez, R.J., Craig, J.M., Ferrara, P., Campion, M.A. (2001). Applicant reactions to selection: Development of the Selection Procedural Justice Scale (SPJS). *Personnel Psychology*, *54*(2), 387-419. https://doi.org/10.1111/j.1744-6570.2001.tb00097.x
5. Colquitt, J.A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of Applied Psychology*, *86(3),* pp. 386-400. https://doi.org/10.1037/0021-9010.86.3.386
6. Colquitt, J.A., Conlon, D.E., Wesson, M.J., Porter, C.O.L.H., Ng, K.Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of organizational justice research. *Journal of Applied Psychology, 86*(3), 425-445. https://doi.org/10.1037/0021-9010.86.3.425
7. Gilliland, S.W. (1993). The perceived fairness of selection systems: An organizational justice perspective. *Academy of Management Review*, 18(4), pp. 694-734. https://doi.org/10.2307/258595
8. Hausknecht, J.P., Day, D.V., Thomas, S.C. (2004). Applicant reactions to selection procedures: An updated model and meta-analysis. *Personnel Psychology, 57*(3), 639-683. https://doi.org/10.1111/j.1744-6570.2004.00003.x
9. Hosain, M.S., Amin, M.B., Debnath, G.C., Rahaman, M.A. (2023). The use of artificial intelligence (AI) in the hiring process: Job applicants' perceptions of procedural justice. *Computers in Human Behavior Reports*, *19*, 10071311, 100795. https://doi.org/10.1016/j.chbr.2025.100713
10. Hunkenschroer, A. L., Luetge, C. (2022). Ethics of AI-enabled recruiting and selection: A review and research agenda. *Journal of Business Ethics, 178*(4), 977-1007. https://doi.org/10.1007/s10551-022-05049-6
11. Jarrahi, M.H. (2018). Artificial intelligence and the future of work: Human–AI symbiosis in organizational decision making. *Business Horizons*, *61(4),* pp. 577-586. https://doi.org/10.1016/j.bushor.2018.03.007

12. Köchling, A., Wehner, M.C. (2020). Discriminated by an algorithm: a systematic review of discrimination and fairness by algorithmic decision-making in the context of HR recruitment and HR development. *Business Research, 13,* pp.795-848. https://doi.org/10.1007/s40685-020-00134-w
13. Langer, M., König, C.J., Papathanasiou, M. (2020). Highly automated interviews: applicant reactions and the organizational context. *Journal of Managerial Psychology*, *35(4),* pp. 301-314. https://doi.org/10.1108/JMP-09-2018-0402
14. Lee, M.K. (2018). Understanding perception of algorithmic decisions: Fairness, trust, and emotion in response to algorithmic management. *Big Data & Society, 5(1),* pp. 1-16 https://doi.org/10.1177/2053951718756684
15. Malik, A., Budhwar, P., Kazmi B.A. (2023). Artificial intelligence (AI)-assisted HRM: Towards an extended strategic framework. *Human Resource Management Review, 33(1),* https://doi.org/10.1016/j.hrmr.2022.100940
16. Miller, T. (2019). Explanation in artificial intelligence: Insights from the social sciences. *Artificial Intelligence*, *267*, pp. 1-38. https://doi.org/10.1016/j.artint.2018.07.007
17. Newman, D.T., Fast, N.J., Harmon, D.J. (2020). When eliminating bias isn't fair: Algorithmic reductionism and procedural justice in human resource decisions. *Organizational Behavior and Human Decision Processes*, *160(C),* pp. 149-167. https://doi.org/10.1016/j.obhdp.2020.03.008
18. Ötting, S.K., Maier, G.W. (2018). The importance of procedural justice in Human–Machine Interactions: Intelligent systems as new decision agents in organizations. *Computers in Human Behavior*, *89(C),* pp. 27-39. https://doi.org/10.1016/j.chb.2018.07.022
19. Pan, Y., Froese, F., Liu, N., Hu, Y., Ye, M. (2022). The adoption of artificial intelligence in employee recruitment: The influence of contextual factors. *The International Journal of Human Resource Management*, *33(7),* pp. 1-23. https://doi.org/10.1080/09585192.2021.1879206
20. Raghavan, M., Barocas, S., Kleinberg, J., Levy, K. (2020). Mitigating Bias in Algorithmic Hiring: Evaluating Claims and Practices. *Proceedings of the 2020 Conference on Fairness*, *Accountability*, *and Transparency*, Barcelona, 27-30 January 2020, 469-481. https://doi.org/10.1145/3351095.3372828
21. Schroth, H. (2019). Are you ready for Gen Z in the workplace? *California Management Review*, *61(3),* pp. 5-18. https://doi.org/10.1177/0008125619841006
22. Tambe, P., Cappelli, P., Yakubovich, V. (2019). Artificial intelligence in human resources management: Challenges and a path forward. *California Management Review*, *61(4),* pp. 15-42. https://doi.org/10.1177/0008125619867910
23. Wnuk, M. (2017). Polska wersja Skali Sprawiedliwości Organizacyjnej. *Edukacja Ekonomistów i Menedżerów, 3(45),* 37-54.

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THE METACOMPETENCES IN ECONOMY 5.0: SELF-AWARENESS AND SELF-DEVELOPMENT

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Purpose: The aim of this article is to identify key future competencies in the context of Economy 5.0, understood as a socio-economic model combining advanced technologies with a human-centered focus on individual needs and well-being. Particular attention is devoted to self-awareness and self-development as meta-competencies supporting adaptability, continuous learning, and effective functioning in conditions of rapid technological, social, and organizational change. The article emphasizes that these competencies foster the development of other skills and help individuals effectively respond to the challenges of dynamic and uncertain work environments.
Design/methodology/approach: The study is based on a literature review concerning Economy 5.0 and future competencies, complemented by empirical research conducted among 86 employees from various organizations. The diagnostic survey method was applied using an original questionnaire based on a five-point Likert scale.
Findings: The research findings indicate that respondents rate their level of professional competencies relatively highly, both in terms of theoretical and practical preparation, specialized knowledge, as well as socio-emotional competencies, particularly interpersonal skills, motivation, and adaptability. They demonstrate a strong orientation toward learning and development.
Research limitations/implications: The relatively small sample (N = 86) limits the generalizability of the findings. Moreover, self-assessment methods may involve subjective bias and social desirability effects. Further research should apply methodological triangulation and longitudinal approaches to better understand the development of meta-competencies and their impact on individual and organizational effectiveness over time.
Practical implications: The findings highlight the need for a systemic approach to competency development integrating learning, personalized development, and developmental tools. Organizations fostering self-awareness and lifelong learning can reduce competency gaps and enhance innovation and competitiveness.
Social implications: The study emphasizes the social importance of self-awareness and self-development in Economy 5.0, as these competencies foster proactive attitudes, adaptability, and lifelong learning. The findings underline the importance of organizational cultures and educational programs that support employee development.

Originality/value: The article combines theoretical analysis with empirical research on employees' self-assessment of competencies. Its main contribution lies in emphasizing self-awareness and self-development as overarching competencies crucial for adaptability and effective functioning in the Economy 5.0 environment.
Keywords: Economy 5.0, self-awareness, self-development, meta-competencies.
Category of the paper: Viewpoint.

1. Introduction

In the course of socio-economic development, several breakthrough moments have occurred that have shaped the directions of civilizational progress for decades. Multidimensional changes began with the First Industrial Revolution in the mid-18th century, which was based on the widespread application of scientific thought and inventions, enabling the mechanization of production and a radical reduction in human physical effort. The subsequent Second Industrial Revolution introduced the electrification of production processes and a more advanced division of labor, which in turn increased the scale and efficiency of manufacturing (Jabłoński, 2024). Another breakthrough occurred approximately one hundred years later, as the 1970s marked the beginning of a period of rapid development of microprocessors and information and communication technologies, accompanied by the progressive automation and robotization of production processes (Zamorska, 2020). With humanity's entry into the 21st century, the Fourth Industrial Revolution began (Schwab, 2014), characterized by further dynamic advancements in the field of information and communication technologies. Economy 4.0 focused on the synergy between humans and advanced technologies, such as artificial intelligence and collaborative robots, while simultaneously shifting the focus toward the individual and emphasizing that technology should serve overall well-being, and that ongoing development should be grounded in values such as openness and innovation. This perspective made it possible to identify another breakthrough, redefining the interdependencies between humans and machines (Islam et al., 2025; WEF, 2025).

The concept of Economy 5.0 has its roots in the assumptions of two ideas: Economy 4.0 and Society 5.0 (Hitachi-UTokyo Laboratory, 2020; Rojas et al., 2021), and is regarded as a key to sustainable development and innovation by combining digitalization with social solutions. This vision of a super-smart society assumes the integration of physical and digital spaces in order to create solutions that more accurately respond to citizens' needs, treating technologies primarily as tools for improving quality of life, increasing inclusiveness, and strengthening social resilience. Key aspects relate to the integration of cognitive computing with human intelligence, as well as the mass customization of production systems to meet individual human needs, with an emphasis on collaboration, personalization, and user well-

being. Within its framework, one can identify an attempt to balance economic development with the resolution of social and environmental challenges through the integration of physical and virtual spaces. In such a society, advanced information technologies, the Internet of Things, robotics, artificial intelligence, and augmented reality are actively utilized in every aspect of daily life, with particular emphasis on the benefits and convenience of each citizen. Economy 5.0 promotes the interdependence between humans and machines, assuming the integration of technology with human intelligence (Modrzewska, Kansy, 2025). Selected examples of its underlying assumptions include (Breque et al., 2021):

1. At the enterprise level: (a) the implementation and development of circular production, (b) the intensification of servitization, (c) the design of intelligent, autonomous, and self-learning factories capable of mass customization, (d) the development of solutions for distributed (multi-site) industrial production, and (e) the enhancement of flexibility and adaptability of production processes.
2. At the level of socio-economic development: (a) personalized human–machine interaction, (b) bio-inspired technologies and intelligent materials, (c) digital twins and simulations, (d) technologies for data transmission, storage, and analysis, (e) artificial intelligence, and (f) technologies supporting energy efficiency, renewable energy sources, energy storage, and autonomy.

Each successive stage of development involves the identification of megatrends characteristic of a given period, understood as enduring economic, social, environmental, and technological determinants. From this perspective, Society 5.0 provides a more comprehensive rationale for the growing importance of soft skills and meta-competencies. Designing and implementing technologies with a human-centered perspective increases the significance of socio-emotional competencies, ethical reflection, communication, as well as the capacity for learning and self-reflection.

2. Competencies as an Analytical Category

A review of the literature makes it difficult to identify a single definition that fully captures the interdisciplinary nature of competencies. R. White associated competencies with social skills enabling effective functioning within one's environment (White, 1959), while D.C. McClelland emphasized the importance of motivation and self-concept, challenging the dominant role of intelligence as the primary predictor of performance (McClelland, 1973). In other approaches, competencies are understood as the ability to achieve expected outcomes in a given context (Boyatzis, 1982) or as the integrated application of knowledge, skills, abilities, and personality traits in the execution of complex tasks (Levy-Leboyer, 1997).

The diversity of definitions is reflected in the typologies of competencies. For example, R. L. Katz's classification distinguishes technical, social, and conceptual competencies, referring respectively to specialized knowledge, functioning in interpersonal relationships, and analytical and synthetic abilities (Katz, 1974). F. Delamare le Deist and J. Winterton propose a model based on the criteria of the area of application (professional and personal) and the nature of activities (conceptual and operational), conceptualizing competencies as a combination of knowledge, skills, and habits (Delamare le Deist, Winterton, 2005).

Contemporary approaches emphasize the dynamic nature of competencies and the importance of their development as a continuous process of improving knowledge, skills, and attitudes, carried out through both formal and informal learning and aimed at reducing the competency gap (Jeruszka, 2016). Technological change, globalization, and digitalization mean that the labor market requires not only specialized qualifications but also high levels of self-awareness, adaptability, and a readiness for lifelong learning. In this context, self-development becomes a crucial element in building a career and maintaining professional competitiveness.

3. Future Competencies as Adaptive Meta-Competencies

The authors of the World Economic Forum's *Future of Jobs Report 2025*, a document analyzing current global labor market trends, emphasize that by 2030 a profound transformation of employment will occur, particularly in the area of new technologies, and that these changes will directly affect nearly 1.2 billion workers worldwide (WEF, 2025). The key challenges will include the skills gap, talent shortages, and the need to attract employees who are flexible and open to change. Demographic shifts also pose a significant concern, including population aging and the shrinking of the working-age population, particularly in highly developed countries. The labor market is evolving toward innovative, digital transformations that drive broadly understood progress, while remaining sensitive to megatrends shaping socio-economic development. A major challenge lies in defining a set of competencies necessary, first, to understand ongoing changes and, second, to adapt to them quickly and flexibly. The Top 10 Skills 2025 list includes, among others: (1) analytical thinking, (2) resilience, flexibility, and agility, (3) leadership and social influence, (4) creative thinking, (5) motivation and self-awareness, (6) technological literacy, (7) empathy and active listening, (8) curiosity and a commitment to lifelong learning, (9) talent management, and (10) customer orientation. In addition, competencies such as leadership and social influence, curiosity and lifelong learning, systems thinking, talent management, as well as motivation and self-awareness will become increasingly important due to the enduring human-centered orientation in the face of rapid technological advancement (WEF, 2025). While companies strive to enhance efficiency and profitability, in the era of information and globalization, achieving success also requires

responding positively to societal expectations and ethical norms (Antonopoulou, 2024; Salovey, Mayer, 1990; Saremi, 2022).

Given that, at the theoretical level, the concepts of Economy 4.0 and 5.0 are based on similar assumptions, competency requirements not only overlap but also complement one another. They arise directly from the application of advanced technologies in work processes, as well as from a holistic approach to shaping the work environment. However, in Economy 5.0, the design of work processes begins with human needs, capabilities, and limitations, with technological solutions subsequently adapted to them. Therefore, a clear emphasis is placed on soft skills necessary for functioning in digitalized, multicultural work environments, where self-organization is promoted as a guiding principle for technological solutions.

Research conducted by The World Future Manufacturing (2019), which can be related to competencies typical of Economy 4.0, indicates that competencies closely associated with technology dominate—particularly at the top of the ranking. These include digital skills, competencies related to artificial intelligence and data analytics, skills enabling work with new technologies, competencies ensuring cybersecurity, as well as data mindfulness (The World Future Manufacturing, 2019). In turn, research conducted by the World Economic Forum shows that employees are currently expected to possess skills that can be grouped into six categories: (1) cognitive skills, (2) engagement skills, (3) technology skills, (4) physical abilities, (5) management skills, and (6) self-efficacy, working with others, and ethics (WEF, 2025). When translated into specific competencies, these include: (1) analytical thinking, (2) creative thinking, (3) resilience, flexibility, and agility, (4) motivation and self-awareness, (5) curiosity and lifelong learning, (6) technological literacy, (7) reliability and attention to detail, (8) empathy and active listening, (9) leadership and social influence, and (10) quality control (WEF, 2019; 2023).

4. Self-Awareness and Self-Development as Key Future Competencies

In conditions of a turbulent environment, so-called soft competencies—encompassing cognitive, emotional, and social abilities—gain particular importance, as they complement domain-specific knowledge (Tarrago et al., 2025). They refer to traits applied in interactions with others and support the development of social networks (Itani, Sprour, 2015). Soft competencies include, among others, interpersonal skills, self-discipline, openness, and creativity (Hassan et al., 2024; Balcerzyk, Karczewski, 2022). They relate not only to strictly relational characteristics but also to other forms of behavior, such as social responsibility, ethics, and emotional intelligence (de Campos et al., 2020).

In the cited classifications, self-awareness is identified as one of the key future competencies, constituting a fundamental element in the process of personal development and the achievement of success. It refers to the ability to perceive oneself—one's thoughts, emotions, and behaviors—in a conscious and mindful manner. It enables the identification of strengths, the building of stronger relationships with individuals holding diverse views and experiences, and the avoidance of toxic relationships. Self-awareness is a continuous process that requires consistent effort and individual commitment for its development. In the context of future competencies, it facilitates more effective stress management, more deliberate decision-making, and the formation of authentic professional relationships. It is particularly significant in the era of VUCA (volatility, uncertainty, complexity, ambiguity), and increasingly in the context of BANI (brittle, anxious, nonlinear, incomprehensible), a concept describing the contemporary world as fragile, anxious, nonlinear, and difficult to comprehend (Syamsira et al., 2025; Sidor-Rządkowska, 2022).

Self-awareness—understood as the ability to recognize and understand one's emotions, values, and attitudes—directly translates into the capacity for self-development. Self-development is a conscious, planned, and long-term process aimed at expanding knowledge, skills, and competencies, leading to the fuller realization of one's potential. It requires self-reflection, goal setting, and systematic action, which distinguishes it from incidental learning (Becker-Pestka, Kołodziej, Pujer, 2017). Authors such as Deci and Ryan emphasize that its foundation lies in intrinsic motivation, arising from the need for autonomy, competence, and social relatedness (Ryan, Deci, 2000). A high level of motivation for self-development fosters cognitive flexibility, more effective stress management, and higher job satisfaction. Individuals who develop their interpersonal skills adapt more quickly to change, are more likely to take initiative, and demonstrate higher levels of innovativeness (Mäkelä, Stephany, 2024). In the face of automation and artificial intelligence, self-development enables the faster acquisition of new qualifications and more flexible adaptation of career paths (OECD, 2024).

5. Self-Awareness in the Context of Competency Development: Methodology and Interpretation of Research Findings

In order to identify how employees assess their own competencies, a survey study was conducted between May and June 2025. The study included 86 respondents with diverse characteristics in terms of age, work experience, and educational background. The diagnostic survey method was applied, using an original, anonymous questionnaire and a five-point rating scale, and the results were analyzed using basic statistical measures.

The obtained results indicate a high level of self-assessed professional competencies among the respondents, including in the areas of interpersonal skills, self-motivation, and a development-oriented mindset. Relatively low scores recorded in relation to passive attitudes and the avoidance of responsibility suggest a high level of personal agency, independence, and an internal locus of control.

Table 1.
Self-Perceived Competencies

	M	SD	Me	Min	Max	V
I am engaged in my work	3,38	0,77	3	2	5	22,74
I am able to work in a team	3,60	0,87	3	2	5	24,18
I pay attention to my colleagues' opinions	3,64	0,89	4	2	5	24,54
I fulfill my assigned tasks	4,93	0,26	5	4	5	5,20
I plan and organize my work effectively	3,58	0,85	3	2	5	23,64
I am motivated to work	3,41	0,86	3	2	5	25,22
I am willing to participate in various forms of professional development	3,31	0,90	3	1	5	27,09
I share my knowledge and experience with others	3,24	0,93	3	1	5	28,74
I am able to objectively evaluate my own work	4,03	0,42	4	3	5	10,37
I possess the theoretical knowledge required to perform my tasks	4,81	0,45	5	3	5	9,30
I have the practical skills required to perform my tasks	4,71	0,61	5	3	5	12,97
I continuously develop my qualifications	3,05	0,80	3	1	5	26,12
I work well in a team	3,44	1,05	3	1	5	30,42
I often relinquish control to others*	2,34	0,92	3	1	4	39,16
I find it difficult to take responsibility*	2,59	0,86	3	1	4	33,14
I am open to change	3,38	0,94	3	2	5	27,64
Intellectual development is very important to me	3,49	0,88	3	2	5	25,16
I enjoy acquiring new knowledge	3,94	0,52	4	3	5	13,11
I am able to motivate myself to work	4,00	0,63	4	3	5	15,81
I am not a lazy person*	1,29	0,65	1	1	4	50,23
I have strong technical skills	3,60	0,91	4	2	5	25,28
I possess strong interpersonal skills	4,27	1,00	5	2	5	23,41
I have good time management skills	3,56	1,00	5	2	5	23,41
My specialist knowledge is at a high level	4,47	0,79	5	2	5	17,75
I strive to increase my value in the labor market	3,81	0,96	4	2	5	25,28

M – mean, SD – standard deviation, Me – median, Min – minimum value, Max – maximum value, V – coefficient of variation (%).

Source: Authors' own elaboration based on the study.

Referring to the detailed analysis, it can be concluded that respondents assess their knowledge relatively highly, are aware of the need to enhance their competencies, and are motivated to do so. In this context, it is particularly interesting to consider the tools they use when planning to improve their competencies.

6. Conclusion

The aim of the article was to identify key future competencies in the context of Economy 5.0, understood as a model of socio-economic development that combines technological progress with a human-centered approach focused on well-being. Particular attention was paid to the importance of meta-competencies, such as self-awareness and the ability to autonomously shape one's own development, which determine the effectiveness of both individuals and organizations in conditions of intensive transformation. The article adopts a perspective emphasizing the growing role of transversal competencies as a foundation for the development of other capabilities. Self-awareness enables a deeper analysis of one's own potentials and limitations, while the capacity for self-development supports continuous improvement, flexible responses to changing demands, and effective functioning in a work environment characterized by a high level of uncertainty and complexity. The results of the empirical study indicate that respondents relatively highly assess their level of professional competencies, specialized knowledge, and socio-emotional competencies. The obtained findings confirm that self-awareness and self-development serve as key competencies conditioning the effective functioning of individuals in the context of dynamic economic and technological transformations. At the same time, they provide an important context and a foundation for further research in this area.

References

1. Antonopoulou, V. et al. (2024). Understanding healthcare professionals' responses to patient complaints in secondary and tertiary care in the UK: A systematic review and behavioural analysis using the Theoretical Domains Framework. *Health Research Policy and Systems, 22*(1), 137. https://doi.org/10.1186/s12961-024-01209-4
2. Balcerzyk, D., Karczewski, D. (2022). The competencies of a manager as a factor contributing to the success of a company in the VUCA environment. *Scientific Papers of Silesian University of Technology – Organization and Management Series*, *157*, 9-23. https://doi.org/10.29119/1641-3466.2022.157.1
3. Becker-Pestka, D., Kołodziej, J., Pujer, K. (2017). *Rozwój osobisty i zawodowy. Wybrane problemy teorii i praktyki.* Wrocław: EXANTE. Retrieved from: https://exante.com.pl.
4. Boyatzis, R.E. (1982). *The Competent Manager: A Model for Effective Performance*. New York: John Wiley & Sons.

5. Breque, M., De Nul, L., Pedridis, A. (2021). *Industry 5.0: Towards a Sustainable, Human-Centric and Resilient European Industry.* Luxembourg: Publications Office of the European Union.
6. Dale, M. (1998). *Developing Management Skills, Techniques for Improving Learning and Performance*. London: Kogan Page.
7. De Campos, D.B., De Resende, L.L.M., Fagundes, A.B. (2020). The Importance of Soft Skills for the Engineering. *Creative Education*, *11*, 1504-1520. Retrieved from: https://www.scirp.org/journal/ce, https://doi.org/10.4236/ce.2020.118109
8. Delamare Le Deist, F., Winterton, J. (2005), What is competence? *Human Resource Development International*, *8*(1), 27-46. https://doi.org/10.1080/1367886042000338227
9. Du Vall, M. (2019). Super inteligentne społeczeństwo skoncentrowane na ludziach, czyli o idei Społeczeństwa 5.0 słów kilka. *Państwo i Społeczeństwo*, *19*(2), 11-31. https://doi.org/10.34697/2451-0858-pis-2019-2-001
10. Furmanek, W. (1997). *Kompetencje – próba określenia pojęcia*. Wrocław: Edukacja Ogólnotechniczna.
11. *Future of Jobs Report* (2023). World Economic Forum. Retrieved from: https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf, 11.03.2026.
12. Islam, M.T. et al. (2025). A Review of the Industry 4.0 to 5.0 Transition: Exploring the intersection, challenges, and opportunities of technology and human–machine collaboration. *Machines*, *13*(4), 267, https://doi.org/10.3390/machines13040267
13. Jabłoński, M. (2025). *Automatyzacja procesów pracy. Uwarunkowania, ewolucja, perspektywy.* Warszawa: PWN.
14. Jeruszka, U. (2016). *Kompetencje. Aspekty teoretyczne i praktyczne.* Warszawa: Difin.
15. Katz, R.L. (1974). Skills of an effective administrator. *Harvard Business Review*, *52*(5), 90-102.
16. *Keidanren. Japan Business Federation, Society 5.0 – Co-creating the Future* (2018). Retrieved from: http://www.keidanren.or.jp/en/policy/2018/095.html, 11.03.2026.
17. Lévy-Leboyer, C. (2003). *Management of competences: how to analyze them, how to evaluate them, how to develop them*. Barcelona: Management 2000.
18. Mäkelä, E., Stephany, F. (2024). *Complement or Substitute? How Artificial Intelligence Changes Demand for Human Skills*, arXiv/labour-market study. Retrieved from: https://arxiv.org/abs/2412.19754.
19. Mastering the Fourth Industrial Revolution World Economic Forum Annual Meeting. (2016). https://www3.weforum.org/docs/WEF_AM16_Report.pdf
20. McClelland, D.C. (1973). Testing for competence rather than for "intelligence". *American Psychologist*, *28*(1), 1-14. https://doi.org/10.1037/h0034092
21. Modrzewska, D., Kansy, D. (2025). Humancentric Economy 5.0 as a Proposal for a New Concept in Economic Sciences. *European Research Studies Journal, 28*(3), 1932-1949, https://doi.org/10.35808/ersj/4286

22. *OECD Skills Outlook 2025: Lifelong Learning for Resilient Economies*. OECD Publishing.
23. Report 2019: Skills for the Future of Manufacturing.
24. Rojas, C.N. et al. (2021). Society 5.0: A Japanese Concept for a Superintelligent Society. *Sustainability, 13*(12), 6567. Retrieved from: https://doi.org/10.3390/su13126567
25. Rosak-Szyrocka, J., Knop, K. (2024). Navigating the Fourth Industrial Revolution: Insights from a Comprehensive Bibliometric Study on Industry 4.0. *Production Engineering Archives*, *30(4),* 501-519.
26. Ryan, R.M., Deci, E.L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist, 55*(1), 68-78.
27. Salovey, P., Mayer, J.D. (1990). Emotional Intelligence. *Imagination, Cognition and Personality*, *9*(3), 185-211. Retrieved from: https://doi.org/10.2190/DUGG-P24E-52WK-6CD
28. Schwab, K. (2016). *The Fourth Industrial Revolution.* World Economic Forum.
29. Shabur, M.A. (2024). A Comprehensive Review on the Impact of Industry 4.0 Revolution Potential in Sustainability. *Journal of Cleaner Production*, *5*(1).
30. Sidor-Rządkowska, M. (2022). Vuca or bani? – the challenges of human capital management in post(?) Pandemic times. *Scientific papers of Silesian University of Technology. Organization and Management Series*, *159*, 393-402. https://doi.org/10.29119/1641-3466.2022.159.31
31. *Society 5.0. A People-centric Super-smart Society* (2018). Hitachi-UTokyo Laboratory (H-UTokyo Lab.). Springer Open.
32. Syamsir, S. et al. (2025). Leadership agility in a VUCA world: a systematic review, conceptual insights, and research directions. *Cogent Business & Management*, *12*(1). 2482022. https://doi.org/10.1080/23311975.2025.2482022
33. Tarraggo, P. et al. (2025). Artificial intelligence and soft skills in civil engineering education: A Latin American curriculum gap with global implications. *Research in Globalization, 11,* 100307. https://doi.org/10.1016/j.resglo.2025.100307
34. White, R.W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66*(5), 297-333, https://doi.org/10.1037/h0040934
35. World Economic Forum (2023). *The Future of Jobs Report 2023.* WEF.
36. World Economic Forum (2025). *The Future of Jobs Report 2025.* Geneva: WEF.
37. Zamorska, K. (2020). Pięć rewolucji przemysłowych – przyczyny, przebieg i skutki (ujęcie historyczno-analityczne). *Gospodarka, rynek i państwo wobec rewolucji technologicznej Studia BAS, 3*(63), 7-23, https://doi.org/10.31268/StudiaBAS.2020.19

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THE COMPLEMENTARY ROLE OF FOREIGNERS IN THE LABOUR MARKET OF THE WEST POMERANIAN VOIVODESHIP

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Purpose: The aim of this study was to characterize foreigners in the labour market of the West Pomeranian Voivodeship and to identify and assess the key aspects of the complementary role they play in that market.
Design/methodology/approach: This study draws on a review of the relevant literature, an analysis of existing data, and inferences based on statistical data and the author's expert knowledge, gained while serving as a member of the Regional Labour Market Council (WRRP) in Szczecin. The geographical scope of the study covers the West Pomeranian Voivodeship, and the time frame is 2020-2025.
Findings: Research has shown that the share of foreigners in the labour market in the West Pomeranian Voivodeship between 2020 and 2025 was significant. Seven key aspects of the complementary role played by foreigners in the market under study were identified. Foreigners, primarily citizens of Ukraine, were the ones who most effectively filled the employment gap in the region's industrial processing sector.
Research limitations/implications: The short time frame of the study did not allow for the identification of emerging long-term trends. Another significant limitation was the lack of more detailed regional data—specifically at the provincial level—in official statistics. This gap was partially filled by unpublished data from the WRRP in Szczecin.
Practical implications: The results of the study may be useful to business owners operating in the West Pomeranian Voivodeship in terms of their human resources policies.
Originality/value: The study is based on the most up-to-date as well as unpublished data for the region under study, which is what makes it valuable. The identified aspects of the complementary role played by foreigners in the labour market of the West Pomeranian region should be considered original.
Keywords: the labour market in the West Pomeranian Voivodeship, foreigners in the labour market, the complementary role of foreigners in the labour market, the employment gap, skills shortages.
Category of the paper: Research paper.

1. Introduction

Foreigners play a significant role in the Polish labour market. According to data from the Social Insurance Institution (ZUS, 2025), 725,000 foreigners were registered for pension and disability insurance in Poland in 2020. At the start of 2026, ZUS records showed 1.29 million legally employed foreigners, representing an impressive increase of 77.9%. Ukrainian nationals accounted for the largest share of foreigners in the Polish labour market, at 5.2% in 2025[1]. Russia's invasion of Ukraine in 2022 was a key factor that further intensified the migration trends observed in Poland.

The number of foreigners varied across the country's regions. In 2025[2], the highest numbers resided in the Warsaw Capital Region (221,000), Lower Silesia Voivodeship (127,300) and Wielkopolskie Voivodeship (116,700), whilst the lowest was in Swietokrzyskie Voivodeship (9,100). In the West Pomeranian Voivodeship, 56,500 foreigners were employed in the year under review, accounting for 5.3% of the total. Men predominated (30,600), followed by women (25,900) (GUS, 2026a). The West Pomeranian region ranked 8th among all voivodeships, placing it in the middle of the table. The West Pomeranian Province was a significant labour market for foreigners, including Ukrainian citizens. Research in this area is therefore crucial, particularly in light of the demographic changes taking place, the region's peripheral location, and the demand for specific professions where there is a shortage of workers, as well as the professional skills and qualifications that are essential for the region's development and for building its competitiveness.

2. Literature review

The issue of international migration is frequently addressed by researchers due to its significant importance for the functioning of the global economy. For many years, Poland was not really a destination for economic migration. Significant changes were observed following Poland's accession to the European Union (Puzio-Wacławik, 2010). The year 2014 is considered a turning point, when more immigrants arrived in Poland than in the previous six years combined (Ambroziak, Schwabe, 2016, pp. 151-186). In turn, in 2017, according to OECD data (2019), Poland was the destination for the largest number of temporary workers globally. Another significant point on the timeline is 2022, when the Russian Federation's military invasion of Ukraine on 24 February 2022 caused a substantial influx of refugees into the Polish labour market. According to the latest data from the Central Statistical Office (GUS,

[1] As at 30 June 2025.
[2] Data for July 2025.

2026b), by the end of August 2025, over 1.1 million were working in Poland. Their share of the total workforce in Poland stood at 6.7%. In summary, over the last decade, as never before, there have been so many foreigners on the Polish labour market who have significantly shaped its functioning.

The literature describes the findings of numerous studies indicating that immigration has a positive impact on economic growth (e.g. Butyter, 2024; Kałuża-Kopias, 2023; Chen, Fang, 2013). Deloitte (2025, pp. 22-25) examined in detail the economic impact of refugees from Ukraine on the Polish economy, demonstrating that: (1) they contributed to a 1.5% increase in Poland's real GDP in 2022, 2.3% of GDP in 2023 and 2.7% of GDP in 2024. This corresponds to a GDP increase of PLN 98.7 billion in 2024; (2) they increase government revenue as employees, entrepreneurs[3] and consumers. In total, government revenue rose in monetary terms by PLN 25.0 billion in 2022, PLN 39.1 billion in 2023 and PLN 47.0 billion in 2024; (3) they generate additional output and demand; (4) with the entry of Ukrainian refugees into the Polish labour market, the economy has adapted, resulting in greater specialisation and higher productivity.

The literature also indicates that foreign nationals working in Poland play a significant complementary role in meeting labour demand and help to fill shortages in shortage occupations (Baron-Polańczyk, Klementowska, 2018; Solga 2023; Niewiadomska, 2024). The fulfilment of this role by foreigners is of particular importance in countries and regions experiencing negative demographic trends, such as an ageing population or depopulation. These processes are more advanced, particularly in peripheral areas (Jończy, 2023).

3. Methodology

The aim of this study was to characterise the presence of foreigners in the labour market of the West Pomeranian Voivodeship, and to identify and assess the key aspects of the complementary role they play in the market under study. To achieve this aim, three research questions were formulated: (1) How did the labour market in the West Pomeranian region develop between 2020 and 2025 in the context of foreign workers? (2) What were the key aspects of the complementary role played by foreigners in the labour market of the West Pomeranian Voivodeship? (2) To what extent did foreigners fill the employment gap in terms of sectors and occupations?

[3] According to the Polish Economic Institute (PIE), a total of 109,100 sole traders run by Ukrainians were established between 2022 and 2025, accounting for 10 per cent of all sole traders registered in Poland during that period. During the same period, 14,500 companies with Ukrainian capital were also established. The majority of Ukrainian sole traders are involved in construction, telecommunications and programming services, and other service activities (Szymańska, Wejt-Knyżewska, Zybertowicz, 2026, pp. 3-4).

The study draws on a review of the relevant literature and conclusions based on statistical data and the author's expert knowledge, acquired whilst serving as a member of the Regional Labour Market Council (WRRP) in Szczecin between 2018 and 2025. The geographical scope of the research covers the West Pomeranian Voivodeship and is determined by the author's place of residence and work. Due to its border location and distance from the centre, this region is considered peripheral. The time frame of the research mainly covers the years 2020-2025, although current information for 2026 has also been included. The choice of this period allowed for the identification of changes in the West Pomeranian labour market before and after the outbreak of the war in Ukraine.

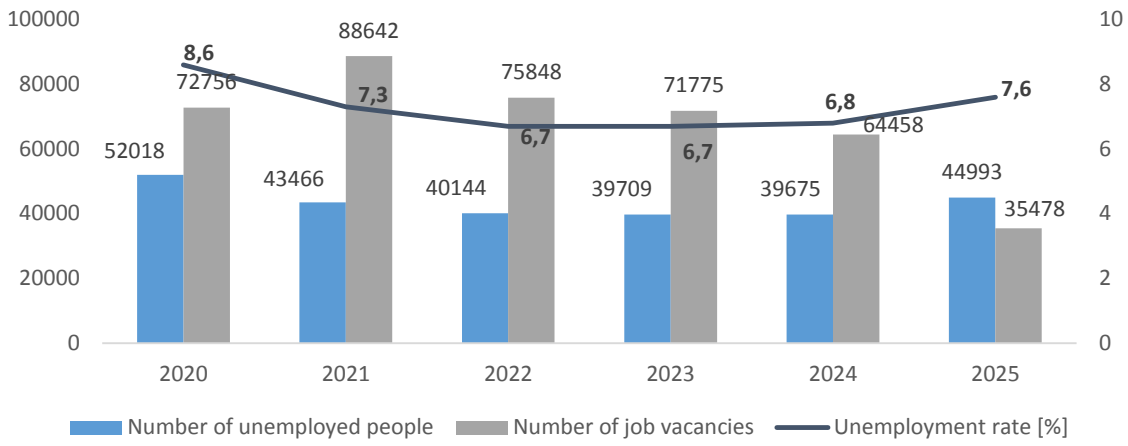
The following research methods were employed to test the research questions and achieve the study's objective: a review of the literature, analysis of existing data, graphical analysis, and logical reasoning and deduction. The study was conducted using data available from official statistics and reports from, amongst others: the Central Statistical Office (GUS), the Social Insurance Institution (ZUS), the Regional Employment Office in Szczecin (WUP), the Polish Institute of Economics (PIE) and Deloitte.

A significant limitation of the study is the short time frame of the research, which does not allow for the identification of emerging long-term trends. Additionally, a major limitation was the lack of more detailed data in public statistics, which covers the subject matter under study at a regional level, i.e. by voivodeships. This gap was partially filled by unpublished data from the Regional Labour Market Council (WRRP) in Szczecin. Formal constraints of the publication, including the length of the article, also meant that the study could only analyse selected aspects of the subject matter, a fact of which the author is aware.

4. Research results

4.1. The labor market in the West Pomeranian Voivodeship

Data from the Regional Employment Office (WUP) in Szczecin (2025a) indicate that between 2020 and 2025, the unemployment rate in the West Pomeranian Voivodeship remained at a relatively low level, falling from 8.6% to 7.6%. This rate was always higher than the national average, which stood at 5.6% in 2025, for example. The unemployed were predominantly people not entitled to benefits, the long-term unemployed and those without professional qualifications. During the period analysed, the number of unemployed in the region fell steadily until 2024, after which a 13.4% increase was recorded in 2025 compared to the previous year (see fig. 1).



*2025 - preliminary data.

Figure 1. Number of unemployed people, unemployment rate and number of job vacancies in the West Pomeranian Voivodeship in 2020-2025*.

Source: own study based on data from the WUP in Szczecin (2025a).

The labour force participation rate in the West Pomeranian Voivodeship rose from 53.8% in the base year to 56% in the target year[4]. Over the same period, the employment rate – that is, the proportion of the working population within the total population – also improved, rising from 51.8% to 54.7%. It can therefore be concluded that, generally speaking, the situation in the region's labour market under review was improving; unemployment remained at a relatively low level, and employers were struggling to find staff in certain sectors and occupations.

Low unemployment and a greater number of job vacancies than jobseekers indicated that the region was experiencing a typical 'employee's market'. It should be emphasised, however, that certain worrying signs in this area emerged in 2025. At that time, compared to 2024, in addition to a relatively slight increase in the unemployment rate of 0.8 percentage points (from 6.8% to 7.6%), a situation was recorded for the first time in the six-year period under review where the number of job vacancies (35,478) was lower than the number of unemployed, i.e. 44,993. In previous years, the opposite was true, although a downward trend in job vacancies had been evident since 2022, and its rate of decline was significantly greater than that of the downward trend in the number of unemployed.

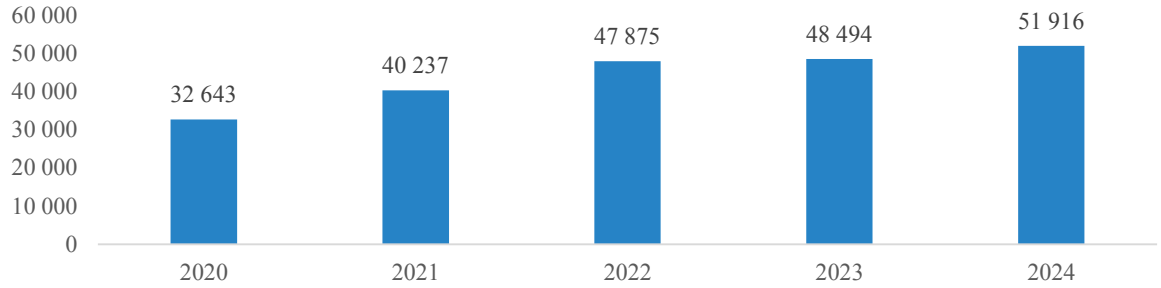
4.2. Foreigners on the labor market in the West Pomeranian Voivodeship

According to data from the WUP in Szczecin (2021), 27,220 work permits for foreigners were issued in the West Pomeranian Voivodeship throughout 2020, i.e. the year prior to the Russian Federation's military invasion of Ukraine (on 24 February 2022). These were mainly obtained by citizens of: Ukraine (67.0%), India (5.8%), the Philippines (5.5%), Belarus (3.0%), Georgia (3.0%) and Uzbekistan (2.0%). By 2025, 56,500 foreigners were already working in the region, with Ukrainian citizens continuing to dominate the figures (67%). Citizens of

[4] Data for 3 quarters.

Belarus (10.6%), Georgia (2.3%), India (2.1%), Colombia (1.6%) and the Philippines (1.4%) accounted for a smaller share (GUS, 2026). As can be seen, the proportion of Ukrainian citizens in the labour market under review remained stable, although their numbers increased. Furthermore, it should be noted that Szczecin Powiat ranked 7th in terms of registered refugees from Ukraine (14,138 people)[5] (Deloitte, 2026, p. 11).

According to ZUS data (2025), at the end of 2024, over 51,900 foreigners were insured in the West Pomeranian Voivodeship, which represents a 59% increase compared to 2020, when there were over 32,600 (see fig. 2.). In July 2025, 56,500 foreigners were working there, representing 4.3% of the national total. In summary, a growing trend in this regard was observed throughout the period under review.



* An insured person employed by several payers based in the same voivodeship is included only once.

Figure 2. Number of foreign nationals* registered for pension and disability insurance in the West Pomeranian Voivodeship between 2020 and 2024.

Source: ZUS (2025).

In total, between 24 February 2022 and 31 December 2025, 111,784 Ukrainian citizens took up employment in the West Pomeranian Voivodeship under the special law act. During this period, 6,293 Ukrainian citizens were registered with employment offices in the West Pomeranian Voivodeship, of whom 4,613 were registered under the scheme providing assistance related to the armed conflict (WUP in Szczecin, 2026).

4.3. Key aspects of the complementary role of foreigners in the labour market in the West Pomeranian Voivodeship

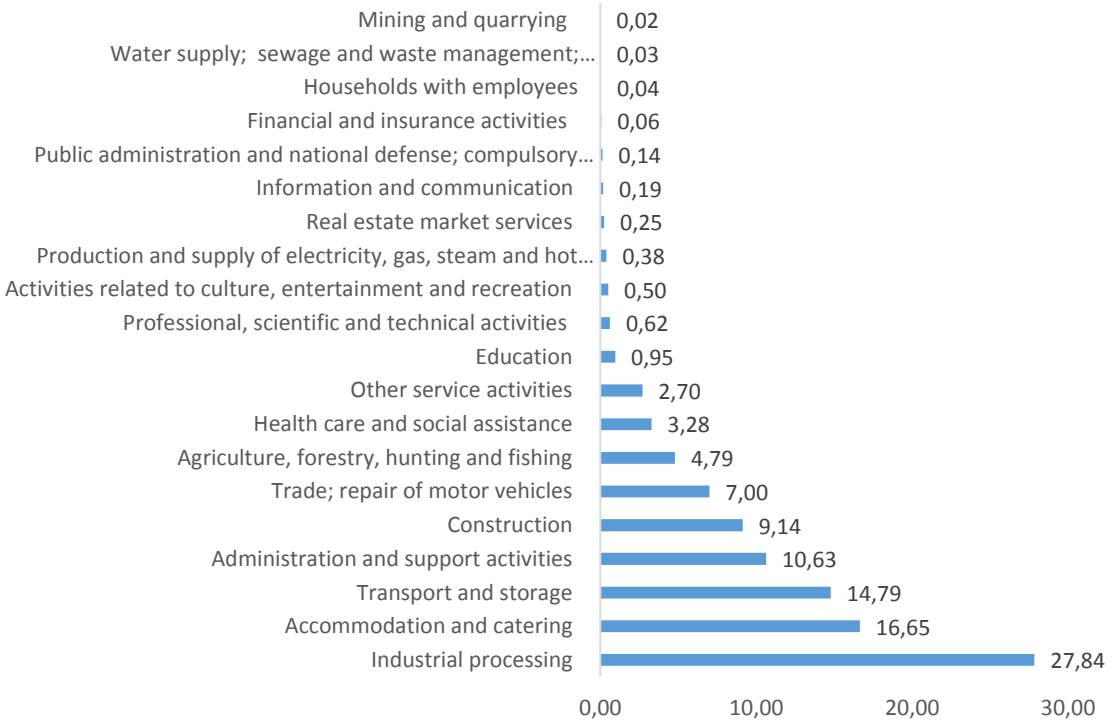
Based on the above description of the labour market in the West Pomeranian Voivodeship, taking into account foreign nationals, it can be concluded that the primary aspect of the complementary role played by foreigners between 2020 and 2025 was an increase in the labour supply. Migrants have expanded the size of the workforce. Despite this, the market under review continued to show, for the most part, an excess of labour demand and unfilled job vacancies (table 1). Thus, foreign nationals only partially filled the regional demographic deficit, which is forecast to worsen. Augustyn (2026) highlights an increase in the median age in the West Pomeranian region of 3.7 years between 2016 and 2024, compared to a national

[5] Data for September 2024.

average of 3.1 years. In the coming years, a major challenge for the region will be the growing proportion of people of post-working age and the simultaneous decline in the number of young people entering the labour market (GUS, 2023). According to the GUS forecast, by 2060 in the West Pomeranian Voivodeship, the proportion of the pre-working-age population is expected to be 14.2%, the working-age population 48.0%, and the post-working-age population 37.8%. These are alarming figures compared to 2024, when they stood at 16.8%, 57.9% and 25.3% respectively (GUS, 2025, p. 3).

Foreign nationals in the province under study also demonstrated growing entrepreneurial activity. According to ZUS data, by the end of 2024 they had established over 2,412 companies. Their number at the end of January 2023 stood at 1,176, representing an increase of over 100% (Klimczak, Wełnic, Skarul, Boroń, 2026). Thus, another aspect of the complementary role of foreigners in the studied market is the development of regional entrepreneurship and the creation of new jobs.

Foreigners took up employment across all sectors of the economy (see Figure 1). Based on data concerning Ukrainian nationals (who were the dominant group in the region), it can be seen that they most frequently took up employment in sectors related to manufacturing (27.84%), accommodation (16.65%) and transport (14.79%). It can therefore be concluded that it was in these sectors that Ukrainian citizens partially filled employment gaps, thereby also supporting the productivity of the firms operating within them.



*As of 3 June 2025, according to data from the CeSAR database.

Figure 3. Employment of Ukrainian nationals under the special law act, by economic sector, in the West Pomeranian Voivodeship in 2025* [%]

Source: own study based on WUP (2025a).

Assessing the extent to which the employment gap has been filled in individual sectors is difficult. However, such an assessment can be made to some extent by analysing the correlation between the data in Fig. 3 and the data showing the structure of job vacancies by occupation in the West Pomeranian region (Table 1). The structure of job vacancies changed in 2025 compared to 2020. Above all, employers' demand for technicians and other intermediate staff increased (by 5.1 pp.), as did demand for specialists (by 4.4 pp.) and service workers and sales staff (by 3.4 pp.). It can therefore be concluded that foreign nationals, including Ukrainians, have filled this labour gap to the least extent. The share of job vacancies for workers performing simple tasks fell the most (by 4 pp.), as did those for machine and equipment operators and fitters (by 3.8 pp.) and for office workers (by 3.2 pp.). This suggests that foreigners are increasingly filling the labour shortages in these occupational groups. However, in all the groups presented, there were still labour shortages of varying degrees in 2025.

Table 1.
The structure of job vacancies in the West Pomeranian Voivodeship by occupational group in 2020 and 2025

Occupational groups	2020 [%]	2025* [%]	2025/2020 pp.
Unskilled workers	31,8	27,8	-4
Industrial and craft workers	21,4	21,2	-0,2
Service workers and sales staff	12,4	15,8	3,4
Technicians and other mid-level staff	5,2	10,3	5,1
Office workers	12,2	9,0	-3,2
Machine and plant operators and assemblers	10,5	6,7	-3,8
Professionals	1,1	5,5	4,4
Farmers, gardeners, foresters and fishermen	2,6	3,2	0,6
Public officials, senior civil servants and managers	0,8	0,5	-0,3

Data for January–June 2025.

Source: Compiled by the authors based on data from the WUP in Szczecin (2021; 2025a).

Foreigners took up employment in sectors and occupations characterised by challenging conditions (taking into account working conditions and difficulty, type of contract, pay levels and staff turnover), thereby filling gaps in unattractive occupations. This is also due to the observed decline in their professional status. The Deloitte report (2026, pp. 25-33) indicates that 40% of Ukrainian refugees aged 25-64 have a higher education qualification but are unable to work in many occupations due to regulatory restrictions. Only 12% of refugees worked in occupational groups requiring higher education.

An analysis of shortage occupations can provide further insight into the issue of foreign nationals filling skills gaps. A comparison of forecasts for 2020 and 2026 clearly shows that the number of such occupations has decreased in most sectors. The exception is the education sector, where this number has increased. In the West Pomeranian Voivodeship, there is a shortage mainly of teachers of vocational subjects and practical vocational training. This is due to the growing popularity of technical, vocational and industry-specific schools, where students gain a profession after passing an exam confirming their vocational qualifications.

Additionally, a problem in the region is the pre-retirement, and not infrequently retirement, age of these teachers. However, the greatest changes have occurred in the construction sector. Whilst demand in the region for workers in many different occupations within this sector was reported practically up to 2024, by 2026 the demand relates exclusively to earthmoving equipment operators and mechanics. This is undoubtedly the result of the sector becoming saturated with workers possessing specific qualifications or professions, as well as changes in market conditions.

Table 2.
Shortage occupations by sector in the West Pomeranian Voivodeship

2020	2026
EDUCACION	
foreign language teachers and language tutors, practical vocational subject teachers, nursery school teachers	early years teachers, practical vocational training teachers, vocational subject teachers, general education and foreign language teachers, nursery school teachers, special school and inclusive class teachers, educators
HEALTHCARE AND SOCIAL CARE SECTOR	
doctors, nurses and midwives, physiotherapists and massage therapists, carers for the elderly or people with disabilities, social workers, psychologists and psychotherapists, medical rescuers	doctors, nurses and midwives, psychologists and psychotherapists, speech and language therapists, social workers and mediators, carers for elderly people or people with disabilities
CONSTRUCTION INDUSTRY	
operators and mechanics of earth-moving machinery, concrete workers and steel fixers, pavers, carpenters and joiners, roofers and tinsmiths, building services installers, bricklayers and plasterers, finishing workers	operators and mechanics of earth-moving machinery
MANUFACTURING AND PROCESSING INDUSTRY	
tailors and garment production workers, manual workers in manufacturing and unskilled labour, machine tool operators, bakers, welders, woodworkers and joiners, metalworkers	welders
TRANSPORT/FORWARDING/LOGISTICS	
car body repairers and painters, bus drivers, lorry and articulated lorry drivers, warehouse staff, motor vehicle mechanics	bus drivers, lorry and articulated lorry drivers
FINANCIAL AND LEGAL SECTOR	
finance and accounting staff with foreign language skills, accounting staff, senior accountants	accounting and bookkeeping staff, senior accountants

Cont. table 2.

SAFETY AND SECURITY	
uniformed services personnel	uniformed services personnel
ELECTRICAL AND ENERGY SECTOR	
electricians, electromechanics and electrical fitters	electricians and power engineers
THE FOOD AND TOURISM INDUSTRY	
chefs, kitchen assistants	chefs

Source: compiled by the authors based on data from the WUP in Szczecin (2019; 2025b).

The occupations facing a persistent shortage – i.e. those that have remained in short supply continuously from 2016 to 2025 in the West Pomeranian region – were: independent accountants, carers for the elderly or disabled, bus drivers, welders, lorries and articulated lorries, and nurses and midwives. An analysis of the data presented shows that, in the West Pomeranian Voivodeship during the period under review, foreigners made the smallest contribution to filling the skills gap, with the exception of taking up employment in the construction and manufacturing and processing sectors. Staff shortages in shortage occupations were very difficult to fill due to the fact that, in most cases, these shortages relate to occupations requiring: a very good knowledge of Polish, high qualifications (often confirmed by relevant documents, the acquisition of which takes a long time and is regulated by law), specialist skills or appropriate competences.

5. Conclusions

Between 2020 and 2025, the West Pomeranian Voivodeship experienced what is known as an ‘employer’s market’. During this period, unemployment remained at a relatively low level and employers struggled to recruit staff. The number of foreigners in the region under study increased by 208%, i.e. from 27,200 to 56,500. The largest group consisted of Ukrainian citizens. Their share among foreign nationals in the region remained at a similarly high level, reaching as much as 67% in 2025.

Based on the research conducted, it can be concluded that foreign nationals, predominantly Ukrainian citizens, certainly did not play a substitute role in the West Pomeranian labour market, but rather a complementary one. Seven key aspects of the complementary role of foreign nationals were identified: (1) increasing the size of the regional labour force; (2) addressing the regional demographic deficit; (3) filling employment gaps; (4) supporting the development of regional entrepreneurship (business start-ups) and the creation of new jobs; (5) supporting the productivity of regional enterprises; (6) filling staff shortages in difficult sectors and unattractive occupations; and (7) filling skills gaps, including in shortage occupations.

The study also sought to assess the extent to which foreigners have filled the labour shortage in the West Pomeranian region. The research findings indicate that foreigners have filled employment gaps to the greatest extent by taking up work in sectors related to manufacturing, accommodation and catering, transport and warehousing, as well as administration and construction. Based on an analysis of changes in available job vacancies, it can be cautiously assumed that this applies to occupational groups such as: unskilled labour, machine and equipment operators and fitters, and office staff. An analysis of shortage occupations further confirms that foreign nationals were able to fill staff shortages to a large extent in the construction and industrial processing sectors in occupations where high qualifications or specialist skills are not required. The data collected, however, indicate that to the least extent (and in some cases, presumably not at all) have foreign nationals filled staff shortages in sectors such as: education, healthcare, finance and law, security and safety, or the electrical and energy sectors. It can therefore be concluded that in professions such as, amongst others: doctor, teacher, accountant, lawyer, educator, psychologist, uniformed services officer or electrician/ energy engineer, foreigners were unlikely to possess the relevant qualifications and competences, making it very difficult or impossible for them to fill the skills gap in these sectors. Access to these professions is restricted due to legal regulations.

In summary, foreigners played a significant role in the labour market of the West Pomeranian Voivodeship during the period under review. In the immediate future, the so-called ‘Smart Specialisation Professions of the West Pomeranian Voivodeship’ (ISWZP) will be key to the region’s development. These include: (1) Tourism and quality of life; (2) Next-generation manufacturing; (3) Technologies and services of the future; (4) Chemical products for sustainable development; (5) Smart methods of manufacturing products and machinery; and (6) Blue economy and green transport. Król, Wolny and Szymala (2025) demonstrated in their research that in most of the key ISWZP sectors, there is moderate or high dynamism in terms of changes to the required competences or qualifications. This necessitates continuous improvement and adaptation to changing conditions, both for residents of the region and for non-residents wishing to work here. Appropriately designed migration and education policies are also important as a key factor in building competitiveness in the peripheral West Pomeranian region.

References

1. Ambroziak, A.A., Schwabe M. (2016). Factors Influencing Immigration to Poland As an EU Member State. *Yearbook of Polish European Studies, 19,* pp. 151-186.
2. Augustyn, T. (2026). *Przyspieszone starzenie: demograficzne wyzwanie Pomorza Zachodniego.* Instytut Studiów Regionalnych. Retrieved from: https://www.isr.info.pl/przyspieszone-starzenie-demograficzne-wyzwanie-pomorza-zachodniego/.
3. Baron-Polańczyk, E., Klementowska, A. (2018). Od „rynku pracodawcy" do „rynku pracownika"–zawody deficytowe w ujęciu ogólnokrajowym i regionalnym. *Społeczności Lokalne. Studia Interdyscyplinarne, 2.*
4. Butyter, D. (2024). Efekty ekonomiczne migracji Ukraińców do Polski. *Studenckie Prace Prawnicze, Administratywistyczne i Ekonomiczne, 50(1),* pp. 63-74.
5. Chen, H.J., Fang, I.H. (2013). Migration, social security, and economic growth. *Economic Modelling, 32,* pp. 386-399.
6. Deloitte (2025). *Analysis of the impact of refugees from Ukraine on the economy of Poland*, 2 edition, June 2025.
7. GUS (2023). *Prognoza ludności na lata 2023-2060.* Warszawa: GUS.
8. GUS (2025). S*tan i ruch naturalny ludności w województwie zachodniopomorskim w 2024 r.* Szczecin: GUS.
9. GUS (2026a). *Cudzoziemcy wykonujący pracę w Polsce w lipcu 2025 r.* Warszawa: GUS.
10. GUS (2026b). *Cudzoziemcy wykonujący pracę w Polsce w sierpniu 2025 r.,* Warszawa: GUS.
11. Jończy, R. (2023). *Migracje jako przyczyna wyludniania w skali regionalnej. Migracje i rozwój regionu.* Warszawa: Rządowa Rada Ludnościowa, Główny Urząd Statystyczny, pp. 53-66.
12. Kałuża-Kopias, D. (2023). Ekonomiczne skutki międzynarodowej imigracji do Polski– przykład imigracji z Ukrainy. In: Koczur (ed.), *Ekonomiczne konsekwencje przemian demograficznych* (pp. 148-163). Warszawa: Główny Urząd Statystyczny.
13. Klimczak, M., Wełnic, R., Skarul, B., Boroń, J. (2026). *Przybywa obcokrajowców z własnymi firmami. Cudzoziemcy biorą sprawy w swoje ręce.* Retrieved from: https://gk24.pl/przybywa-obcokrajowcow-z-wlasnymi-firmami-cudzoziemcy-biora-sprawy-w-swoje-rece/ar/c1-18361343
14. Król, M., Wolny, Z., Szymala, W. (2025). *Kompetencje, kwalifikacje i perspektywy rynkowe dla kluczowych zawodów Inteligentnych Specjalizacji Województwa Zachodniopomorskiego. Raport skrócony.* Wojewódzki Urząd Pracy w Szczecinie.
15. Niewiadomska, A. (2024). Zjawisko imigracji zarobkowej na Polskim rynku pracy w latach 2018-2023. *Nauki Ekonomiczne, 40,* pp. 73-96.

16. OECD (2019). *International Migration Outlook.* Retrieved from: https://www.oecd-ilibrary.org/social-issues-migration-health/international-migration-outlook-2019_c3e35eec-en
17. Puzio-Wacławik, B. (2010). Społeczno-ekonomiczne skutki migracji Polaków po akcesji Polski do Unii Europejskiej. *Polskie Towarzystwo Ekonomiczne, Zeszyty Naukowe nr 8, Kraków,* pp. 179-193.
18. Solga, B. (2023). Imigracja ekonomiczna z Ukrainy w województwie opolskim. *Migracje i rozwój regionu, 103.*
19. Szymańska, A., Wejt-Knyżewska, A., Zybertowicz, K. (2026). *Ukraińskie firmy w Polsce w latach 2022-2025, Point Paper, nr 1.* Warszawa: Polski Instytut Ekonomiczny.
20. WUP w Szczecinie (2019). *Barometr zawodów 2020. Raport podsumowujący badanie w województwie zachodniopomorskim.* Kraków: WUP w Krakowie.
21. WUP w Szczecinie (2021). *Cudzoziemcy na rynku pracy w województwie zachodniopomorskim 2020.* WUP w Szczecinie.
22. WUP w Szczecinie (2021). *Rynek pracy. Województwo zachodniopomorskie.* Materiały Wojewódzkiej Rady Rynku Pracy w Szczecinie, niepublikowane.
23. WUP w Szczecinie (2023). *Rynek pracy. Województwo zachodniopomorskie.* Materiały Wojewódzkiej Rady Rynku Pracy w Szczecinie, niepublikowane.
24. WUP w Szczecinie (2025a). *Rynek pracy. Województwo zachodniopomorskie.* Materiały Wojewódzkiej Rady Rynku Pracy w Szczecinie, niepublikowane.
25. WUP w Szczecinie (2025b). *Barometr zawodów 2026. Raport podsumowujący badanie w województwie zachodniopomorskim.* Kraków: Wojewódzki Urząd Pracy w Krakowie, Wojewódzki Urząd Pracy w Szczecinie.
26. WUP w Szczecinie (2026). *Dane wstępne o bezrobociu w województwie zachodniopomorskim, 2025.* WUP w Szczecinie.
27. ZUS (2025). *Cudzoziemcy w polskim systemie ubezpieczeń społecznych 2024.* Warszawa.

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PERCEPTION OF THE PROJECT MANAGER'S ROLE IN THE POLISH AUTOMOTIVE INDUSTRY: AN EXPLORATORY STUDY FROM THE TEAM'S PERSPECTIVE

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Purpose: This article aims to identify how members of project teams in the Polish automotive industry perceive the role of the project manager, which competencies they consider key for this role, and what directions of change in these expectations they foresee for the future.
Design/methodology/approach: The study was conducted using an online survey among 156 employees of the Polish automotive industry with experience in project work. An exploratory approach and descriptive statistical analysis were employed. The sample selection was non-probability-based; therefore, the results cannot be treated as representative of the entire population of automotive sector employees in Poland.
Findings: The results indicate that the project manager is perceived primarily as a coordinator and team leader. The highest ratings were given to competencies related to team management, communication, and goal-setting, with technical competencies considered relatively less important. The perception of the project manager's role focuses on interpersonal and organisational competencies, the importance of which, according to the respondents, will increase as project complexity in the automotive industry grows.
Research limitations/implications: The study is exploratory and based on a non-random sample of respondents from a single sector and a single country, limiting the generalisability of the results. Further research should cover other sectors, international comparisons, and projects of varying scale and organisational maturity.
Practical implications: The findings may support the design of development programmes for project managers, focused on developing interpersonal and leadership competencies in an industrial environment.
Social implications: Better alignment of the project manager's role with team expectations may improve collaboration, communication, and working conditions within project teams.
Originality/value: The value of the article lies in presenting an exploratory, sector-specific picture of how project team members perceive project managers' roles in the Polish automotive industry. The study complements the normative approaches dominant in the literature with a team-based perspective, without making claims to statistical generalisations.
Keywords: project manager role, project manager competencies, project team, automotive industry.
Category of the paper: Research paper.

1. Introduction

The project manager is widely recognised as a key participant in the project implementation process. The importance of this role is emphasised in both the international literature and Polish academic studies on project manager competencies (Bashir et al., 2021; Crawford, 2005; Marek-Kołodziej, 2023; Müller, Turner, 2010; Meng, Boyd, 2017; Spalek, 2014). In modern organisations, project managers are responsible for coordinating activities and fostering collaboration within project teams. Traditionally, this role was primarily associated with delivering projects within time, cost, and scope constraints (Caccamese, Bragantini, 2012; Podgórska, 2022), but increasingly, its leadership nature and the importance of interpersonal skills, such as communication, motivation, and conflict resolution, are being emphasised (PMI, 2021).

The importance of the project manager's role is particularly evident in dynamic sectors such as the automotive industry, which is characterised by highly complex projects, time pressure, and the need for interdisciplinary collaboration (Hecklau et al., 2016; Kerzner, 2009; Spalek, 2014). The Polish automotive industry, which is closely linked to European markets, is undergoing significant changes driven by electrification, sustainability requirements, and the restructuring of global supply chains (Bednarz, 2024). These changes increase organisational uncertainty and reinforce the need for effective management of complex projects (Biskupek, Spałek, 2016).

The transformation of the automotive sector is also accompanied by changes in the labour market and in terms of expected competencies. Despite reductions in certain production roles, the industry continues to face a shortage of highly qualified specialists and managers capable of operating in project-based environments (Bednarz, 2024). New investments are generating demand for both technical competencies and leadership, teamwork, and adaptability (Royal Academy of Engineering, 2024), consistent with research findings indicating the growing importance of adaptability, collaboration, and learning among project managers (Balcerzyk, Žukovskis, 2024).

Previous research on project management has focused mainly on normative models of project manager competencies and their significance in the context of digital transformation and Industry 4.0 (Hecklau et al., 2016; Ribeiro et al., 2021). The perspective of project team members is analysed much less frequently, even though research in organisational behaviour indicates that how the project manager's role is perceived influences levels of trust, commitment, and teamwork effectiveness (Spendlove, 2007; Smith, Wolverton, 2010). In particular, there remains a limited understanding of how project managers are perceived by project team members themselves, operating under conditions of high process standardisation, quality pressure, and cross-functional collaboration typical of the automotive sector.

In the Polish automotive industry, empirical research on project team members' perceptions of the project manager's role and competencies remains limited, underscoring the need for further analysis in this area.

Given the limited body of empirical research on the perception of the project manager's role in the Polish automotive industry, this study poses the following research questions:

1. How do project team members perceive the role of the project manager in the Polish automotive industry?
2. Which competencies and personal characteristics of the project manager are considered most important by project team members?
3. How do project team members perceive the future role and competency requirements of project managers in the automotive industry?
4. To what extent do project team members perceive the presence of a project manager as essential for the successful implementation of a project?

2. Literature review

The literature on the subject commonly emphasises the project manager's key role in project implementation. Project manager competencies are defined as a set of personality traits, knowledge, skills, and attitudes that enable effective performance in complex organisational conditions (White, 1959; McClelland, Burnham, 1995; Škrinjarić, 2022; Quinn et al., 2021; PMI, 2021; IPMA, 2015).

Empirical research conducted in recent years confirms that effective project management requires a comprehensive set of competencies, including managerial, interpersonal, leadership, communication, and decision-making skills (Azevedo et al., 2012; Kerzner, 2009; Müller, Turner, 2010; Shtub, Bard, Globerson, 2004; Wysocki, 2014).

The variation in the competence profile of project managers depending on the industry and type of project has been confirmed by research conducted, amongst others, in the fields of human resource management, research and development, higher education, advanced technologies, the financial sector and construction projects (Dreyfus, 2008; Smith, Wolverton, 2010; Spendlove, 2007; Wang et al., 2004; Montenegro et al., 2019; Liu et al., 2022). In the automotive industry, empirical research is limited, and existing studies focus mainly on design improvements or Industry 4.0-related issues (Zhuang, 2024; Hecklau et al., 2016; Ribeiro et al., 2021).

To address the need to standardise the assessment of project managers' competencies, numerous competency models have been developed. The most frequently cited frameworks are those proposed by the Project Management Institute, the International Project Management Association, and the Association for Project Management, which distinguish between technical,

behavioural (human), and contextual (perspectives) dimensions of a project manager's competencies (PMI, 2017; IPMA, 2015; APM, 2023). These models emphasise the importance of balancing technical knowledge with leadership, social and strategic competencies, particularly in conditions of increased complexity and uncertainty.

The literature on Industry 4.0 and digital transformation further emphasises the growing importance of adaptability, interdisciplinary collaboration, and continuous learning as key competencies for project managers (Hecklau et al., 2016; Ribeiro et al., 2021; Royal Academy of Engineering, 2024). Recent research also points to the integration of digital competencies and skills in working with advanced technologies, including solutions based on artificial intelligence, as a key element of contemporary project manager competency profiles (Zemlińska-Sikora, Kozarkiewicz, 2023; PMI, 2018).

Despite an extensive theoretical and normative framework, the literature refers only briefly to empirical analyses of how project team members perceive the role and competencies of a project manager, particularly from a sectoral and national perspective (Lutas et al., 2020; Marek-Kołodziej, 2023). Research on project managers' competencies is largely dominated by a normative approach based on competency models and professional standards (Chomicz, 2015; Moczydłowska, Sadkowska, 2021; Ochoa Pacheco, 2023), whilst emphasising the multidimensional nature of this role, encompassing, amongst other things, leadership, communication, team management and technical expertise (Grant et al., 2001; Müller, Turner, 2010; Wysocki, 2014; Marek-Kołodziej, 2023). Research on organisational behaviour suggests that how a team perceives its manager directly translates into mutual trust, relationships, and project effectiveness (Spendlove, 2007; Smith, Wolverton, 2010). In the Polish automotive industry, this gap remains particularly evident, underscoring the need for further empirical research.

3. Research methodology

3.1. Research design

The study adopted an exploratory research design, the aim of which was to identify how project team members perceive the role, responsibilities, and competencies of project managers in the Polish automotive industry, and to identify the competencies considered most important both currently and in the future. An exploratory approach is particularly appropriate when empirical evidence is limited, and the study aims to identify the phenomenon under investigation (Cooper, Schindler, 2014).

Due to the perceptual nature of the research problem, a questionnaire survey was used as the primary method of data collection, focusing on the subjective assessments of those directly involved in project implementation.

3.2. Sample and data collection

Empirical data were collected via an online survey conducted between March and April 2024. The research population consisted of employees in the Polish automotive industry with experience in project work. Non-probabilistic purposive sampling was used, justified by the exploratory nature of the study and the limited availability of respondents who met the participation criteria.

The study involved 156 respondents representing various roles within project teams, including engineers, specialists, and managers. Participation in the study was voluntary and anonymous. The sample was not random and cannot be considered representative of the entire population of automotive industry employees in Poland.

Due to the non-probabilistic and non-random selection of the sample, as well as the focus on a single industry and a single country, the results obtained should be interpreted as specific to the context under study. The study does not permit statistical generalisations to the entire Polish automotive sector.

3.3. Research tool

The research tool was a structured questionnaire developed from a literature review of project management and competency models for project managers. The questionnaire was designed to capture respondents' perceptions of: (1) the role and responsibilities of a project manager, (2) the key competencies required for this position, and (3) changes in the required competencies in the future, as well as an assessment of the importance of a project manager's presence for the effective implementation of projects.

The questionnaire consisted of three parts: closed-ended Likert-scale questions and demographic questions, which enabled characterisation of the research sample.

3.4. Data analysis

Descriptive statistical methods were used to analyse the collected data, enabling the identification of dominant ratings, trends, and response patterns within the sample. Given the exploratory nature of the study, the data analysis aimed to describe and interpret perceptions rather than test statistical relationships.

4. Results

The study was conducted among 156 respondents employed in the automotive industry in Poland. Data were collected via an online survey between 1 March and 30 April 2024. The demographic and professional characteristics of the respondents are presented in Table 1. Given the non-random selection of the sample, the results presented should be interpreted with caution, as a description of trends within the study group rather than a representative picture of the entire sector.

Table 1.
Characteristics of respondents (n = 156)

Characteristics	Category	Number of respondents	Percentage (%)
Gender	Women	114	73.0
	Men	42	27.0
Age	under 35	94	60.0
	35 years and over	62	40.0
Education	secondary	35	22.4
	first-cycle degree	57	36.6
	Master's degree	57	36.6
	third-cycle higher education	7	4.4
Experience	less than 2 years	83	53.0
	3-10 years	47	30.0
	11-20 years	16	10.0
	over 20 years	10	6.7

Source: own analysis.

Women dominated the sample (73%), and the majority of respondents were under 35 years of age. All participants had at least a secondary education, with a significant proportion holding a higher education qualification. Over half of the respondents (53%) reported less than two years' professional experience in the automotive industry, and around 30% had between 3 and 10 years' experience, indicating a predominance of employees at the early and mid-stages of their careers.

Project experience was reported by 62.8% of respondents. Detailed data on project participation, roles performed, and project characteristics are presented in Table 2. The most frequently cited role was that of a non-managerial project team member (41.8%), followed by 'other' (25.6%) and a product-delivery role (15.3%). Most respondents had participated in a small number of projects over the past five years, most often of medium or small scale. Projects related to the development of new products and the implementation and improvement of processes predominated.

Table 2.
Respondents' project experience

Project-related characteristics	Category	Number of respondents	Percentage (%)
Participation in projects	Yes	98	62.8
	no	58	37.2
Role in projects (n = 98)	project team member (without a managerial role)	41	41.8
	role related to product delivery	15	15.3
	project manager	10	10.2
	specialist (quality, finance, planning)	5	5.1
	other	27	25.6
Number of projects in which respondents have participated in the last 5 years (n = 98)	less than 3	41	41.8
	3–5 projects	31	31.6
	6–9 projects	15	15.3
	10 or more projects	11	11.3
Project size (n = 98)	small	31	31.6
	medium	52	53.1
	large	15	15.3
Type of projects (multiple answers allowed)	development of a new product	62	46.3
	implementation of a new process	26	19.4
	process improvement	26	19.4
	fulfillment of customer orders	15	11.2

Source: own analysis.

The study analysed perceptions of the project manager's role in automotive industry projects. The distribution of responses is shown in Figure 1.

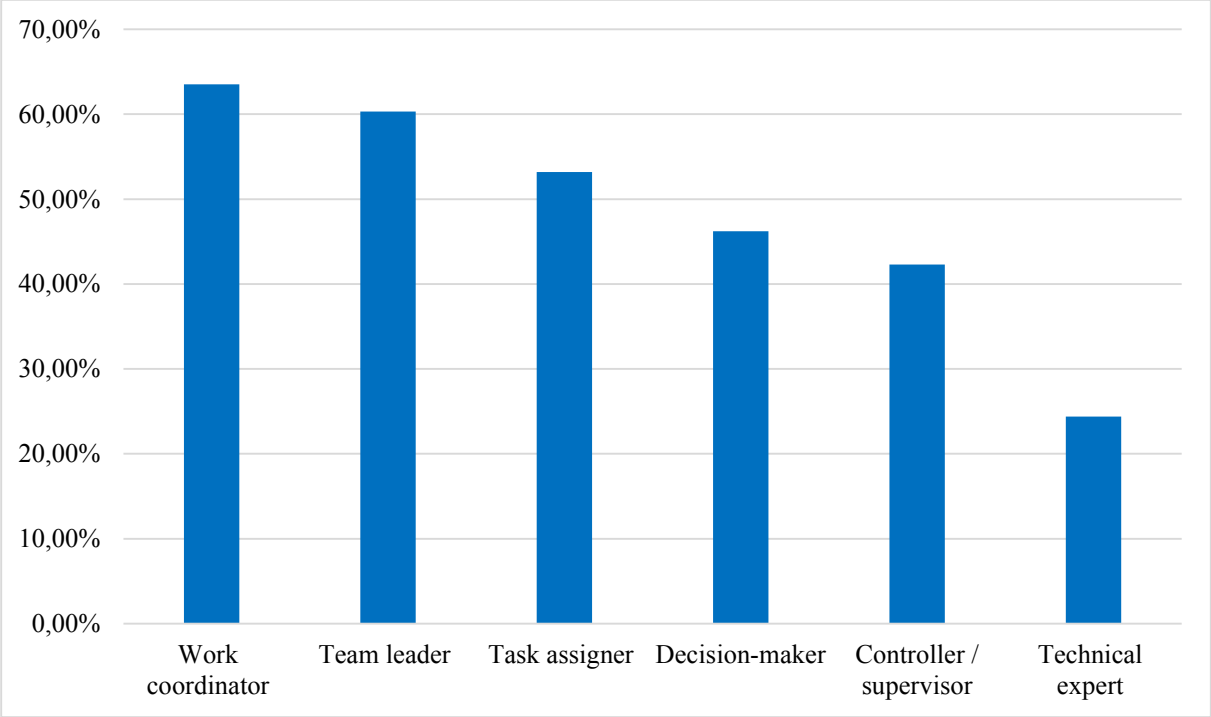

Figure 1. Respondents' perceptions of the role of a project manager.

Source: own analysis.

The data analysis shows that the project manager is most often perceived as a work coordinator and team leader, responsible for organising activities, assigning tasks, and ensuring cooperation within the project team. Responsibility for decision-making and overseeing project progress was also frequently cited. The role of the project manager as a technical expert was mentioned less often.

In addition, the importance of selected project manager competencies for project delivery was analysed. The results of this assessment are presented in Figure 2. The highest ratings were given to competencies related to team management (50%), communication (44.4%), and goal setting (44.4%). Technical competencies were considered important by 38.9% of respondents. A significant proportion of respondents also highlighted the importance of decision-making and coping with stress (33% each). Competencies related to conflict resolution were mentioned least frequently. It can therefore be concluded that effective project management requires a combination of interpersonal, organisational, and technical competencies. This may suggest that, although respondents perceive conflicts as a frequent challenge in project work, the project manager's competencies in resolving them are not regarded as a key factor in the successful delivery of a project, but rather as an area of responsibility for the entire team or organisation.

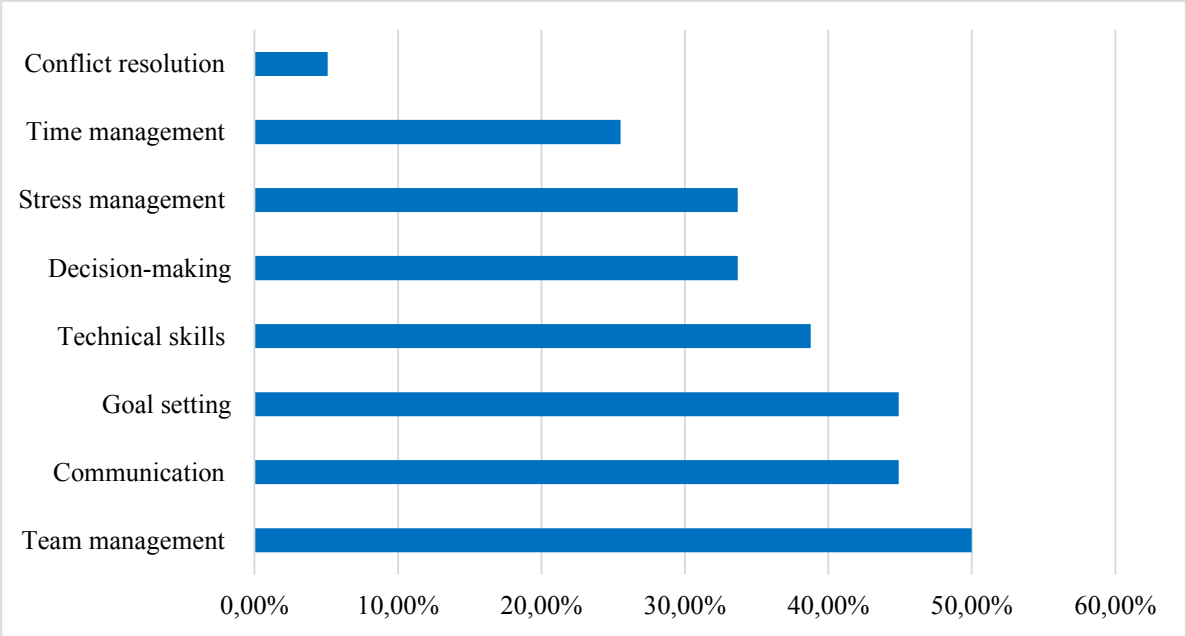

Figure 2. Respondents' perceptions of the importance of a project manager's competencies.
Source: own analysis.

Another area analysed was the competencies related to the most common challenges in project implementation. The most frequently mentioned difficulties were time management (41.7%), communication (41.7%), and conflict resolution (41.7%), as well as coping with stress (33.3%) and decision-making (25.0%). Technical issues (50%) and limited access to resources (50%) were also highlighted as significant barriers to project work, which help identify areas requiring further development of the project manager's competencies.

The analysis also includes an assessment of project manager competencies, both current and future. The results are presented in Figure 3. According to respondents, project team management is a key competency for project managers both now and in the future. An increase in the importance of competencies in decision-making, communication, and stress management is anticipated. Time management and adaptability were also frequently cited as competencies that will be important in the future. At the same time, a comparison of current and future expectations suggests a shift in emphasis from technical competencies towards interpersonal and adaptive competencies.

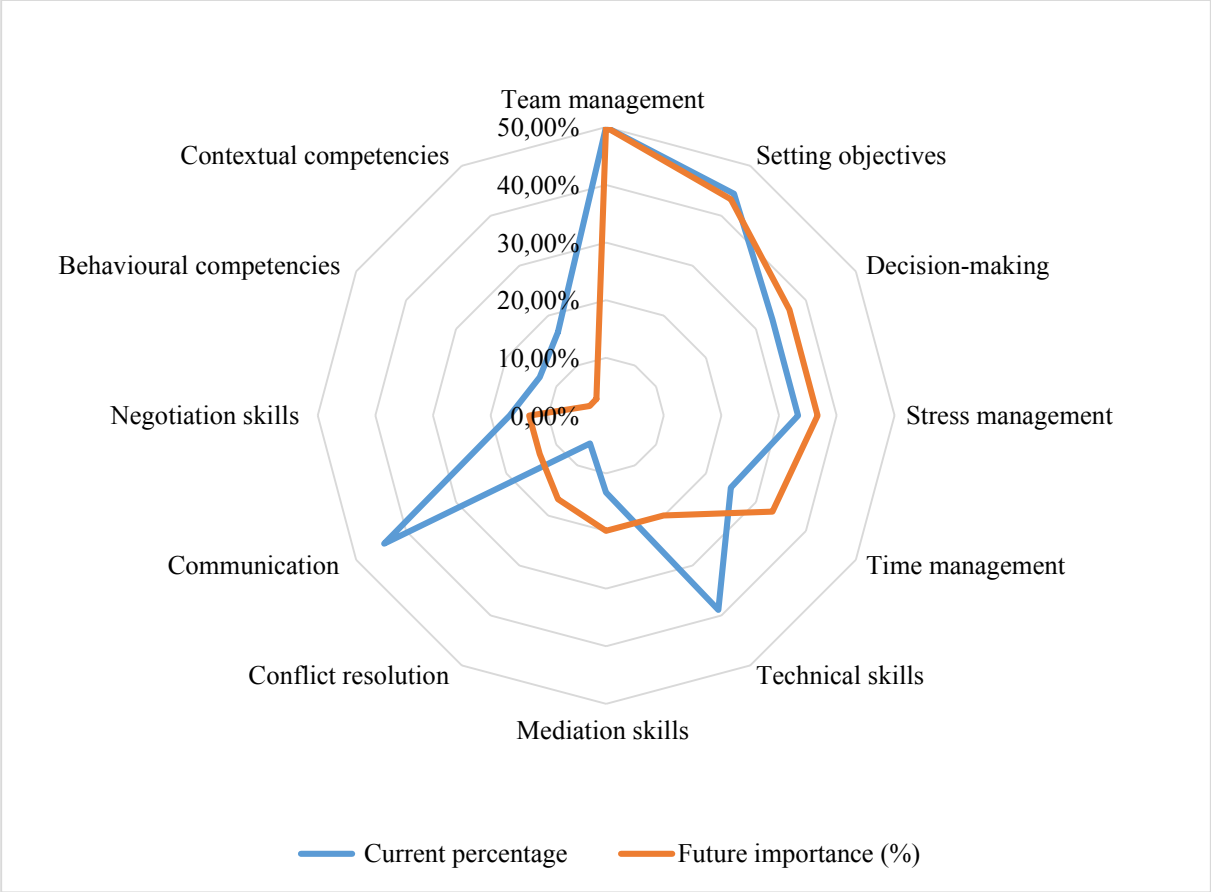

Figure 3. Current and future expectations regarding project manager competencies.
Source: own analysis.

The perceived possibility of successfully delivering projects without a formally appointed project manager was also analysed (Figure 4).

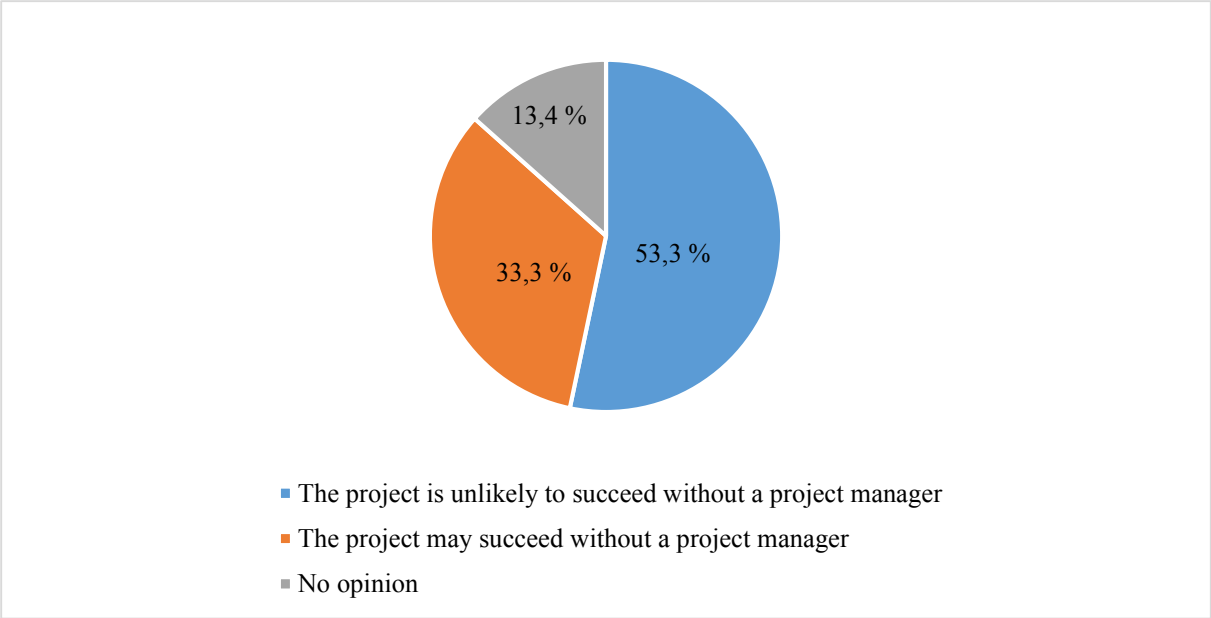

Figure 4. Perception of the project manager's role as a factor in project success.
Source: own analysis.

Over half of the respondents (53.3%) considered the success of a project without a project manager to be unlikely. At the same time, some (33.3%) of the respondents indicated that it is possible to implement a project without a formally appointed project manager successfully. However, this depends on the project's size, complexity, and organisational context. This points to varying perceptions of the necessity of formally holding the project manager role.

5. Discussion

The research focused on how project team members perceive the role and competencies of project managers in the Polish automotive industry. The exploratory approach adopted enabled the capture of project team members' perspectives.

The results show that project managers are perceived primarily as coordinators and team leaders, responsible for organising work and communication, and for overseeing the achievement of project objectives. The findings are consistent with the approaches presented in standards and competency models, which emphasise the role of leadership, coordination, and communication as key elements of project management (PMI, 2021; IPMA, 2015), as well as with findings regarding the importance of interpersonal competencies in project management practice (Müller, Turner, 2010).

Respondents attached particular importance to competencies in team management, communication, and goal-setting. Although technical competencies remain important, especially in projects of high technological complexity, the study's results indicate that,

from the perspective of project teams, interpersonal and organisational skills are of key importance, which is in line with broader trends identified in the literature (Wysocki, 2014; PMI, 2021).

The importance of contextual competencies is underscored by the specific nature of project work in the automotive industry, which is characterised by strong organisational, regulatory, and technological constraints. Respondents highlighted the need for project managers to understand the broader project environment, consistent with competency models that account for the contextual dimension of project management in sectors transforming (IPMA, 2015; Hecklau et al., 2016).

In the automotive sector, these competencies are significantly reinforced by strong interdependencies between quality, production, logistics, and engineering functions, as well as by operating in an environment of highly formalised processes. This means that a project manager's effectiveness depends not only on their knowledge of project management tools, but also on their ability to coordinate the interests of various stakeholder groups in an environment burdened by quality and deadline requirements.

Findings on project challenges indicate time pressure, communication issues, and stress management as recurring difficulties in project implementation. These areas are also identified in the literature as typical challenges in project environments based on advanced technologies and limited resources (Ribeiro et al., 2021).

Looking to the future, respondents anticipate a further increase in the importance of leadership and adaptive competencies. The findings suggest a shift in the project manager's role toward a more people-oriented, flexible function, consistent with current discussions about the future of project management (PMI, 2018; Royal Academy of Engineering, 2024).

6. Summary and conclusions

This exploratory study provides empirical insights into how project team members perceive project managers' roles and competencies in the Polish automotive industry. The findings indicate that project managers are primarily viewed as coordinators and team leaders. Key importance is placed on competencies in team management, communication, goal-setting, and decision-making. From the respondents' perspective, the role of the project manager is therefore primarily characterised by its relational and organisational dimensions rather than solely by technical and administrative tasks. Technical competencies remain an essential element of the project manager's role; however, from respondents' perspectives, behavioural and contextual competencies are becoming increasingly important, as they determine effective functioning in a complex project environment.

This study complements the existing literature by incorporating the perspective of project team members, which has so far been relatively rarely analysed in industry research. However, this contribution is exploratory and contextual, meaning that the results should be interpreted as a basis for further research rather than as a basis for broad generalisations.

From a project management perspective, the results indicate a need to strengthen interpersonal, leadership, and adaptive competencies in development programmes for project managers in the automotive industry. Better alignment between the competency profile and project teams' expectations may foster more effective collaboration and the achievement of project objectives.

However, certain methodological limitations of this study should be highlighted. Firstly, the study was exploratory. Secondly, non-probability sampling was used, and the sample was neither random nor representative of the entire population of employees in the Polish automotive sector. Thirdly, the study focused on a single sector and a single country, limiting the transferability of its results to other organisational and cultural contexts. In the future, it would be worthwhile to conduct cross-sectoral comparative studies, international research, and analyses combining team members' perceptions with assessments of project effectiveness and objective project outcome indicators.

References

1. Association for Project Management (APM) (2023). *APM Competence Framework*, 3rd Edition. Buckinghamshire: Association for Project Management.
2. Azevedo, A., Gomezelj Omerzel, D., Andrews, J., Higson, H., Caballero, A., Frech, B. (2012). Satisfaction with knowledge and competencies: a multi-country study of employers and business graduates. *American Journal of Economics and Business Administration*, *Vol. 4, No. 1*, pp. 23-39, doi: 10.3844/ajebasp.2012.23.39
3. Balcerzyk, D., Žukovskis, J. (2024). Determinants of managerial competencies in the Leadership ecosystem 5.0. *Scientific Papers of Silesian University of Technology – Organisation and Management Series*, *No. 191*, pp. 27-40, doi: 10.29119/1641-3466.2024.191.2
4. Bashir, R., Sajjad, A., Bashir, S., Latif, K.F., Attiq, S. (2021). Project Managers' Competencies in International Development Projects: A Delphi Study. *SAGE Open, Vol. 11, No. 4*, pp. 1-16, doi: 10.1177/21582440211058188
5. Bednarz, P. (2024). *Polish automotive industry at a turning point [Polska motoryzacja na zakręcie]*. Retrieved from: https://forsal.pl/biznes/motoryzacja/artykuly/9536618,polska-motoryzacja-na-zakrecie.html, 12.12.2024.

6. Biskupek, A., Spałek, S. (2016). Project manager qualifications and project success in the automotive industry [Kwalifikacje kierownika projektu a sukces przedsięwzięcia w przemyśle motoryzacyjnym]. *Zeszyty Naukowe Politechniki Śląskiej. Organizacja i Zarządzanie*, *No. 88*, pp. 11-36.
7. Caccamese, A., Bragantini, D. (2012). Beyond the iron triangle: year zero. *PMI® Global Congress 2012—EMEA.* Marseille: Project Management Institute.
8. Chomicz, M. (2015). Research approaches to project manager competencies [Ujęcia badawcze kompetencji kierowników projektów]. *E-mentor*, *No. 2(59),* pp. 42-55, doi:10.15219/em59.1170
9. Cooper, D.R., Schindler, P.S. (2014). *Business Research Methods*, 12th Edition. New York: McGraw-Hill.
10. Crawford, L. (2005). Senior management perceptions of project management competence. *International Journal of Project Management*, *Vol. 23, No. 1,* pp. 7-16, doi:10.1016/j.ijproman.2004.06.005
11. Dreyfus, C.R. (2008). Identifying competencies that predict effectiveness of R&D managers. *Journal of Management Development*, *Vol. 27, No. 1,* pp. 76-91, doi:10.1108/02621710810840776
12. Grant, K.P., Graham, T.S., Heberling, M.E. (2001). The project manager and project team involvement: implications for project leadership. *Journal of Leadership Studies*, *Vol. 7, No. 4,* pp. 32-42, doi: 10.1177/1071791901007004
13. Hecklau, F., Galeitzke, M., Flachs, S., Kohl, H. (2016). Holistic approach for human resource management in Industry 4.0. *Procedia CIRP*, *Vol. 54,* pp. 1-6, doi: 10.1016/j.procir.2016.05.102
14. International Project Management Association (IPMA) (2015). *Individual Competence Baseline for Project, Programme and Portfolio Management*, Version 4.0. Zurich: IPMA.
15. Kerzner, H. (2009). *Project Management A Systems Approach to Planning, Scheduling, and Controlling, 10th Edition*. New Jersey: John Wiley & Sons.
16. Liu, H., Zhang, H., Zhang, R., Jiang, H., Ju, Q. (2022). Competence model of construction project manager in the digital era – the case from China. *Buildings*, *Vol. 12, No. 9*, 1385, doi: 10.3390/buildings12091385
17. Lutas, M., Nistor, R., Radu, M., Beleiu, I. (2020). Perceptions regarding the profile of an ideal project manager. *Amfiteatru Economic*, *Vol. 22, No. 54*, pp. 608-622.
18. Marek-Kołodziej, K. (2023). The impact of project manager competencies on their success in Polish companies [Wpływ kompetencji kierownika projektu na jego sukces w polskich przedsiębiorstwach]. *Studia i Prace Kolegium Zarządzania i Finansów*, *No. 195,* pp. 221-243, doi:10.33119/SIP.2023.195.11
19. McClelland, D.C., Burnham, D.H. (1995). Power is the great motivator. *Harvard Business Review*, *Vol. 73, No. 1*, pp. 126-139.

20. Meng, X., Boyd, P. (2017). The role of the project manager in relationship management. *International Journal of Project Management*, *Vol. 35, No. 5,* pp. 717-728, doi: 10.1016/j.ijproman.2017.03.001.
21. Moczydłowska, J., Sadkowska, J. (2021). Project culture as a key project success factor: the perspective of Polish project managers. *WSEAS Transactions on Business and Economics*, *Vol. 18*, pp. 822-837, doi: 10.37394/23207.2021.18.78
22. Montenegro, M.A., Obradović, V., Žarkić-Joksimović, N. (2019). Project manager's competencies in the financial industry. *Advances in Economics, Business and Management Research*, *Vol. 108*, pp. 221-224, doi: 10.2991/senet-19.2019.36
23. Müller, R., Turner, J.R. (2010). Leadership competency profiles of successful project managers. *International Journal of Project Management*, *Vol. 28, No. 5,* pp. 437-448, doi: 10.1016/j.ijproman.2009.09.003
24. Ochoa Pacheco, P., Coello-Montecel, D., Tello, M., Lasio, V., Armijos, A. (2023). How do project managers' competencies impact project success? A systematic literature review. *PLOS ONE*, *Vol. 18, No. 12,* e0295417, doi: 10.1371/journal.pone.0295417
25. Podgórska, M. (2022). Challenges and perspectives in innovative projects focused on sustainable Industry 4.0 – a case study on Polish project teams. *Sustainability*, *Vol. 14, No. 9*, doi:10.3390/su14095334
26. Project Management Institute (PMI) (2017). P*roject Manager Competency Development (PMCD) Framework*, 3rd Edition. Newtown Square, PA: PMI.
27. Project Management Institute (PMI) (2018). *The Project Manager of the Future: Developing Digital-Age Project Management Skills to Thrive in Disruptive Times*. Newtown Square, PA: PMI.
28. Project Management Institute (PMI) (2021). *A Guide to the Project Management Body of Knowledge and the Standard for Project Management*, 7th Edition. Newtown Square, PA: PMI.
29. Quinn, R.E., Bright, D.S., Faerman, S.R., Thompson, M.P., McGrath, M.R. (2021). *Becoming a Master Manager: A Competing Values Approach*, 7th Edition. Hoboken, NJ: Wiley.
30. Ribeiro, A., Amaral, A., Barros, T. (2021). Project manager competencies in the context of Industry 4.0. *Procedia Computer Science*, *Vol. 181*, pp. 803-810, doi: 10.1016/j.procs.2021.01.233
31. Royal Academy of Engineering (2024). *Engineers 2030: Redefining the Engineer of the 21st Century*. London: Royal Academy of Engineering.
32. Shtub, A.F., Bard, J.F., Globerson, S. (2004). *Project Management: Processes, Methodologies, and Economics*. New York: Pearson.
33. Škrinjarić, B. (2022). Competence-based approaches in organisational and individual context. *Humanities and Social Sciences Communications*, *Vol. 9, Iss. 28*, doi:10.1057/s41599-022-01047-1

34. Smith, Z.A., Wolverton, M. (2010). Higher education leadership competencies: quantitatively refining a qualitative model. *Journal of Leadership & Organisational Studies*, *Vol. 17, No. 1*, pp. 61-70, doi:10.1177/1548051809348018
35. Spałek, S. (2014). Assessing project management maturity in the area of knowledge management in select companies. *International Journal of Economics, Finance and Management Sciences*, *Vol. 2, No. 2*, pp. 164-170, doi:10.11648/j.ijefm.20140202.18
36. Spendlove, M. (2007). Competencies for effective leadership in higher education. *International Journal of Educational Management*, *Vol. 21, No. 5,* pp. 407-417, doi: 10.1108/09513540710760183
37. Wang, Y., Lo, H.P., Yang, Y. (2004). The constituents of core competencies and firm performance: evidence from high-technology firms in China. *Journal of Engineering and Technology Management*, *Vol. 21, No. 4,* pp. 249-280, doi:10.1016/j.jengtecman. 2004.09.001
38. White, R.W. (1959). Motivation reconsidered: the concept of competence. *Psychological Review*, *Vol. 66, No. 5,* pp. 297-333, doi:10.1037/h0040934
39. Wysocki, R.K. (2014). *Effective Project Management: Traditional, Agile, Extreme*, 7th Edition. Indianapolis: John Wiley & Sons.
40. Zemlińska-Sikora, U., Kozarkiewicz, A. (2023). IT project managers' competencies required on the market – generative AI enhanced analysis. *Scientific Papers of Silesian University of Technology – Organisation and Management Series*, *No. 188*, pp. 741-755, doi:10.29119/1641-3466.2023.188.46
41. Zhang, Y. (2024). Characters of a Good Project Manager in the Automotive Industry. *Frontiers in Business, Economics and Management*, *Vol. 13, No. 1,* pp. 234-238, doi: 10.54097/fyb3pn06

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EXPERIENCES OF WOMEN IN LEADERSHIP POSITIONS IN MALE-DOMINATED ORGANIZATIONS

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Purpose: The objective of the study is to deepen understanding of women's leadership trajectories by examining both the conditions surrounding entry into leadership positions and the post-promotion experiences of women leaders operating across different organizational levels.
Design/methodology/approach: This article uses a critical literature review to identify research gaps and semi-structured interviews with 16 female leaders to explore their experiences before and after being promoted to leadership positions. Thematic analysis was employed to analyze the data.
Findings: The study's findings are consistent with previous research highlighting the context of women's advancement in male-dominated environments. However, this study broadens the perspective to include women's experiences after achieving advancement, and the key factors that support them in senior positions.
Research limitations/implications: The results cannot be generalized to the entire population due to the qualitative approach.
Practical implications: The research results provide a basis for creating employee management policies and procedures, particularly regarding promotion paths and support for leaders, especially women.
Social implications: This article contributes to the existing body of knowledge concerning women's experiences in leadership roles. The results of the study could improve organizational support for women in leadership roles, potentially increasing their representation in Poland.
Originality/value: While the subject of underrepresentation of women in leadership positions is frequently addressed in literature, research on women's perspectives regarding promotion to leadership roles is lacking.
Keywords: Women in Leadership Positions, Male-Dominated Organizations, Promotions of Women to Leadership Positions, Post-Promotion Experiences.
Category of the paper: Research paper.

1. Introduction

Despite women constituting approximately 35% of managerial positions worldwide (ILO, 2025), their representation declines markedly at higher hierarchical levels. In Poland, women accounted for 48.1% of the workforce in 2024 but held only 31.5% of senior leadership roles, compared with 47.5% at entry-level management positions (Lara, Baird, 2025). A similar pattern is visible across the European Union, where women occupy a mere 30% of corporate board seats. While women comprise about 60% of public-sector employees, they hold fewer than half of the managerial positions (OECD, 2025). Consequently, vertical gender inequality is not confined to the private sector.

Importantly, the underrepresentation of women in senior leadership positions cannot be attributed to a lack of ambition. In fact, most women aspire to advance in their careers, particularly those under 30 in entry-level positions (McKinsey, LeanIn, 2025). The persistence of gender disparities therefore suggests the influence of structural and contextual mechanisms embedded within organizational systems and career pathways. This underscores the need for research that moves beyond questions of access to leadership positions and instead examines women's experiences following promotion.

Thus, this study aims to deepen the understanding of women's leadership trajectories by examining the conditions surrounding their entry into leadership positions and post-promotion experiences. The research focuses on male-dominated organizational contexts where masculine leadership norms are particularly salient and may significantly impact women's leadership experiences. Adopting a qualitative research approach, the study is guided by the following main research question: What experiences do women have in relation to promotion to leadership positions?

The remainder of the paper is structured as follows. The Literature Review outlines the theoretical background on women's leadership, followed by a section presenting the research questions. The Methodology describes the research design and data collection, while the Results and Discussion present and interpret the empirical findings. Finally, the Conclusion summarizes the findings.

2. Women in Today's Leadership: A Literature Review

In response to increasingly complex and volatile organizational environments, contemporary leadership scholarship conceptualizes leadership as a dynamic process of influence, rather than as a formal position. Consistently, leadership models emphasize empathy, adaptability, resilience, and authenticity as key foundations of effective leadership (Harvard Business Impact, 2025).

Acker's (1990) theory of gendered organizations argues that organizations reproduce gender inequalities through structures, practices, and norms that privilege masculine traits, shaping leadership outcomes through role congruity dynamics (Eagly, Karau, 2002). These mechanisms contribute to persistent occupational segregation, with women concentrated in roles culturally associated with femininity and underrepresented in masculine-defined occupations (Herrera et al., 2012). Entry into male-dominated[i] fields does not necessarily eliminate this segregation; instead, internal differentiation often emerges, clustering women in relational or communal subfields (Levanon, Grusky, 2016; Eagly, 2020).

Women who attain leadership roles typically demonstrate strong professional competence, socio-emotional skills, ambition, perseverance, and resilience, often developing high levels of expertise in response to competence-related stereotypes (Wentling, 2003; Chugh, Sahgal, 2007; Cimirotić et al., 2017; Bonesso, Cortellazzo, 2025; McKinsey, LeanIn, 2025).

Despite strong evidence that women are equally effective and committed to leadership, their progression into senior roles remains systematically constrained. Rather than reflecting deficits in ability, education, or ambition, persistent inequality is linked to structural barriers, including unequal access to developmental opportunities, gendered organizational norms, and bias embedded in promotion systems (Northouse, 2019). Women more frequently experience caregiving-related career interruptions within leadership models emphasizing constant availability, while also facing reduced access to high-visibility assignments, leadership development, mentoring, and sponsorship—active career advocacy by senior leaders providing access to networks and opportunities (Bowles, McGinn, 2005; Cimirotić et al., 2017; Northouse, 2019). Lower self-promotion and negotiation practices among women further reinforces the early-career "broken rung," whereby women are less likely than men to obtain their first managerial promotion, generating cumulative disadvantage over time (Small et al., 2007; McKinsey, LeanIn, 2025).

Organizational practices such as early identification of high-potential women, succession planning, and stretch assignments significantly increase advancement likelihood (Beeson, Valerio, 2012; Gierke, Schlamp, Gerpott, 2025).

Promotion to leadership roles is typically associated with increased authority, influence, and responsibility, alongside material and symbolic rewards such as higher compensation, status, and short-term gains in job satisfaction and performance (Reke, 2025; Kosteas, 2009; Nepal et al., 2020). However, unlike men, women do not consistently report sustained increases in job satisfaction following promotion (Lup, 2018; Otto et al., 2022).

2.1. Research Questions

Despite the growing body of scholarship on women's leadership, there is limited research on women's experiences after being promoted to senior roles, especially in the Polish context. To address this gap, this research is guided by the following questions:

RQ1.A: In what contextual conditions are women promoted to leadership positions?

- RQ1.B: How do women leaders compare their pre-promotion expectations with their lived post-promotion realities?
- RQ1.C: What narratives do women leaders have about functioning in male-dominated organizations?

3. Research Methodology

The study adopted a qualitative research design as an applied empirical inquiry with a normative orientation, aiming both to understand post-promotion experiences and to derive implications for leadership practice. Data were collected through semi-structured interviews, allowing openness to participants' perspectives while maintaining sufficient structure for systematic comparison across cases.

A purposive sampling strategy was employed. Inclusion criteria required participants to be women leaders with at least one year of managerial experience in male-dominated organizations. Although this approach limits statistical generalizability (Knott et al., 2022), the objective was analytical insight rather than representativeness. The final sample comprised 16 women leaders with one to ten years of managerial experience, representing medium-sized (50-249 employees) and large (250+ employees) organizations (see Table 1). Data collection continued until data saturation was reached, defined as the point at which no new themes or insights emerged from subsequent interviews, consistent with qualitative research standards (Hennink, Kaiser, 2022).

The interview protocol was informed by the reviewed literature and identified research gaps (Knott et al., 2022) and addressed organizational context, promotion pathways, expectations prior to promotion, and post-promotion experiences. Interviews were conducted online in Polish via Google Meet (40–100 minutes). To mitigate limitations of online interviewing, video calls were used to capture participants' facial expressions and gestures. All interviews were audio-recorded, transcribed verbatim, anonymized, and securely stored in accordance with ethical research standards.

Data were analyzed using MAXQDA software (Kuckartz, Rädiker, 2019). Analysis involved open coding followed by thematic analysis guided by the research questions and cross-case comparison to identify dominant and contrasting patterns and ensure interpretive coherence (Williams, Moser, 2019).

Table 1.
Respondents' characteristics

Code	Role	Organizational Level	Organization Size	Sector (Public/Private)
R1	Project Manager	Middle (tactical)	Large	Space (private)
R2	Engineering Team Leader	Operational (frontline)	Medium	IT (private)
R3	Project Manager, Chief Technology Officer	Middle (tactical), top (strategic)	Large, medium	Space, Manufacturing (private)
R4	Rector's Plenipotentiary	Top (strategic)	Large	Higher Education (public)
R5	Data Scientist Manager	Operational (frontline)	Large	Banking/IT (private)
R6	Accounting Manager	Middle (tactical)	Large	IT (private)
R7	Lead Product Owner	Middle (tactical)	Large	Banking/IT (private)
R8	Engineering Manager	Middle (tactical)	Large	IT (private)
R9	Project Manager	Operational (frontline)	Medium	IT (private)
R10	Head of Department	Middle (tactical)	Large	Science (public)
R11	Project Manager	Middle (tactical)	Large	IT (private)
R12	Project Manager	Operational (frontline)	Large	Space (private)
R13	Project Manager	Operational (frontline)	Large	IT (private)
R14	Innovation Manager	Middle (tactical)	Large	Manufacturing (private)
R15	Chief Engineer	Top (strategic)	Large	Metallurgy (public)
R16	Engineering Manager	Middle (tactical)	Large	IT (private)

Source: Own elaboration.

4. Research Results and Discussions

4.1. Becoming a Leader (RQ1.A)

The data reveal two dominant, sector-differentiated pathways into leadership among women: being selected versus actively aiming for the role—a distinction largely absent from prior research. In the public sector, appointments more often followed top-down nomination ("being noticed") or formal progression rather than proactive self-positioning (R4, R10, R15), a pattern also observed in a respondent who later transitioned to the private sector (R5). In academia, advancement depended on formal credentials (e.g., habilitation) and long-term institutional experience, often contingent on vacancy availability.

And the professor […] asked me during that meeting whether I would like to become the Rector's Plenipotentiary [...]. I completely didn't expect such a nomination… I simply felt almost anointed, chosen — truly chosen (R4).

By contrast, private-sector leadership trajectories were more often shaped by deliberate career behavior. Respondents openly articulated leadership ambitions and integrated them into long-term plans, with such visibility described as instrumental when opportunities emerged (R1, R2, R7, R9, R11, R13, R14, R16), consistent with research highlighting the role of proactive career planning in women's advancement (Beeson, Valerio, 2012).

I was very open about it — I said, 'Listen, I want to take on a director-level role in this company, so start preparing that position for me,' and I repeated this consistently at every stage (R9).

Participants attributed their promotion to a recurring set of competencies, including reliability and consistent delivery, proactive initiative—often extending beyond formal job descriptions—strong relational skills, and, in technical and scientific contexts, substantive expertise supported by continuous professional development, consistent with prior research (Bonesso, Cortellazzo, 2025). However, paradox exists: once individuals assume leadership roles, the same initiative and drive are not always welcomed by the organization.

Courage under uncertainty also emerged as a key promotional factor in general, manifested in challenging decisions, demanding meritocratic justification, and negotiating conditions (R7, R9, R14, R15, R16), aligning with findings that women reaching senior leadership demonstrate high resilience and readiness to challenge the status quo (McKinsey, LeanIn, 2025).

Participants from various sectors also emphasized the importance of sponsorship from male leaders who actively advocated for their advancement (R2, R4, R6, R7, R8, R11, R15), contrasting with research suggesting that women have limited access to sponsors (McKinsey, LeanIn, 2025). This discrepancy may reflect the study's focus on women who have successfully attained leadership positions.

4.2. Expectations vs. Reality of Leadership (RQ1.B)

Promotion revealed a substantial gap between anticipated leadership influence and organizational reality. In scientific environments, administrative responsibilities frequently dominated daily work, pushing research into after-hours activity:

Unfortunately, there are days when I have to devote 80% of my time during the day to organizational work, management, and administration, and after 3 p.m., when the administrative staff finish and go home, I begin - I open up my scientific work (R10).

In corporate contexts, leadership proved far more communication- and negotiation-intensive than expected for all respondents, shaped by internal politics, stakeholder alignment, and meeting-heavy schedules:

So I would say that about 80% of the time it's actually meetings of various kinds (R13).

Extensive working time emerged as a recurring theme, with leaders reporting long hours, late-night availability, and constant connectivity. Cross-continental coordination in business intensified expectations of accessibility, while in academia such availability was framed as a mission-driven responsibility toward students and colleagues, consistent with research indicating that women leaders often prioritize responsibility toward others (Schwartz, Rubel, 2005).

I believe that I have to be available to my employees if they need me. And that often creates tension — at my own expense, of course — because for me, that's what being a manager is about: being available to people (R6).

Respondents described insomnia, insufficient onboarding, and isolation after transitioning from peer to manager, aligning with research showing higher post-promotion stress and emotional strain among women (Taylor et al., 2022). Almost all respondents attributed their challenges to organizational constraints, including limited decision-making authority, limited budgets, the need to execute decisions they did not support, blocked initiatives, and bureaucratic processes overshadowing professional expertise.

Following the promotion, a significant proportion of respondents from both the private and public sectors reported a lack of feedback, and when it was actively sought, it was often vague—such as "you know what you're doing well" (R3)—rather than actionable, consistent with prior research (McKinsey, LeanIn, 2025). At the same time, participants who received specific, high-quality feedback from supervisors and teams, significantly accelerated their development (R3, R10, R12, R14).

Several respondents initially struggled with delegation, believing they could complete tasks more efficiently themselves, which often led to exhaustion (R2, R3, R15). Over time, however, their leadership shifted from operational execution toward developing people and enabling team performance:

I was very involved in operational work… in fact, I spent less time on developing the people themselves and more on developing the team in terms of what was supposed to be within the scope (R2).

Alongside these challenges, promotion also generated positive experiences. Respondents emphasized the symbolic power of formal authority despite feeling personally unchanged, increased autonomy, freedom from micromanagement, and opportunities to shape management styles. Fulfillment was derived from developing people, influencing broader communities, protecting teams from organizational pressure, and—particularly in technical and industrial contexts—observing tangible outcomes.

Contrary to common assumptions, participants rarely reported explicit workplace penalties related to parenthood, consistent with Cimirotić et al. (2017). Motherhood was frequently framed as developmental rather than limiting:

I have two small children, so I joke that if I'm able to handle two little kids, then managing people can't be harder than that. And in a way, that's true (R5).

Respondents emphasized enabling practices such as remote work, flexible schedules, reduced working hours, and supportive reintegration after maternity leave, with several women in IT sector promoted shortly after returning from leave (R2, R5, R11). Partner support—such as shared childcare or alternating remote and on-site work—was repeatedly described as crucial for sustaining leadership roles, aligning with evidence on the importance of private-life support (Cimirotić et al., 2017).

However, participants also noted less visible spillover effects of leadership into private life. Work-related stress frequently transferred into home environments, affecting tone, patience, and emotional availability. Some respondents observed that managerial habits extended into their personal relationships, for example through structuring household responsibilities in a task-oriented manner. In several cases, tensions between leadership demands and family responsibilities led respondents to reconsider or temporarily step back from leadership roles.

4.3. Women in Male-Dominated Environments (RQ1.C)

Although experiences differed across sectors, respondents described a recurring ambivalence in male-dominated environments. Several preferred working with men (R2, R4, R12), associating these contexts with more direct, task-oriented communication and faster, less personalized conflict resolution. In engineering teams, direct instruction was perceived as efficient, and one respondent reported greater respect within a predominantly male leadership board compared with experiences of rivalry among female peers.

Very honestly, I find it much easier to work with men than with women. I'm a very straightforward person… I don't like that kind of chit-chat… and with women, it often happens that they prefer to talk about various other things (R2).

In heavy industry, manufacturing, and space-sector environments involving military collaboration, younger female leaders encountered resistance from subordinates—particularly older male employees who questioned their authority and perceived them as less competent or too young (R1, R3, R12, R14, R15), consistent with Lup (2018). In engineering settings, respondents felt compelled to demonstrate greater certainty and preparation before speaking, noting that male peers often shared strong opinions despite incomplete information. In some contexts, overt sexism was also reported, including sexualized comments, romantic advances, being treated as a "mascot" rather than an expert, and explicit statements that certain departments "do not hire women" (R3, R12, R14). Over time, such reactions diminished as competence was demonstrated, leading to greater recognition, legitimacy, and confidence.

You come in as a young, attractive woman and they immediately think they can hit on you. As if that's all you're there for (R14).

It aligns with empirical evidence showing that women in leadership positions experience more gendered treatment than women in non-leadership roles, including being taken less seriously, judged more on appearance, addressed in infantilizing ways, and exposed to humor (Clarissa, Motivaction, nd.).

In scientific and academic institutions, bias appeared in subtler yet structural forms. Respondents described being forgiven less easily for mistakes, having achievements framed as routine duties rather than excellence, and encountering rigid, male-dominated hierarchies (R4, R5, R10), patterns consistent with findings on the under-recognition of women's contributions (Alshdiefat et al., 2024).

I remember when I submitted an application for the award, and the professor who was on the committee said that what I had described in the application was simply my duty and that I shouldn't receive an award for it (R4).

5. Conclusion

This study explores women's post-promotion experiences in male-dominated organizations and highlights how leadership trajectories are shaped by both individual agency and organizational context. A summary of the main findings in relation to the research questions is presented in Table 2.

Two sector-dependent promotion pathways emerged: proactive, self-directed advancement in the private sector and nomination-based progression in public institutions. Contrary to common assumptions, maternity was not perceived as a direct barrier to promotion, although leadership roles intensified work–life boundary pressures, making social and organizational support crucial for sustainability.

The respondents' experiences revealed an ambivalence within male-dominated environments, where efficient collaboration often coexisted with gendered bias and legitimacy testing. These findings suggest that inclusive leadership development requires not only an increase in representation but also an examination of organizational norms, feedback practices, and access to sponsorship. In practice, organizations should implement clearer promotion processes, structured transition support following advancement, and leadership models that allow for sustainable performance.

While constrained by its qualitative scope, the study shifts the focus from access to leadership toward the lived realities of leadership after promotion and indicates directions for future research. Therefore, it is advisable to explore the support that women receive when they are promoted, as well as their perspective on reward inequalities among leaders and their consequences, e.g., the impact on performance.

Table 2.
Summary of the main findings

Research Question	Main Findings
RQ1.A: In what contextual conditions are women promoted to leadership positions?	Two dominant promotion pathways emerged: (1) nomination-based advancement (in public sectors), driven by formal structures and senior recognition; and (2) self-directed advancement (in private sector), based on explicit career ambition and proactive positioning.
RQ1.B: How do women leaders compare their pre-promotion expectations with their lived post-promotion realities?	A substantial expectation–reality gap was identified. Leadership roles involved less strategic influence than expected and more administrative burden, communication, and organizational constraints. Participants reported long working hours, constant availability, limited autonomy, and insufficient onboarding and feedback. Psychological strain (e.g., stress, isolation) was common. Positive aspects included increased autonomy, symbolic authority, and fulfillment from team impact.

Cont. table 2.

RQ1.C: What narratives do women leaders have about functioning in male-dominated organizations?	Experiences were characterized by ambivalence. On one hand, male-dominated environments were perceived as efficient, direct, and task-oriented. On the other hand, respondents reported gender bias, including legitimacy challenges, higher performance expectations, and in some cases overt sexism. Younger women faced authority resistance, especially in space and manufacturing sectors. In academia, bias was more structural (e.g., under-recognition). Over time, credibility increased with demonstrated competence but required sustained effort.

Source: Own elaboration.

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References

1. Acker, J. (1990). Hierarchies, Jobs, Bodies: A Theory of Gendered Organizations. *Gender & Society, 4(2),* pp. 139-158. Available at: https://doi.org/10.1177/089124390004002002
2. Alshdiefat, A. et al. (2024). Factors Impacting Women Gaining Leadership Roles in the Jordanian Construction Sector: Architects and Civil Engineers. *Buildings, 14(4),* p. 944. Available at: https://doi.org/10.3390/buildings14040944
3. Beeson, J., Valerio, A.M. (2012). The executive leadership imperative: A new perspective on how companies and executives can accelerate the development of women leaders. *Business Horizons, 55(5),* pp. 417-425. Available at: https://doi.org/10.1016/j.bushor.2012.05.002
4. Bonesso, S., Cortellazzo, L. (2025). A journey into women's managerial career development through the social cognitive career lens. *European Management Journal, 43(6),* pp. 980-990. Available at: https://doi.org/10.1016/j.emj.2024.10.006
5. Bowles, H.R., McGinn, K.L. (2005). *Claiming Authority: Negotiating Challenges for Women Leaders.* The Psychology of Leadership: New Perspectives and Approaches. Lawrence Erlbaum Associates Publishers, pp. 191-208.
6. Chugh, S., Sahgal, P. (2007). Why Do Few Women Advance to Leadership Positions? *Global Business Review, 8(2),* pp. 351-365. Available at: https://doi.org/10.1177/097215090700800211

7. Cimirotić, R. et al. (2017). Enabling factors that contribute to women reaching leadership positions in business organizations: The case of management accountants. *Management Research Review, 40(2),* pp. 165-194. Available at: https://doi.org/10.1108/MRR-10-2014-0233
8. Clarissa, C., Motivaction (no date). *Women Speaking in Our Organizations, Carla Clarissa*. Available at: https://carlaclarissa.com/en/research-report-women-to-speak-out/, February 14, 2026.
9. Eagly, A.H. (2020). Do the social roles that women and men occupy in science allow equal access to publication? *Proceedings of the National Academy of Sciences, 117(11),* pp. 5553-5555. Available at: https://doi.org/10.1073/pnas.2001684117
10. Eagly, A.H., Karau, S.J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review, 109(3),* pp. 573-598. Available at: https://doi.org/10.1037/0033-295X.109.3.573
11. Gierke, L.A., Schlamp, S., Gerpott, F.H. (2025). Which organisational context factors help women to obtain and retain leadership positions in the 21st century? A systematic review and research agenda for human resource management. *Human Resource Management Journal, 35(1),* pp. 336-370. Available at: https://doi.org/10.1111/1748-8583.12568
12. Harvard Business Impact (2025). *Leadership Reframed for the Workplace of the Future*. Available at: https://www.harvardbusiness.org/wp-content/uploads/2025/05/HBI_Report_Leadership-Reframed-for-the-Workplace-of-the-Future_June2025.pdf, February 14, 2026.
13. Hennink, M., Kaiser, B.N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine, 292*, p. 114523. Available at: https://doi.org/10.1016/j.socscimed.2021.114523
14. Herrera, R. et al. (2012). The effect of gender on leadership and culture. *Global Business and Organizational Excellence, 31(2),* pp. 37-48. Available at: https://doi.org/10.1002/joe.21413
15. ILO (2025). *Women in business and management: Building on the legacy of the Beijing Declaration.* International Labour Organization. Available at: https://www.ilo.org/sites/default/files/2025-03/%28March%202025%29%20IWD%20WIBM%20brief_2025%20final.pdf, February 14, 2026.
16. Knott, E. et al. (2022). Interviews in the social sciences. *Nature Reviews Methods Primers, 2(1),* p. 73. Available at: https://doi.org/10.1038/s43586-022-00150-6
17. Kosteas, V.D. (2009). Job level changes and wage growth. *International Journal of Manpower, 30(3)*, pp. 269-284. Available at: https://doi.org/10.1108/01437720910956763
18. Kuckartz, U., Rädiker, S. (2019). *Analyzing Qualitative Data with MAXQDA: Text, Audio, and Video.* Cham: Springer International Publishing. Available at: https://doi.org/10.1007/978-3-030-15671-8

19. Lara, S., Baird, M. (2025). *The state of women in leadership: Global employment trends.* LinkedIn Economic Graph. Available at: https://economicgraph.linkedin.com/content/dam/me/economicgraph/en-us/PDF/the-state-of-women-in-leadership.pdf, February 14, 2026.
20. Levanon, A., Grusky, D.B. (2016). The Persistence of Extreme Gender Segregation in the Twenty-first Century. *American Journal of Sociology, 122(2),* pp. 573-619. Available at: https://doi.org/10.1086/688628
21. Lup, D. (2018). Something to Celebrate (or not): The Differing Impact of Promotion to Manager on the Job Satisfaction of Women and Men. *Work, Employment and Society, 32(2)*, pp. 407-425. Available at: https://doi.org/10.1177/0950017017713932
22. McKinsey, LeanIn (2025). *Women in the Workplace 2025*. Available at: https://www.flipsnack.com/78C9ACFF8D6/women-in-the-workplace-2025, February 14, 2026.
23. Nepal, S. et al. (2020). Detecting Job Promotion in Information Workers Using Mobile Sensing. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 4(3),* pp. 1-28. Available at: https://doi.org/10.1145/3414118
24. Northouse, P.G. (2019). *Leadership: theory and practice. Eighth edition*. Los Angeles/London/New Delhi/Singapore/Washington, DC/ Melbourne: SAGE.
25. OECD (2025). *Gender Equality in a Changing World: Taking Stock and Moving Forward*. OECD Publishing (Gender Equality at Work). Available at: https://doi.org/10.1787/e808086f-en
26. Otto, S. et al. (2022). The joy of gratifications: Promotion as a short- term boost or long-term success – The same for women and men? *Human Resource Management Journal, 32(1),* pp. 151-168. Available at: https://doi.org/10.1111/1748-8583.12402
27. Reke, L. (2025). *The Positive and Negative Outcomes of Promotion. A Systematic Literature Review.* Tilburg University. Available at: https://arno.uvt.nl/show.cgi?fid=185449, February 14, 2026.
28. Schwartz, S.H., Rubel, T. (2005). Sex differences in value priorities: Cross-cultural and multimethod studies. *Journal of Personality and Social Psychology, 89(6),* pp. 1010-1028. Available at: https://doi.org/10.1037/0022-3514.89.6.1010
29. Small, D.A. et al. (2007). Who goes to the bargaining table? The influence of gender and framing on the initiation of negotiation. *Journal of Personality and Social Psychology, 93(4),* pp. 600-613. Available at: https://doi.org/10.1037/0022-3514.93.4.600
30. Taylor, C.L. et al. (2022). Gender and Emotions at Work: Organizational Rank Has Greater Emotional Benefits for Men than Women. *Sex Roles, 86(1-2),* pp. 127-142. Available at: https://doi.org/10.1007/s11199-021-01256-z
31. Wentling, R.M. (2003). The career development and aspirations of women in middle management – revisited. *Women in Management Review, 18(6),* pp. 311-324. Available at: https://doi.org/10.1108/09649420310491486

32. Williams, M., Moser, T. (2019). The Art of Coding and Thematic Exploration in Qualitative Research. *International Management Review, 15(1),* pp. 45-55. Available at: https://www.semanticscholar.org/paper/The-Art-of-Coding-and-Thematic-Exploration-in-Williams-Moser/c0a0c26ac41cb8beb337834e6c1e2f35b91d071d, February 14, 2026.

Footnotes

[i] Organizations may be considered masculinized when men constitute a clear majority of employees (approximately 60-70%), a pattern evident in sectors such as IT, heavy engineering, and transportation, and particularly pronounced in industries such as mining, construction, and special operations, where male representation may reach 90%.

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EVALUATION OF THE PSYCHOMETRIC SCALE OF QUIET AND PASSIVE QUITTING USING AN INTEGRATED APPROACH COMBINING STRUCTURAL EQUATION MODELING AND MACHINE LEARNING

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Purpose: The aim of the study was to evaluate and shorten a psychometric scale measuring quiet quitting and passive quitting, while maintaining the quality of measurement and the predictive utility of the instrument.
Design/methodology/approach: A hybrid approach was applied, integrating structural equation modeling (SEM) and supervised machine learning (ML). A two-factor measurement model with regression on organizational engagement (UWES-9) was estimated using a sample of 1,040 working respondents. Simultaneously, the predictive validity of the scale items was assessed using regression algorithms within a cross-validation procedure. The scale was shortened iteratively by eliminating only those items whose removal did not significantly worsen SEM model fit or ML predictive performance.
Findings: The scale was reduced from 14 to 9 items. The reduction led to improved SEM fit indices (increased CFI and TLI with stable RMSEA) and only a slight decrease in the predictive validity of the ML models. The results confirm that integrating SEM and ML enables effective shortening of psychometric tools while maintaining their reliability and diagnostic functionality.
Research limitations/implications: The study was based on a single external criterion (organizational engagement) and one research sample, which limits the generalizability of the results. Future studies should include other criteria (e.g., burnout, turnover) and independent validation samples.
Practical implications: The shortened scale reduces respondent burden, shortens survey time, and lowers measurement costs while retaining predictive utility relevant for HR practice and organizational diagnostics.
Social implications: Improved and more efficient measurement of quiet and passive quitting can support early identification of declining employee engagement, contributing to enhanced quality of work life and human resource management policies.
Originality/value: The originality of the study lies in proposing an integrated procedure for shortening psychometric scales by combining measurement and predictive criteria, which constitutes a methodological contribution to research on the development and optimization of measurement tools in management and quality sciences.

Keywords: quiet quitting, passive quitting, organizational engagement, structural equation modeling, machine learning.
Category of the paper: Research Paper.

1. Introduction

In recent years, there has been growing interest in the attitude known as *quiet quitting*, which reflects changes in employee–organization relationships and the ways individuals experience work. This attitude refers to the intentional reduction of professional effort while formally remaining employed, inevitably leading to a decline in organizational engagement and work effectiveness. A similar attitude is *passive quitting*, which also involves a reduction in engagement. However, in this case, it is unintentional and may result from factors such as burnout, indifference, apathy, or exhaustion (Nowak, 2026). These two attitudes thus represent distinct mechanisms of disengagement. In response to increasing interest in these constructs, attempts have been made to operationalize them in the form of psychometric tools. However, existing research on related scales has focused primarily on classical measurement criteria (e.g., factor structure, reliability, model fit), often overlooking their predictive utility-the ability to predict important external criteria, especially organizational engagement. As a result, decisions to shorten or modify scales are made solely on the basis of measurement parameters, without considering potential loss of prognostic value. There is, therefore, a lack of approaches that integrate measurement theory with the predictive perspective characteristic of machine learning methods. The aim of this article is to address this gap by proposing and empirically validating a hybrid procedure for evaluating and shortening a scale measuring quiet and passive quitting, combining structural equation modeling (SEM) with supervised machine learning (ML). This approach enables the simultaneous assessment of the measurement quality of latent constructs and their predictive utility with respect to organizational engagement as an external criterion. The article includes a literature review, a description of the integrated methodology and procedure, presentation of SEM and ML analysis results, and a discussion of theoretical and methodological conclusions.

2. Literature Review

The phenomenon of quiet quitting is still so new that there is noticeable disagreement about how to define and interpret it. Quiet quitting refers to a situation in which employees deliberately lower their performance and productivity at work, fulfilling only the minimum requirements of their role, demonstrating minimal effort, motivation, and emotional

engagement, and refraining from performing tasks outside the formal scope of their duties-such as staying late, attending non-mandatory meetings, or taking on additional assignments (Bolino et al., 2024). This behavior is characterized more by psychological distancing than physical resignation and is often associated with disengagement and withdrawal (Belli, Erçelik, 2026; Patel et al., 2025; Yu, Jiao, 2026). According to Scheyett (Scheyett, 2023), quiet quitting represents an approach in which "one doesn't literally quit the job, but simply does the work that is expected in the given role, without going beyond what is required". Many authors argue that quiet quitting is the same as burnout (Hamouche et al., 2023; Richardson, 2023) or leads to burnout (Galanis et al., 2025; Gün et al., 2025). However, another prevalent perspective emphasizes the intentional nature of quiet quitting, suggesting that it is a way to avoid excessive demands at work (Serenko, 2024). Detert (Detert, 2023) described quiet quitting as "calibrated contributing" to one's job. Those who quietly quit do not actually want to leave their jobs but continue performing their tasks with minimal effort (Gigol, 2023; Patel et al., 2025; Talukder, Prieto, 2025). An interesting concept that bridges both perspectives is the distinction proposed by Kanwal and colleagues (Kanwal et al., 2025), who divided quiet quitting into two types: passive quiet quitting and deliberate quiet quitting, each characterized by distinct affective, cognitive, and behavioral dimensions. Similarly, Nowak (Nowak, 2026; Nowak et al., 2026) introduced a comparable differentiation, defining quiet quitting as a conscious approach, while referring to Kanwal's passive quiet quitting as "passive quitting". Consequently, two distinct mechanisms leading to reduced organizational commitment can be identified: quiet quitting (intentional and deliberate) and passive quitting (unintentional and unconscious). This approach is adopted in the present article. Some authors consider quiet quitting a manifestation of deviant workplace behavior (Wu, Wei, 2024). According to Bolino et al. (Bolino et al., 2024), quiet quitting represents an attitude contrary to organizational citizenship behavior and is perceived negatively by supervisors (Patel et al., 2025). Overall, quiet quitting is believed to reduce organizational performance (Moczydłowska, 2024), while also threatening the careers of those who adopt this approach (Serenko, 2024). Importantly, the phenomenon does not exist in isolation-as Yu and Jiao (Yu, Jiao, 2026) demonstrate, quiet quitting spreads through employee networks, where behaviors and negative emotions "infect" other members of the organization, amplifying the scale of the problem. Nevertheless, there are also positive interpretations of quiet quitting. For example, Dillard, Cavallo, and Zhang (Dillard et al., 2025) argue that nothing can be held against employees who fulfill their duties well during working hours, and the quiet quitting attitude represents a return to humanism in the workplace. Coworkers' reactions to those performing only the bare minimum evolve from withdrawal of support to open hostility, and this dynamic is closely tied to the relational norms of the team and mechanisms of social contagion. As Bennett et al. (Bennett et al., 2025) indicate, employees observing quiet quitting among colleagues respond with reduced helping behaviors and a significant increase in initiated incivility. According to Samnani and Robertson (Samnani, Robertson, 2025), in environments characterized by strong interpersonal bonds, initial empathy and attempts to help, when passive

attitudes persist, give way to a deep sense of betrayal, leading to collective sanctions such as ostracism or deliberate reputation undermining. The widespread adoption of the distinction between quiet quitting and passive quitting could, over time, lead to differentiated responses from coworkers and supervisors depending on the nature of the behavior, and enable more effective interventions.

3. Methods

In the study, previously validated measurement tools were used to assess quiet quitting and passive quitting (Nowak, 2026; Nowak et al., 2026). The developed scale is as follows:

QQS1. At work, I consciously limit myself to performing only those tasks that fall within my duties and for which I am paid.

QQS2. I consciously do only what is necessary, because maintaining a work-life balance is more important to me than going above and beyond.

QQS3. When I know I am overworked, I consciously limit my effort to only what is necessary to keep my job.

QQS4. Since extra effort is not recognized in my company, I have decided to limit myself to basic duties.

QQS5. I consciously avoid taking on tasks outside my responsibilities, even if they are interesting.

QQS6. Because I don't feel supported by the company, I have decided not to engage beyond what my duties require.

QQS7. To maintain mental balance, I consciously distance myself from work and don't engage more than necessary.

PQS1. I am often too tired or overwhelmed to put more than the minimum effort into my work.

PQS2. I care less and less about my job and its results-it's hard for me to stay engaged.

PQS3. I feel so exhausted by work that it's hard to care about the quality of what I do.

PQS4. At times, I perform my duties mechanically, without engagement or initiative.

PQS5. I feel that the lack of appreciation discourages me from putting effort into my work.

PQS6. Work no longer brings me satisfaction-I do only what's necessary to get through the day.

PQS7. I feel that the lack of development and meaning in my work has made me care less and less about what I do.

A detailed description of the validation procedures is presented in (Nowak, 2026). The scales were evaluated in terms of face and content validity: the CVI index reached values of 0.929 (content validity) and 0.914 (clarity), while the CVR was 1.00. Subsequently, an exploratory factor analysis (EFA) was conducted. The floor effect ranged from 3.46% to 13.75%, and the ceiling effect from 6.25% to 13.65%. Low skewness and negative kurtosis indicated distributions close to normal. The KMO value was 0.918, and Bartlett's test was significant ($\chi^2 = 9026.24$, $p < 0.001$), confirming the suitability of factor analysis. Both Kaiser's criterion and the scree plot indicated two factors (quiet and passive quitting). The Principal Axis Factoring method with oblique (oblimin) rotation was applied, confirming a two-factor structure consistent with the theoretical framework. The two factors explained over 66% of the variance. Cronbach's alpha coefficients were 0.910 (quiet quitting) and 0.916 (passive quitting), confirming the high reliability and internal consistency of both scales. The goal of the method was to shorten the psychometric scale (quiet and passive quitting items) while preserving the quality of latent construct measurement and predictive utility with respect to an external criterion-organizational commitment. A hybrid approach was employed, combining:

1. Structural Equation Modeling (SEM) to assess the quality of the measurement and structural models (Nowak, Zajkowski, 2025).
2. Supervised Machine Learning (ML) to evaluate the quality of criterion prediction based on the scale items (Nowak et al., 2025).

The SEM and ML results are integrated through an iterative item elimination procedure - an item is removed only if it simultaneously meets quality criteria in both approaches. The analysis is based on employee data, where $i = 1, \ldots, N$ denotes individual respondents. Responses were collected for the following: QQ items (QQS1–QQS7), PQ items (PQS1–PQS7), and UWES-9 items (UWES1–UWES9). Organizational commitment, which serves as a component of the SEM model and the label in ML, was calculated as the average of the UWES items. The method consists of three main parts: A (SEM modeling), B (machine learning), and C (integrative scale reduction procedure).

Part A. SEM Modeling

A1. Measurement Model (CFA)

Two latent factors were assumed: quiet quitting (QQ) and passive quitting (PQ). For each individual i, the observed items are modeled as functions of their respective latent constructs and measurement error components (1):

$$QQS_{ij} = \nu_j^{(QQ)} + \lambda_j^{(QQ)} QQ_i + \varepsilon_{ij}^{(QQ)}, j \in \mathcal{J}_{QQ},$$
$$PQS_{ij} = \nu_j^{(PQ)} + \lambda_j^{(PQ)} PQ_i + \varepsilon_{ij}^{(PQ)}, j \in \mathcal{J}_{PQ},$$

where:

$\mathcal{J}_{QQ}, \mathcal{J}_{PQ}$ - sets of items currently retained in the model,

$\nu_j^{(QQ/PQ)}$ – intercept (free term),

$\lambda_j^{(QQ/PQ)}$ – factor loading,

$\varepsilon_{ij}^{(QQ/PQ)}$ – measurement error.

To avoid identification issues during the scale reduction process, a minimum number of indicators per factor is required, i.e., $| \mathcal{J}_{QQ} | \geq 3$ and $| \mathcal{J}_{PQ} | \geq 3$.

A2. Structural Model

The criterion variable OC (organizational commitment) is explained by the latent factors QQ and PQ as follows:

$$OC_i = \alpha + \beta_{QQ}\, QQ_i + \beta_{PQ}\, PQ_i + \zeta_i,$$

where ζ_i is the disturbance term.

Correlations between the latent predictors are allowed:

$$\mathrm{Cov}(QQ_i, PQ_i) = \phi.$$

A3. SEM Fit Indices

Standard fit indices are used to assess SEM model quality, particularly CFI and RMSEA:

- CFI (Comparative Fit Index) w in its general form:

$$CFI = 1 - \frac{\max(\chi_M^2 - df_M, 0)}{\max(\chi_B^2 - df_B, 0)},$$

where:

M denotes the tested model,

B the baseline (independence) model,

df the degrees of freedom.

- RMSEA (Root Mean Square Error of Approximation):

$$RMSEA = \sqrt{\max(\frac{\chi_M^2 - df_M}{df_M(N-1)}, 0)}.$$

In the scale reduction procedure, changes in these fit indices between the current model and a candidate model (after item removal) are used.

Part B. Machine Learning (Prediction of Organizational Commitment Based on Scale Items)

B1. Dependent Variable and Predictors

In the machine learning (ML) part, the problem is formulated as supervised regression:

- Dependent variable: Organizational commitment (OC),
- Feature vector: Responses to the QQS and PQS items that remain in the scale:

$$\mathbf{x}_i \in \mathbb{R}^p, p = | \mathcal{J}_{QQ} | + | \mathcal{J}_{PQ} |.$$

The predictive model *can* be written as:

$$\widehat{OC}_i = f(\mathbf{x}_i;\, \theta),$$

where $f(\cdot)$ is a regression function (e.g., Random Forest), and θ denotes the model parameters.

B2. Cross-Validation

Prediction quality is *not* estimated on the training data but through a K-fold cross-validation procedure. Given a partition of the dataset:

$$\{1, \dots, N\} = \bigcup_{k=1}^{K} \mathcal{I}_k \,, \mathcal{I}_k \cap \mathcal{I}_\ell = \emptyset \quad (k \neq \ell),$$

for each fold k, the model is trained on $\{i \notin \mathcal{I}_k\}$ and evaluated on $\{i \in \mathcal{I}_k\}$. The final result is the average over all folds.

B3. Prediction Quality Metric

The main metric used to assess prediction quality is RMSE (Root Mean Square Error), where lower values indicate better predictive performance:

$$\text{RMSE} = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(OC_i - \widehat{OC}_i)^2}.$$

B4. Selection of the Best ML Model

On the full item set ($p = p_0$), a set of candidate models $\{f_m\}_{m=1}^{M}$ (e.g., ten regression models) is compared. The reference model is selected by minimizing the average RMSE from cross-validation:

$$m^* = \arg\min_{m \in \{1,\dots,M\}} \mathbb{E}_{CV}[RMSE_m],$$

where $\mathbb{E}_{CV}[\cdot]$ denotes the mean across folds.

The selected model f_{m^*} is then kept fixed throughout the entire scale reduction process to ensure comparability across iterations.

Part C. Integrative Greedy Scale Reduction Procedure

C1. General Idea

The scale reduction procedure is iterative. In each iteration, the removal of a single item from the current set of indicators is considered. An item is removed only if:

1. SEM model fit does not deteriorate beyond the defined thresholds, and
2. ML prediction quality does not deteriorate beyond the defined thresholds.

Let $\mathcal{J}^{(t)}$ denote the set of items at iteration t (composed of z $\mathcal{J}_{QQ}^{(t)}$ and $\mathcal{J}_{PQ}^{(t)}$). For each candidate item $j \in \mathcal{J}^{(t)}$, a reduced item set is constructed:

$$\mathcal{J}_{-j}^{(t)} = \mathcal{J}^{(t)} \setminus \{j\}.$$

Next, the following are estimated:

- SEM metrics: $(CFI^{(t)}, RMSEA^{(t)})$ for the current model, and $(CFI_{-j}^{(t)}, RMSEA_{-j}^{(t)})$ for the candidate model without item j,
- ML metric: $RMSE^{(t)}$ and $RMSE_{-j}^{(t)}$ (cross-validated averages).

C2. Acceptance Criteria

The following differences are defined:

$$\Delta CFI_j = CFI_{-j}^{(t)} - CFI^{(t)},$$

$$\Delta RMSEA_j = RMSEA_{-j}^{(t)} - RMSEA^{(t)},$$

$$\Delta RMSE_j = RMSE_{-j}^{(t)} - RMSE^{(t)}.$$

An item j is accepted for removal only if:

$$\Delta CFI_j \geq -\tau_{CFI},$$

$$\Delta RMSEA_j \leq \tau_{RMSEA},$$

$$\Delta RMSE_j \leq \tau_{RMSE}(RMSE^{(t)}),$$

where $\tau_{CFI} = 0.005$, $\tau_{RMSEA} = 0.005$, while the tolerance for RMSE takes the form:

$$\tau_{RMSE}(RMSE^{(t)}) = \max(\tau_{abs}, \tau_{rel} \cdot RMSE^{(t)}),$$

with $\tau_{abs} = 0.01$ and $\tau_{rel} = 0.01$ (i.e., 1% of the current value).

Additionally, an identification constraint is imposed:

$$| \mathcal{J}_{QQ}^{(t)} | \geq 3, | \mathcal{J}_{PQ}^{(t)} | \geq 3.$$

It is also assumed that, in the context of SEM modeling, the RMSE must not exceed the acceptable threshold of 0.08 in total.

C3. Selection of Items for Removal in a Given Iteration

If, in iteration *t*, there exists at least one item that meets the conditions, the item is selected that maximizes the preference function (for example, by favoring no deterioration in ML and improvement in SEM):

$$j^* = \arg\max_{j \in \mathcal{A}^{(t)}} S(j),$$

where $\mathcal{A}^{(t)}$ is the set of items meeting the acceptance criteria, and $S(j)$ m may take a hierarchical form (e.g., first minimizing $RMSE_{-j}^{(t)}$, then minimizing $RMSEA_{-j}^{(t)}$, and finally maximizing $CFI_{-j}^{(t)}$). The item j^* is removed, and the procedure proceeds to iteration $t + 1$.

C4. Stopping Criterion

The procedure ends when:

- there is no item whose removal simultaneously meets the SEM and ML criteria,
- or the minimum number of items per factor has been reached.

The integration of SEM and ML allows for a parallel evaluation of two complementary aspects of scale quality:

1. measurement quality and theoretical consistency (SEM – factor structure, global fit),
2. predictive utility (ML – informativeness of items in predicting the criterion).

The goal of the procedure is to eliminate redundant or poorly fitting items while limiting the loss of predictive information.

4. Results

The study sample was recruited through the nationwide Ariadna online panel, which enabled access to a large and diverse group of economically active respondents from different regions and socio-demographic categories in Poland. This sampling approach was adopted to obtain a heterogeneous group of employees, appropriate for psychometric scale evaluation and item reduction, where variability in responses is essential for reliable assessment of factor structure and predictive performance. The empirical part is based on a CAWI survey conducted between May 23-29, 2025, on a sample of 1,040 Polish employees (Ariadna panel). The questionnaire included demographic items, proprietary scales of quiet quitting (QQ) and passive quitting (PQ), as well as the organizational commitment scale (UWES-9). The collected data were used in SEM analyses and machine learning.

Part A. SEM Modeling

In Part A, SEM modeling was conducted. In the base model, QQ and PQ were treated as latent factors measured by 7 items each, and organizational commitment (OC) was represented as an observed average from UWES. The following fit indices were obtained: CFI = 0.9462, TLI = 0.9359, RMSEA = 0.0755. CFI and TLI indicate good fit, while RMSEA points to an acceptable, though suboptimal, level. The two-factor structure with regression on OC thus receives general empirical support, while still allowing for further model optimization (e.g., through the reduction of weakly fitting or redundant items).

Part B. Machine Learning (prediction of organizational commitment based on scale items)

In the baseline model, the dependent variable was organizational commitment (mean score from UWES-9), and the predictors were items from the QQS and PQS scales. The following methods were applied: linear regression, Ridge, Lasso, Elastic Net, SVR, KNN, as well as ensemble methods: Random Forest, Extra Trees, Gradient Boosting, and HistGradientBoosting (Nowak et al., 2025), using 5-fold cross-validation (Table 1).

Table 1.
Results of the machine learning process for the baseline model

Algorithm	RMSEA	R^2	MAE
RandomForest	0.9215	0.5048	0.6791
GradientBoosting	0.9227	0.5028	0.6750
ExtraTrees	0.9437	0.4810	0.6983
HistGradientBoosting	0.9441	0.4802	0.6944
Lasso	0.9495	0.4746	0.7194
ElasticNet	0.9496	0.4745	0.7193
Ridge	0.9497	0.4744	0.7193
LinearRegression	0.9497	0.4744	0.7193
KNN	0.9637	0.4590	0.7135
SVR(RBF)	0.9832	0.4361	0.7385

Source: own elaboration.

The results indicate a significant predictive value of the QQS and PQS items with respect to commitment. The models achieved moderate fit (R^2 = 0.4361–0.5048), explaining approximately half of the variance in UWES-9. Tree-based methods outperformed linear models. The highest performance was achieved by Random Forest (RMSE = 0.9215, R^2 = 0.5048, MAE = 0.6791), with results very similar to Gradient Boosting, suggesting a nonlinear and interactional nature of the relationships. This confirms the high predictive utility of the items alongside their theoretical validity (SEM). Due to its lowest RMSE, Random Forest was adopted as the reference model in the scale-shortening procedure.

Part C. Integrative Scale-Shortening Procedure (Greedy Elimination)

The shortening procedure for the QQ and PQ scales was conducted using a greedy algorithm. In each iteration, all remaining items were analyzed by simulating their individual removal. For each variant, new SEM fit indices were calculated: $CFI_{(-j)}, RMSEA_{(-j)}$, as well as ML prediction quality (Random Forest, 5-fold CV: $RMSE_{(-j)}, R^2_{(-j)}$. An item was included in the candidate set only if it simultaneously met the tolerance criteria for both SEM and ML. Selection followed a lexicographic rule: first, RMSE minimization; in case of a tie-lower RMSEA; next-higher CFI. The following items met the elimination criteria: QQS3, QQS6, PQS4, QQS4, and PQS5 (Table 2).

Table 2.
Changes in RMSEA indices in SEM and in ML for removed items from the quiet and passive quitting scales

Removed item	RMSEA_SEM	CFI	TLI	RMSE_ML	R^2_ML
Baseline model	0.0755	0.9462	0.9359	0.9215	0.5048
QQS3	0.0765	0.9499	0.9392	0.9143	0.5125
QQS6	0.0685	0.9622	0.9532	0.9138	0.5128
PQS4	0.0723	0.9618	0.9515	0.9212	0.5050
QQS4	0.0737	0.9637	0.9524	0.9294	0.4956
PQS5	0.0756	0.9665	0.9543	0.9383	0.4847

Source: own elaboration.

The first two eliminations (QQS3 and QQS6) improved both SEM fit and ML prediction. Higher CFI and TLI and lower RMSE indicate these items added measurement error without meaningful predictive value. Removing PQS4 was prediction-neutral (stable RMSE) while preserving very good SEM fit, suggesting redundancy. Subsequent eliminations (QQS4 and PQS5) produced controlled deterioration in ML with continued SEM improvement, indicating some predictive contribution but within tolerance thresholds. Initially, items weak in both measurement and prediction were removed; later, a classic trade-off emerged between measurement quality and predictive information. The final scale includes nine items (−36%). SEM fit did not worsen: CFI increased (0.9462 → 0.9665) and TLI (0.9359 → 0.9543), with stable RMSEA (0.0755 → 0.0756). This reflects removal of items with higher measurement error, weaker loadings, or partial ambiguity. Improved CFI/TLI with unchanged RMSEA suggests better relative fit without greater approximation error. From the SEM perspective,

the reduction is beneficial or at least non-detrimental. In prediction (Random Forest), accuracy declined moderately: RMSE rose from 0.9215 to 0.9383 and R^2 fell from 0.5048 to 0.4847 (≈ -0.02). The loss is systematic but within accepted thresholds and typical when reducing predictors. The shortened scale is slightly less predictive but more efficient, reducing survey time, costs, and respondent burden while maintaining or improving measurement quality.

5. Summary

The article contributes to psychometrics in organizational research by integrating two paradigms of tool evaluation: the measurement-oriented approach (SEM) and the predictive approach (ML). Until now, scale shortening has primarily relied on factor loadings and model fit, neglecting predictive value. The proposed procedure demonstrates that measurement quality and predictive utility are complementary yet distinct, and that scale reduction should therefore be treated as a task of multi-criteria optimization. It has been shown that the constructs of quiet and passive quitting can be measured using a shorter, more coherent tool without deteriorating the theoretical model.The practical implications include reduced respondent burden, shorter survey time, and preserved diagnostic value. Including the predictive criterion mitigates the risk of developing scales that are psychometrically sound but weak in prediction. The procedure is universal in nature and can be applied to the evaluation of other scales related to organizational criteria (e.g., performance, turnover, well-being). Limitations include reliance on a single external criterion, selection of a specific ML algorithm (random forest), heuristic elimination without a guarantee of global optimum, and lack of validation on an independent sample. Future research should incorporate multiple criteria, compare optimization strategies, and validate the shortened scale in various organizational contexts, as well as integrate SEM and ML in hybrid or regularized models.

References

1. Belli, M., Erçelik, Z.E. (2026). Moral resilience and quiet quitting tendencies among pediatric nurses: A multiple linear regression study. *Journal of Pediatric Nursing*, *87*, 154-159.
2. Bennett, A.A., Epler, R.T., Thomas, V.L., Jalil, D. (2025). Exploring coworker perceptions of and reactions to quiet quitting. *Human Resource Management*, *64*(6), 1815-1831.
3. Bolino, M.C., Klotz, A.C., Whitney, J.M. (2024). The origin, evolution, and future of organizational citizenship behavior. *Academy of Management Collections*, *3*(3), 35-56.

4. Detert, J. (2023). Let's call quiet quitting what it often is: Calibrated contributing. *MIT Sloan Management Review*, *64*(2), 1-3.
5. Dillard, N., Cavallo, T., Zhang, P. (2025). A return to humanism: A Multi-Level analysis exploring the positive effects of quiet quitting. *Human Resource Development Review*, *24*(2), 127-156.
6. Galanis, P., Katsiroumpa, A., Vraka, I., Siskou, O., Konstantakopoulou, O., Katsoulas, T., Moisoglou, I., Gallos, P., Kaitelidou, D. (2025). The influence of job burnout on quiet quitting among nurses: The mediating effect of job satisfaction. *International Journal of Nursing Practice*, *31*(5), e70057.
7. Gigol, T. (2023). Quiet quitting, job burnout and turnover intention. *International business from east to west: Global risks and opportunities*, 18-25.
8. Gün, Ibrahim, Balsak, H., Ayhan, F. (2025). Mediating effect of job burnout on the relationship between organisational support and quiet quitting in nurses. *Journal of Advanced Nursing*, *81*(8), 4644-4652.
9. Hamouche, S., Koritos, C., Papastathopoulos, A. (2023). Quiet quitting: relationship with other concepts and implications for tourism and hospitality. *International Journal of Contemporary Hospitality Management*, *35*(12), 4297-4312.
10. Kanwal, F., Putri, N., Sawhney, G., Bijlani, A. (2025). Understanding Quiet Quitting: An Exploratory Study of the Concept. *Academy of Management Proceedings*, *1*, 13357.
11. Moczydłowska, J.M. (2024). Quiet quitting as a challenge for human capital management– the results of qualitative research. *Zeszyty Naukowe. Organizacja i Zarzadzanie.* Politechnika Ślaska.
12. Nowak, M. (2026). *Spadek zaangażowania organizacyjnego – ciche i bierne odchodzenie*. Polskie Towarzystwo Ekonomiczne.
13. Nowak, M., Wiecek-Janka, E., Zajkowski, R. (2026). *The Impact of Quiet Quitting and Passive Quitting Phenomena on Occupational Burnout*.
14. Nowak, M., Zajkowski, R. (2025). An Integrated Structural Equation Modelling and Machine Learning Framework for Measurement Scale Evaluation—Application to Voluntary Turnover Intentions. *AppliedMath*, *5*(3), 105.
15. Nowak, M., Zajkowski, R., Pawłowska-Nowak, M. (2025). Prediction of the Sustainability Index in Family Firms Using Explainable Artificial Intelligence. *Sustainability*, *17*(16), 7226.
16. Patel, P.C., Guedes, M.J., Bachrach, D.G., Cho, Y. (2025). A multidimensional quiet quitting scale: Development and test of a measure of quiet quitting. *PloS one*, *20*(4), e0317624.
17. Richardson, S.D. (2023). *Making the Entrepreneurial Transition: Understanding the Challenges of Women Entre-Employees*. Springer Nature.
18. Samnani, A.-K., Robertson, K. (2025). More Than a Personal Decision: A Relational Theory of Quiet Quitting. *Human Resource Management*.

19. Scheyett, A. (2023). Quiet quitting. *Social Work, Vol. 68, Iss. 1*, pp. 5-7). Oxford University Press.
20. Serenko, A. (2024). The human capital management perspective on quiet quitting: recommendations for employees, managers, and national policymakers. *Journal of Knowledge Management*, *28*(1), 27-43.
21. Talukder, M.F., Prieto, L. (2025). A "quiet quitting" scale: development and validation. *International Journal of Organizational Analysis*, *33*(6), 1487-1510.
22. Wu, A., Wei, W. (2024). Rationalizing quiet quitting? Deciphering the internal mechanism of front-line hospitality employees' workplace deviance. *International Journal of Hospitality Management*, *119*, 103681.
23. Yu, Y., Jiao, X. (2026). Social interactions in organisations: Investigating employee quiet quitting using spatial econometric methods. *Tourism Management*, *115*, 105396.

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PROFITABILITY OF FARMS IN EU MEMBER STATES IN RELATION TO THEIR PRODUCTION POTENTIAL

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Purpose: This study aimed to assess the profitability of farms in EU member states and identify its determinants.
Design/methodology/approach: The research was carried out based on data from the Farm Accountancy Data Network (FADN) Public Database for the years 2013-2023. Based on this data, the indicators of labour and land profitability were calculated. Using a dynamic panel model, the determinants of labour profitability in EU farms were identified, with particular emphasis on variables that describe their production potential.
Findings: The results demonstrate the key role of inertia in shaping labour profitability. Farm economic size and technical equipment showed a marginally significant positive relationship. In contrast, the level of employment per 100 hectares reduced profitability.
Research limitations/implications: Further research should focus on a more in-depth analysis of the mechanisms differentiating profitability within specific types of farms.
Practical implications: Selective support for modernisation processes, particularly those that increase labour productivity, especially in countries with persistently low profitability, should be of key importance.
Originality/value: This study fills a research gap by identifying the determinants of farm profitability in EU member states.
Keywords: profitability, European Union, farms, production potential.
Category of the paper: Research paper.

1. Introduction

Equalising farm incomes among the member states of the European Union remains one of the key challenges of agricultural policy (Smędzik-Ambroży, Sapa, 2020; European Parliament and Council, 2021; Finger, El Benni, 2021, p. 254). Despite similar institutional and legal frameworks resulting from the implementation of the CAP and broad access to markets, the level and dynamics of agricultural income reveal significant spatial heterogeneity (Andrejovská, Glova, 2022, Herman, 2025). Available scientific studies and reports from the

European Commission indicate that in recent years, we have witnessed an increase in the average income from agriculture in EU countries, but the level and pace of this change remain unequal (Skarżyńska, Grochowska, 2021; European Commission, 2023).

Previous research has pointed to the variability of factors shaping farm income. Empirical studies based on FADN or Eurostat data underline the importance of both the resources of production factors and the intensity of their use (Skarżyńska, Grochowska, 2021). According to Poczta et al. (2009), the income situation of farms is mainly influenced by the size of production potential, the intensity of production, and the impact of agricultural policy instruments. Niezgoda (2009) demonstrates that among production factors, capital plays the greatest role in income generation, followed by human labour, whereas, contrary to traditional beliefs, land shows a relatively weak correlation with income levels. Kryszak (2018), in turn, points out that the dominant agricultural model in a given region can modify the significance of individual income determinants, leading to diverse regional effects. Kryszak and Matuszczak (2019) show that farm incomes in the so-called new member states were more sensitive to increasing specialisation, direct payments, and investment inputs, while in the so-called old EU, there was relatively high income elasticity in relation to the labour factor. Barczak (2024, p. 80) demonstrates that income levels are dependent on the type of agricultural production and agro-climatic conditions.

Despite the growing number of analyses regarding agricultural income, the literature still lacks in-depth studies that evaluate the extent to which the production potential of farms, understood as the composition of land, labour, and capital resources, translates into their ability to generate income in the member states of the European Union. In most studies, production potential appears as one of many factors but rarely becomes the main focus of analysis. In light of this, the aim of the present study is to assess the profitability of farms in EU countries and determine the impact of production potential on the level of income achieved.

2. Research methods

Assessments of farm profitability in EU member states were carried out based on data from the Public Database Farm Accountancy Data Network (FADN) for the years 2013-2023. This is the only database that collects information according to uniform principles and where the farms constitute a statistically representative sample of commercial agricultural holdings operating within the European Union (Pawłowska-Tyszko et al., 2023, p. 10). The study was conducted in two stages.

Stage one: In the first stage, indicators of labour profitability were calculated as the ratio of farm income to the number of full-time employees (AWU – Annual Work Unit), as well as land profitability indicators, which are the ratio of farm income to the area of utilised agricultural

land. Based on this, a ranking of the member states was created, along with an assessment of changes in their positions in the years 2013-2023.

Stage two: The aim of the second stage was to identify the key determinants of labour profitability in EU farms, with particular emphasis on variables describing their production potential. For this purpose, the influence of selected independent variables on labour profitability in agriculture, expressed in EUR/AWU in a multifactorial framework, was estimated, considering the time dynamics and individual effects of panel units (27 EU countries). The independent variables included: 1) average area of utilised agricultural land per farm (ha), 2) economic size of the farm (thousand EUR), 3) technical equipment of labour, calculated as the value of fixed assets per full-time employee (EUR/AWU), 4) production intensity, expressed as total costs per 1 ha of agricultural land (EUR/ha), 5) land labour endowment, that is, the number of full-time employees per 100 ha of agricultural land (AWU/100 ha), and 6) the value of investment subsidies per 1 ha of agricultural land. In particular, this study focused on estimating the regression coefficients for each independent variable in a dynamic panel model based on the generalised method of moments (GMM), which allowed for the control of endogeneity and lagged effects.

The study of targeted relationships between multiple parameters and a single outcome variable was performed using a multifactorial model. The choice of model was based on the nature of the panel data, where observations involve repeated measurements for the same units over time, implying the presence of individual effects and potential endogeneity. Due to the dynamic nature of the process, in which the current value of the dependent variable may depend on its previous values, as well as the possibility of unobserved fixed effects, a dynamic panel model based on the generalised method of moments (GMM) was used. This method is particularly suitable for estimating models with lagged dependent variables in short panels, where the number of units exceeds the number of periods, and allows for the control of endogeneity by using internal instruments (Blundell, Bond, 1998).

To balance the scales of the numerical variables, standardisation using the z-score method was applied to the values of dependent and independent variables. This involved subtracting the mean and dividing by the standard deviation, which enabled the harmonisation of the impact of the variables with different units of measurement. The model was defined as a linear dynamic panel model in the general form:

$$y_{i,t} = \rho_1 y_{i,t-1} + \beta' x_{i,t} + a_i + \varepsilon_{i,t} \quad (1)$$

where:

$y_{i,t}$ is the dependent variable for unit *i* in period *t*,

$y_{i,t-1}$ is its one-period lag,

$x_{i,t}$ is the vector of explanatory variables,

ρ_1 is the coefficient on the lag,

β is the vector of coefficients on the explanatory variables,

a_i is the unobserved individual effect,
$\varepsilon_{i,t}$ is the random error term.

The explanatory variables were treated as endogenous, meaning that they could be correlated with random errors in the model. The estimation was conducted using the one-step GMM procedure, employing moment conditions from both the differenced equations (instruments in levels) and the level equations (instruments in differences) (Blundell, Bond, 1998). Nonlinear (squared) moment conditions were not included, as the model assumes linear relationships, which simplifies the estimation and avoids the need for intensive numerical optimisation in the case of simpler structures. The weighting matrix was based on the assumption of independent and identically distributed errors (type "iid.err"), which is the standard choice for models with homoskedastic errors. The standard errors of the estimators were corrected using the Windmeijer (2005) adjustment to account for bias in small samples, instead of the unadjusted or doubly corrected adjustment (Hwang et al., 2022), owing to its sufficient robustness in the context of one-step estimation. No instrument collapsing (Roodman, 2009) was applied, which allowed for the retention of full information from the moments without the risk of excessively constraining the variance of the estimators. The numerical optimisation was based on the BFGS algorithm, which ensured stable convergence in the presence of linear moment conditions (Fritsch et al., 2021).

Model validation included assessing the significance of the dynamic component by analysing the coefficient of the lagged dependent variable, which made it possible to verify whether the dynamics were statistically significant. A test for the presence of second-order autocorrelation in the residuals was conducted, which is crucial for the validity of instruments in GMM models, assuming no correlation in higher-order differences of the residuals. Additionally, an overidentification test (J-test) was applied to assess the validity of the moment conditions and the lack of correlation between the instruments and the residuals. Finally, a test for the significance of all model parameters was performed, confirming the overall adequacy of the specifications. Analyses were conducted using the R statistical language (version 4.5.2; R Core Team, 2025).

3. Results

Figure 1 presents the farm income levels of EU member states in 2023, arranged in descending order, and highlights the changes in the rankings of individual countries compared to 2013.

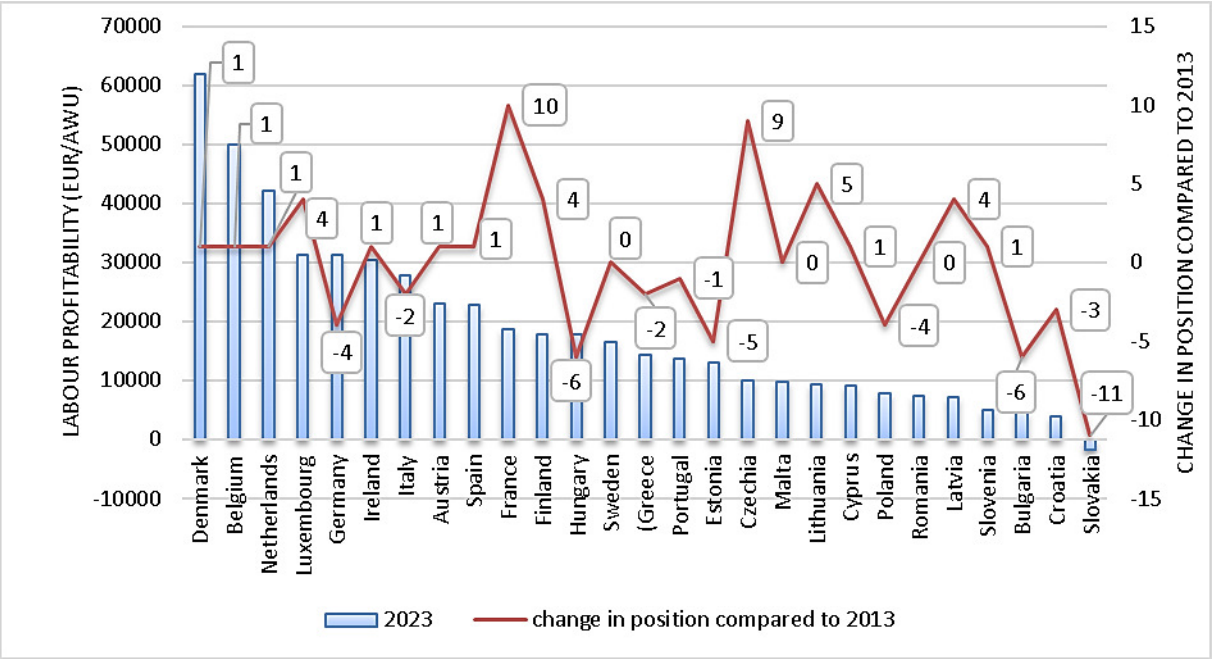


Figure 1. Labour profitability in farms in EU countries in 2023 (EUR/AWU) and changes in ranking compared to 2013.

Source: Own elaboration based on data from the Public Database FADN.

The average income of farms per 1 AWU in 2023 demonstrates pronounced polarisation in the profitability of agricultural labour within the European Union (Figure 1). The highest values of the analysed indicator were recorded in Denmark, Belgium, and the Netherlands (42-62 thousand EUR/AWU), that is, in countries with high production intensity. These countries have further improved their rankings. Significant advances were observed in France (+10), the Czech Republic (+9), and selected Baltic countries (the Czech Republic, Lithuania and Latvia). Simultaneously, Germany's decline in position (-4) indicates a relative decrease in the growth dynamics of work profitability compared to the leaders. A significant deterioration in the positions of Central and Eastern European countries (Hungary, Poland, Bulgaria, Croatia, and Estonia) reflects a slower rate of growth in work profitability, likely due to structural limitations.

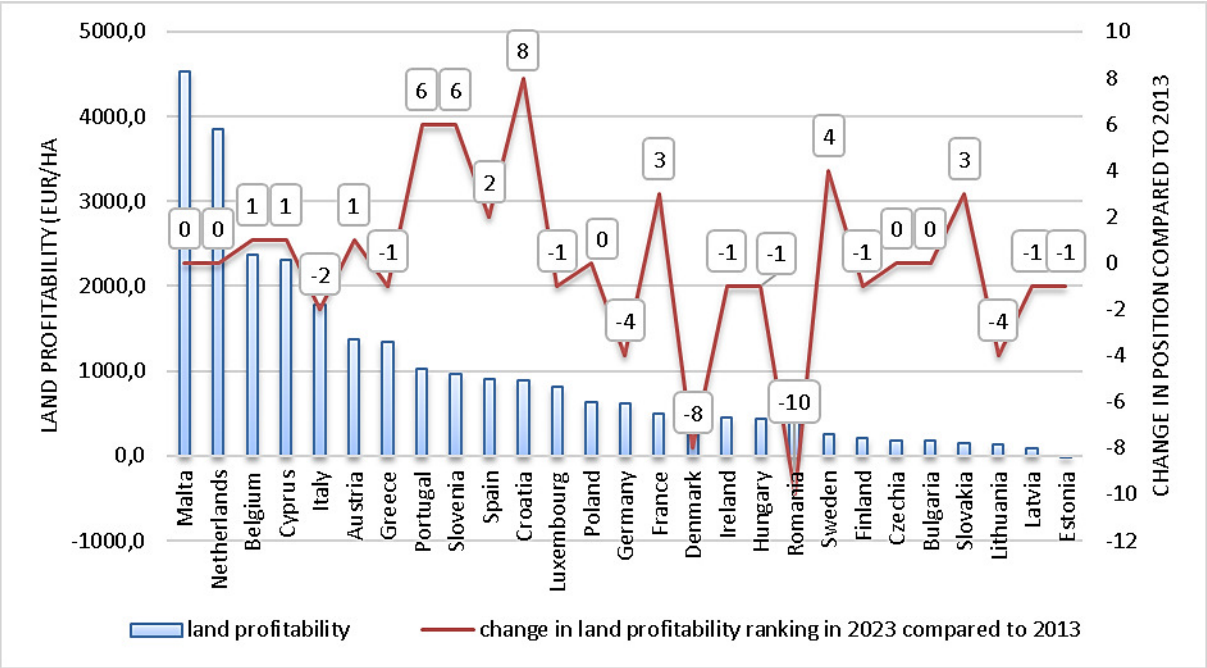
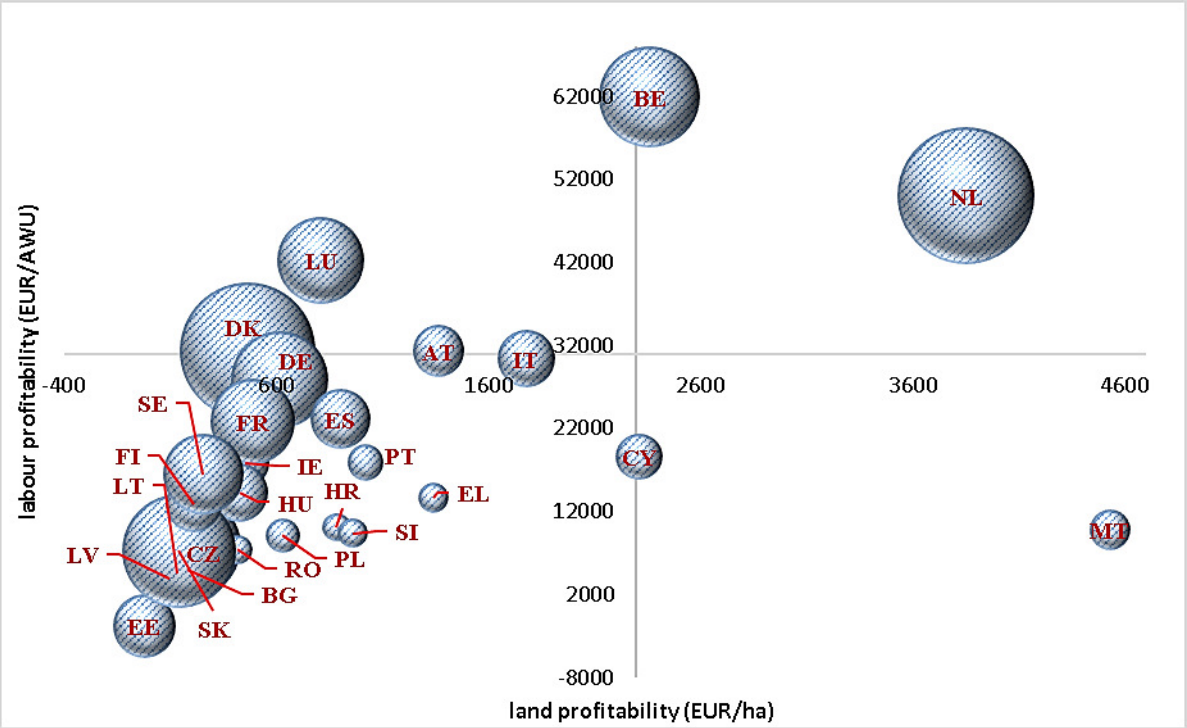


Figure 2. Land profitability in farms of EU member states in 2023 (EUR/ha) and change in profitability ranking position compared to 2013.

Source: Own elaboration based on data from the Public Database FADN.

Land profitability in 2023 showed strong variation between EU countries, from 4,531.9 EUR/ha in Malta and 3,855.4 EUR/ha in the Netherlands to 19.8 EUR/ha in Estonia (Figure 2). The coefficient of variation exceeded 112.9%, decreasing only slightly compared to 2013, when it was 118.5%. The top-ranking countries (Malta, the Netherlands, Belgium, and Cyprus) achieved values above 2,300 EUR/ha, which is 3–7 times higher than countries with average profitability (Poland – 631, Germany – 616, France – 492). Simultaneously, high land profitability does not guarantee an improvement in the relative position. Examples include Italy (down two places) and Denmark (down eight). The largest advances were recorded in Croatia (+8), Portugal, and Slovenia (+6), although their levels of land profitability remained moderate (886-1024 EUR/ha). The sharp drops in Romania (–10) and Germany (–4), as well as the negative land profitability in Estonia, confirm that in some countries, land is no longer a stable source of income. In the next stage of the research, a matrix was created showing the location of individual countries depending on the level of labour and land profitability. The size of the spheres indicates the average economic size of agricultural holdings, which is a measure of a farm's production potential and expresses the sum of the standard output values of all agricultural activities present on the farm (Floriańczyk et al., p. 11) (Figure 3). Based on the data presented, it can be seen that the Netherlands and Belgium combine large production potential with very high labor and land profitability. Malta has very high land profitability, low labour profitability, and relatively small farms. It is difficult to clearly infer the relationship between farm size and profitability. Land profitability does not increase linearly with the economic size of the farms. High values of this indicator are found in countries with economically strong farms (the Netherlands) and in countries with small farms but more

intensive production (Malta, Greece, and Cyprus). There are also countries with relatively large farms that are economically large but do not achieve high labour or land profitability (Czechia, Sweden). Countries with large farm potential and high labour productivity but low land profitability can also be identified (Luxembourg, Germany, Denmark). In addition, there is a group of countries with small average economic farm sizes, which are characterised by low profitability, such as Poland, Bulgaria, Romania, Slovenia, Hungary, Croatia, Lithuania and Latvia.



Note: Country symbols - (BE) Belgium, (BG) Bulgaria, (CZ) Czechia, (DK) Denmark, (DE) Germany, (EE) Estonia, (IE) Ireland, (EL) Greece, (ES) Spain, (FR) France, (HR) Croatia, (IT) Italy, (CY) Cyprus, (LV) Latvia, (LT) Lithuania, (LU) Luxembourg, (HU) Hungary, (MT) Malta, (NL) Netherlands, (AT) Austria, (PL) Poland, (PT) Portugal, (RO) Romania, (SI) Slovenia, (SK) Slovakia, (FI) Finland, (SE) Sweden.

Figure 3. Labour and land profitability in relation to the average economic size of farms in EU member states in 2023.

Source: Own elaboration based on data from the FADN Public Database.

The next stage of the research involved examining the inertia and determinants of labour profitability on EU farms using a dynamic GMM model. The estimation of the dynamic panel model with the one-step GMM estimator revealed significant inertia in farm labour profitability in European Union countries. The model coefficients, presented in Table 1, were estimated using standardised variables, which allowed the effects to be interpreted in terms of standard deviations. The J statistic (Hansen test) was 27 with 49 degrees of freedom ($p = 0.996$), not rejecting the null hypothesis of the validity of the over-identifying restrictions, which confirms the adequacy of the chosen instruments. The second-order residual autocorrelation test (AR(2)) was not significant (statistic = 1.60, $p = 0.109$), indicating the absence of a systematic higher-order autocorrelation and validating the model's structure. The Wald test for all parameters

showed high significance ($\chi^2 = 6068.6$, df = 7, $p < 0.001$), highlighting the overall fit of the model to the data. The overall configuration of the model, with the confirmed validity of the instruments and lack of higher-order residual autocorrelation, provides a solid basis for drawing conclusions about the determinants of agricultural income in the EU, with important implications for sector development strategies.

Table 1.
GMM dynamic model coefficients, $N_{obs} = 270$

Variable	Estimates (β)	SE (robust)	Statistic z	p-value
Labour profitability (EUR/AWU) with a one-year delay	0,30	0,09	3,47	**< 0,001**
Average farm size (ha/farm)	-0,30	0,10	-2,98	**0,003**
Economic size of the farm (thousand EUR)	0,25	0,14	1,82	0,068
Technical labour equipment (EUR/AWU)	0,19	0,10	1,84	0,066
Production intensity (EUR/ha)	0,14	0,09	1,60	0,109
Employees per 100 ha of UAA (AWU/100 ha)	-0,31	0,12	-2,68	**0,007**
Investment subsidies per 1 ha of UAA (EUR/ha)	0,13	0,09	1,44	0,150

Note: SE – standard error; Coefficients were estimated using standardised variables (z-score), which means that the estimate reflects the change in job income by one standard deviation when the given explanatory variable increases by one standard deviation. A total of 56 instruments were used (36 linear from differences, 8 linear from levels, 6 controls from differences, and 6 controls from levels).

Source: Own elaboration based on the panel data.

The profitability of delayed labour exhibited a robust, positive, and highly significant correlation with current profitability ($\beta = 0.30$, $p < 0.001$), indicating clear inertia within the European Union's agricultural sector. Higher profitability in the preceding period contributes to an increase in profitability in the current period. This finding suggests that income advantages in EU agriculture are persistent and challenging to offset rapidly, thereby limiting the pace of convergence between countries and reinforcing the existing disparities. Structural factors also play a significant role. The area of agricultural land per farm demonstrated a significant negative correlation with labour profitability ($\beta = –0.30$; $p = 0.003$), implying that merely expanding the land area without appropriate technological and organizational adjustments in production may result in diminishing returns to scale and reduced labour profitability. The positive, albeit only marginally statistically significant, effect of farm economic size ($\beta = 0.25$; $p = 0.068$) and technical equipment of labour ($\beta = 0.19$; $p = 0.066$) suggest that improvements in labour profitability are primarily associated with capital-intensive modernisation and the enhancement of production potential, rather than simply increasing land or labour resources. Production intensity was not significant ($\beta = 0.14$, $p = 0.109$), which may reflect varied effects depending on farm type and national conditions. The number of employees per 100 hectares of agricultural land had a significant negative impact ($\beta = -0.31$, $p = 0.007$), indicating that excessive intensification of employment per unit of land reduces the profitability. Investment subsidies per hectare did not exhibit a significant correlation ($\beta = 0.13$, $p = 0.150$), suggesting that they did not directly translate into increased labour profitability, and their effects may be indirect or capitalised in other production factors, such as land.

4. Discussion

The results obtained confirm that the labour profitability of farms in the European Union is characterised by lasting and deepening polarisation between countries, which is consistent with the findings of other authors (Skarżyńska, Grochowska, 2021, Herman, 2025). The literature also provides evidence of significant disparities in income levels not only between the groups of old and new member states but also within the "old" EU (Czyżewski et al., 2018, p. 69; Skarżyńska, Grochowska, 2021). This study also confirmed these observations. Kryszak's (2020) research shows that while the growth rates of income between countries in the EU are converging, there is no convergence in the levels of income. The author states that the CAP has succeeded in increasing agricultural income in individual countries and reducing the gap between the income of farmers and non-farmers. However, further narrowing of the agricultural income gap between countries is a significant challenge. This is also highlighted by Finger and El Benni (2021).

Data from 2023 show that countries with high capital intensity, advanced technology, and large-scale production, such as Denmark, the Netherlands, and Belgium, not only maintain their income advantage but also strengthen it. The observed upward mobility in the rankings of France, the Czech Republic, and the Baltic states indicates that improvements in labour profitability are possible beyond the "old" EU countries but require an appropriate combination of conditions. In particular, the Czech Republic case suggests that a larger average farm size can foster growth in labour profitability, although it does not guarantee high levels of profitability (Balmann et al., 2016).

The analysis of the relationship between labour profitability, land profitability, and the economic size of farms reveals a lack of simple linear dependencies. Countries such as the Netherlands and Belgium confirm that combining large-scale production with high intensity and technological advancement enables the simultaneous achievement of high labor and land profitability. Simultaneously, Malta, Greece, and Cyprus show that relatively high land profitability can also occur in systems based on small farms, provided they are characterised by intensive, often specialised production. Skarżyńska and Grochowska (2021, p. 130) argue that the high land profitability of Maltese farms stems from high land productivity and moderately high production costs compared to other countries.

The results confirm that current labour income levels are largely determined by their values in previous periods. The positive, albeit marginally statistically significant, influence of a farm's economic size and the level of technical equipment suggests that improvements in labour profitability are more closely related to capital-intensive modernisation than to the simple expansion of land resources. This aligns with research showing that the competitiveness and income of EU farms grow mainly where economic scale is combined with technological progress and better access to capital (Kusz et al., 2022; Herman, 2025). In light of Barczak's

(2024, p. 93) results, which point to the dominant role of farm specialisation in shaping agricultural incomes, further research aimed at a deeper analysis of the mechanisms differentiating profitability within individual farm types is warranted. The validity of this approach is also supported by the findings of Kusz et al. (2022, pp. 9-15), who demonstrated the varied impact of individual determinants on the incomes of farms of different economic sizes. The conducted research showed a negative impact of the level of labour input intensity relative to UAA on the profitability of labour. This highlights the need to support structural transformations, especially in countries with unfavourable land structures and excessive employment, as frequently highlighted in the literature (Peng et al., 2024; Kołodziejczak, 2025).

5. Conclusion

The research results showed polarisation of labour and land profitability in EU agriculture, as well as a lack of simple correlations between the economic size of farms and their income. The use of the dynamic GMM model revealed significant inertia in labour income, meaning that income advantages are persistent, and changes occur gradually. The positive impact of economic size and technical equipment of labour, together with the negative effect of farm area expansion and excessive labour intensity, indicates that increases in labour income stem primarily from capital-intensive modernisation and productivity improvements rather than simply from scaling up resources.

The results suggest that further strengthening of labour income in EU agriculture requires moving away from a uniform approach focused on supporting the production scale. Selective support for modernisation processes, especially investments in technical capital and technologies that enhance labour productivity, should be of key importance, particularly in countries with persistently low income levels. The negative impact of excessive farm employment highlights the need for policies that support structural changes and modernisation. Improving income in EU agriculture does not depend on a single factor but on a coherent combination of diverse conditions. This should serve as a reference point for further research and for designing future CAP reforms. Further studies should also focus on analysing income and seeking its growth determinants with respect to different farm types. Additionally, it is worthwhile to examine the determinants of income growth separately for the groups of old and new member states.

References

1. *Agri-food Data Portal* (2025). Retrieved from: https://agridata.ec.europa.eu/extensions/IndicatorsSectorial/AgriculturalEntrepreneurialIncome.html, 01.12.2025.
2. Andrejovská, A., Glova, J. (2022). Sustainability of farms in EU countries in the context of income indicators: Regression analysis based on a new classification. *Agriculture*, *12*, 1884. https://doi.org/10.3390/agriculture12111884
3. Balmann, A., Braun, J., Happe, K., Kellermann, K. (2016). *Structural change in agriculture*. IAMO Discussion Paper.
4. Barczak, W. (2024), Variability of profitability of commercial farms in the European Union. *Problems of Agricultural Economics*, *381*(4), 79-95. https://doi.org/10.30858/zer/190895
5. Blundell, R., Bond, S. (1998), Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*(1), 115-143. https://doi.org/10.1016/S0304-4076(98)00009-8
6. European Commission (2023). *Explore farm incomes in the EU. Farm economics overview based on 2021 FADN data*. Analytical Brief, N°3, November 2023.
7. European Parliament and Council (2021). Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021 establishing rules on support for strategic plans to be drawn up by Member States under the common agricultural policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and by the European Agricultural Fund for Rural Development (EAFRD) and repealing Regulations (EU). No 1305/2013 and (EU) No 1307/2013.
8. Finger, R., El Benni, N. (2021). Farm income in European agriculture: new perspectives on measurement and implications for policy evaluation. *European Review of Agricultural Economics*, *48*(2), 253-265. https://doi.org/10.1093/erae/jbab011
9. Floriańczyk, Z., Osuch, D., Płonka, R. (2024). *Wyniki Standardowe 2023 uzyskane przez gospodarstwa rolne uczestniczące w Polskim FADN. Część I. Wyniki Standardowe.* Warszawa: IERiGŻ-PIB.
10. Fritsch, M., Pua, A., Schnurbus, J. (2025). *pdynmc: Moment Condition Based Estimation of Linear Dynamic Panel Data Models*. Retrieved from: https://cran.r-project.org/package=pdynmc, 14.12.2025.
11. Herman, E. (2025). Changes and challenges in EU agricultural holdings and their impact on rural development. *Land*, *14*, 1080. https://doi.org/10.3390/land14051080
12. Hwang, J., Kang, B., Lee, S. (2022). A doubly corrected robust variance estimator for linear GMM. *Journal of Econometrics*, *229*(2), 276-298. https://doi.org/10.1016/j.jeconom.2021.02.005

13. Kołodziejczak, W. (2025). Labour productivity and employment in agriculture in the European Union. *European Research Studies Journal*, *28*(1), 991-1009. https://doi.org/10.35808/ersj/3949
14. Kryszak, Ł. (2018). Profit efficiency in EU FADN farms under different types of agriculture. *Zeszyty Naukowe SGGW W Warszawie - Problemy Rolnictwa Światowego*, *18*(3), 196-207. https://doi.org/10.22630/PRS.2018.18.3.78
15. Kryszak, Ł. (2020). Income convergence in the agricultural sector in the context of the European Union's Common Agricultural Policy. *Annals PAAAE*, *22*(3), 140-152. https://doi.org/10.5604/01.3001.0014.3625
16. Kryszak, Ł., Matuszczak, A. (2019). Determinants of farm income in the European Union in new and old member states. A regional study. *Annals PAAAE*, *21*(3), 200-211. https://doi.org/10.5604/01.3001.0013.3420
17. Kusz, B., Kusz, D., Bąk, I., Oesterreich, M., Wicki, L., Zimon, G. (2022). Selected economic determinants of labor profitability in family farms in Poland in relation to economic size. *Sustainability*, *14*, 13819. https://doi.org/10.3390/su142113819
18. Niezgoda, D. (2009). Uwarunkowania rentowności gospodarstw rolnych zróżnicowanych pod względem wielkości ekonomicznej. *Roczniki Nauk Rolniczych*, *Seria G, 96(4),* 155-165.
19. Peng, B., Melnikiene, R., Balezentis, T., Agnusdei, J.P. (2024). Structural dynamics and sustainability in the agricultural sector: the case of the European Union. *Agricultural and Food Economics*, *12*, 31. https://doi.org/10.1186/s40100-024-00321-x
20. Poczta, W., Średzińska, J., Mrówczyńska-Kamińska, A. (2009). Determinanty dochodów gospodarstw rolnych Unii Europejskiej według typów rolniczych. *Zeszyty Naukowe SGGW, Ekonomika i Organizacja Gospodarki Żywnościowej*, *76*, 17-30.
21. Roodman, D. (2009). A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics*, *71*(1), 135-158. https://doi.org/10.1111/j.1468-0084.2008.00542.x
22. Skarżyńska, A., Grochowska, R. (2021). Determinants of farm income diversification among the European Union countries. *Problems of Agricultural Economics*, *2*(367), 119-134. https://doi.org/10.30858/zer/134169
23. Smędzik-Ambroży, K., Sapa, A. (2020). The impact of agricultural policy on income diversity among farmers in the European Union in 2005-2017. *Social Inequalities and Economic Growth*, *63*(3), 195-209. http://dx.doi.org/10.15584/nsawg.2020.3.9
24. Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, *126*(1), 25-51. https://doi.org/10.1016/j.jeconom.2004.02.005

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HUMAN CAPITAL AND RESILIENCE – THE RELATIONSHIP IN THE ERA OF MEDIA AND ARTIFICIAL INTELLIGENCE

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Purpose: The aim of the article is to identify the synergy between human capital and resilience under the influence of media and artificial intelligence.
Methodology: The article employs critical analysis of current literature in media and communication studies as well as management and quality sciences. Selected examples illustrating the importance of human capital and resilience in management are presented at the end of the discussion.
Findings/Conclusions: The future of work, communication, and functioning in the information society depends on the synergy between technology and humans. In the face of information overload and the growing role of algorithms, it becomes necessary to develop media competencies, build psychological resilience, and create environments in which technology strengthens rather than weakens the potential of individuals and organizations.
Research limitations: The synergy between human capital and resilience is a theoretical construct that remains relatively new in management sciences. The analysis presented here is based on a relatively limited amount of empirical data and source literature. The analysis was conducted on the basis of a relatively limited amount of empirical data and source literature.
Practical implications: In organizational practice, there is a growing need to develop employees' digital and psychosocial competencies, as functioning effectively in an environment saturated with content and algorithms requires technical knowledge and mental resilience. These are elements of HR strategies, supported by a culture of learning and conscious knowledge management. Organizations that combine technological investments with human capital development more efficiently implement AI-based solutions and better manage information overload, creating an environment conducive to collaboration and adapting to change.
Social implications: The development of digital media and artificial intelligence deepens inequalities in access to digital skills. The intensity and emotionality of media messages impact the mental well-being of audiences, making media education and strengthening mental resilience essential for informed participation in public life.
Originality: This article explores the crucial connection between HR and mental resilience under the influence of media and artificial intelligence. This is a crucial aspect in the era of human resources management in the AI and media era.
Keywords: HR, resilience, media, AI.
Category of the paper: viewpoint.

1. Introduction

The progressing digitalization of social life and the dynamic development of artificial intelligence are leading to profound changes in the ways individuals, organizations, and institutions function. In conditions of intense information flow, increasing process automation, and the dominance of digital media, human capital becomes particularly important — understood as a resource of knowledge, skills, social competencies, and mental health that determines individuals' ability to participate in social and economic life. At the same time, this environment generates new adaptive burdens that require well-developed resilience — the ability to maintain psychological balance, respond flexibly to change, and regenerate under conditions of uncertainty and informational pressure.

In the academic literature, it is increasingly emphasized that human capital and resilience are not independent categories. On the contrary, they form a system of interconnected resources that determine the ability of individuals and organizations to function effectively in a highly technological environment. Despite the growing interest in digital competencies, psychological well-being, and the impact of artificial intelligence on work and education, the relationship between human capital and resilience remains insufficiently described, particularly in the context of digital media and algorithmic information systems.

The aim of this article is to identify the synergy between human capital and resilience under the influence of media and artificial intelligence.

2. Human Capital and Resilience as Factors Determining Media Reception

Human beings are social creatures (Aristotle, 2003). Their views and perceptions are shaped by the information they encounter in everyday life. Therefore, the origin, credibility, and form of communication are crucial. Cognitive limitations resulting from overstimulation contribute to the uncritical acceptance and spread of information. For this reason, the competencies required of people in the 21st century include open-mindedness, resistance to misleading information, and a drive to seek truth. The ability to cope with difficulties and failures, as well as the capacity to adapt, are key to healthy functioning.

It is also important to be aware of the changes occurring in the environment, which make the world increasingly characterized by VUCA conditions (Taskan et al., 2022). This translates into dynamic socio-technological transformations of the media and shifts in how the resilience of the knowledge-seeking *homo informaticus* is assessed (Magala, 2017). Information publications are expected to emphasize cognitive functions and strive for maximum objectivity (Sobczak, 2016). The data available to audiences are diverse, and the contexts of their reception

vary widely; therefore, human capital competencies and resilience are essential for understanding and evaluating the credibility of media messages (Waszkiewicz-Raviv, 2025).

Media, as channels of content distribution, should serve as spaces of public ethics and values. However, the contemporary media environment is characterized by high dynamism, an excess of information, and the growing presence of algorithmic content-selection systems. In such conditions, media reception is no longer a neutral or uniform process but becomes highly differentiated, depending on individuals' resources and adaptive capacities an excess of information and the growing presence of algorithmic content-selection systems. In such conditions, media reception ceases to be a neutral and uniform process and becomes a highly differentiated phenomenon, dependent on an individual's resources and adaptive capacities. Researchers suggest that several interconnected factors contribute to information overload: characteristics of the person receiving the information, the nature and complexity of the information itself, and social and technological organizational processes (Arnold et al., 2023). In the literature, it is increasingly emphasized that two factors play a key role in this process: human capital — encompassing knowledge, competencies, and cognitive skills — and resilience, understood as the ability to cope with informational pressure, stress, and uncertainty.

Human capital determines how individuals interpret, select, and evaluate media information. People with high levels of digital and informational competencies are more likely to critically analyze content, recognize manipulation, and use media consciously. At the same time, the growing complexity of the information environment — including content personalization, disinformation, and automated messaging — means that these competencies become not only cognitive resources but also prerequisites for participation in social life. Moreover, generational differences influence how content is received. Many aspects of communication are transforming, shifting, or evolving so rapidly that it becomes difficult to continuously track predictable trends (Woźniak-Kasperek, 2018). Social media are a prime example of the rapid spread of temporally unstable information. Meanwhile, the instability of communication patterns is reflected in ongoing debates about generational shifts among media users, who are continually assigned new labels.

The second key factor is resilience, which plays a protective role in the context of media reception. Excessive information, comparison pressure generated by social media, opinion polarization, and exposure to stress-inducing content can lead to cognitive overload, reduced well-being, and perceptual distortions. As a result, a sense of overwhelm escalates, producing helplessness in the face of the sheer volume of incoming stimuli (Waszkiewicz-Raviv, 2025). Resilience — as the ability to maintain psychological balance and respond flexibly to stimuli — enables individuals to use media more consciously, selectively, and robustly. A high level of resilience supports cognitive autonomy, reduces susceptibility to manipulation, and enhances the ability to process information constructively.

In an era of excess and hyperbolization of media messages, form increasingly dominates content. Ordinary information is elevated to the status of "breakthroughs", and absolutizing quantifiers in headlines create an illusion of exceptional events and a state of permanent crisis uantifiers in headlines create an illusion of exceptional events and a state of permanent crisis. As a result, contemporary media do not merely describe reality but exaggerate it, reinforcing a crisis of representation (Otondo et al., 2008). The excess and "overstatement" of messages, the focus of senders on effects, and the overuse of persuasion lead to a disproportion between form and content (McQuail, 2012). The spread of disinformation and the generation of fake news have become key drivers of confusion in the media environment. The reception and interpretation of content in terms of accuracy, truthfulness, reliability, and relevance require distance from the material being consumed, the ability to seek diverse sources of information, critical-thinking skills, and experience in recognizing credible content.

This confirms that human capital and resilience do not function in isolation but form a system of mutually reinforcing resources. Informational and digital competencies increase the ability to cope with the demands of the media environment, while resilience supports the effective use of these competencies under conditions of pressure and uncertainty. As a result, media reception becomes a process dependent not only on the level of knowledge and skills but also on an individual's emotional and adaptive capacities.

In response, we observe an omnipresent mediasphere and the phenomenon of "time hacking by the media" (Nagy et al., 2020). In discussions about media competencies, there is an increasing emphasis not only on educating audiences and regulating the practices of content creators but also on genuine concern for users themselves. Researchers and practitioners are shifting their attention toward digital hygiene, the psychological resilience of audiences, and their emotional well-being. Alongside diagnosing communication threats such as disinformation, algorithmic dominance, FOMO, or information overload, there is growing interest in seeking solutions and reflecting on the affective dimension of the contemporary mediasphere. As a result of these developments, the field of positive media psychology has emerged (Raney et al., 2021), bringing with it calls for research on the resilience of communication participants.

Introducing this perspective allows for a better understanding of why, in the era of digital media and artificial intelligence, audiences differ not only in how they interpret content but also in their susceptibility to disinformation, information stress, or polarization. Media information has a cognitive and axiological dimension, as it concerns important social values, as well as an affective dimension, since it often describes and evokes emotions. Consequently, it influences the well-being of the audience and "touches" their psychological resilience (Sobczak, 2016).

The analysis of human capital and resilience as factors determining media reception constitutes an important step toward explaining the mechanisms of how individuals function within a complex information ecosystem within a complex information ecosystem.

Contemporary media messages increasingly have a negative impact on audience well-being. In this context, the importance of research on user resilience and their ability to cope with informational pressure is growing. The very nature of media information — intense and emotional — does not support the development of psychological resilience, which makes concern for the audience one of the key challenges of modern communication. As a result, competencies associated with human capital become not only an educational postulate but also a necessity arising from the realities of contemporary communication.

3. Human Capital and Resilience in the Age of Artificial Intelligence

In the era of rapid development of artificial intelligence, human capital is no longer understood solely as a set of technical skills, knowledge, and experience. It increasingly encompasses adaptive abilities, psychological resilience, and the capacity to function in an environment of permanent change. AI not only redefines models of work and communication but also presents new media users with challenges related to information overload, algorithmic pressure, and the growing intensity of messages. Therefore, at the organizational level, investments in human capital — through knowledge development, expanding and acquiring new professional competencies, and monitoring changes resulting from modern technologies, including artificial intelligence — become essential.

Under these conditions, resilience becomes a key element of human capital — a resource that enables individuals to maintain cognitive autonomy, critically process content, and protect their emotional well-being. It is precisely the combination of competencies and psychological resilience that determines how audiences cope with information overload, disinformation, or algorithmic content selection. Consequently, human capital and resilience not only shape the way individuals use media but also determine their ability to function effectively in a society dominated by AI technologies.

The improvement and development of modern organizations take place on multiple levels, including technological, economic, and organizational. The human factor is an indispensable means of increasing organizational effectiveness through the development of employees' knowledge and qualifications. Investments in people — enhancing their abilities and competencies — determine the competitiveness of the contemporary economy and have a fundamental impact on further development. Organizations, as employee collectives, are created by individuals who perform various functions within the hierarchy of job positions (Gitling, 2024).

As a result of the development of modern technologies, a high level of education and the acquisition of new skills may no longer be sufficient to protect individuals from job automation. According to Ford (2017), among the forces that may shape the future, modern technology

stands out due to its rapid pace of change. Although various forms of automation have accompanied us for decades, it was only in the 21st century — with the emergence of generative artificial intelligence — that a broad debate on the future of work began. The latest *EY AI Anxiety in Business* report illustrates the scale of these concerns: 75% of respondents believe that some professions will disappear due to AI, 66% fear losing their own jobs, 72% expect wage reductions, and 67% believe that a lack of AI-related competencies will limit their opportunities for promotion.

Until recently, artificial intelligence (AI) was promoted as a tool for reducing costs and improving service quality, productivity, and organizational efficiency, creating new types of machine configurations and playing an increasingly important role in modern organizations (Holmström, 2022). The latest advances in AI open additional possibilities for work automation (Klimaszewski, 2024). Automation has long been a part of the contemporary economy, but the development of artificial intelligence has significantly accelerated the debate on the future of work. Data from the *Labour Market Barometer* (2023, 2025) show that the proportion of people perceiving automation as a real threat is increasing. Some employees would be willing to accept automation if it were accompanied by opportunities for professional development or a change of position. At the same time, companies recognize the potential of automation and AI but encounter implementation barriers.

In this context, investments in competency development become crucial. Employees declare a willingness to learn — 45% want to upgrade their qualifications, 35% aim to develop technological skills, and one in four is considering changing their position or industry. Companies are also increasing organizational flexibility: 56% use flexible forms of work, although employees perceive them ambivalently — as both an opportunity for development and a potential threat to job stability. The sense of threat increases with age. The development of artificial intelligence is redefining the meaning of human capital, shifting the emphasis from traditional qualifications to cognitive, digital, and adaptive competencies. In a work environment shaped by algorithms, automation, and information overload, not only knowledge but also the ability to respond flexibly to change, protect one's well-being, and critically process content becomes essential.

Resilience becomes an integral element of human capital, conditioning the effective use of technology and the conscious reception of media. As a result, it is the synergy between competencies and resilience that today determines individuals' ability to function efficiently in a society dominated by artificial intelligence. The concept of resilience is understood as a continuous process that enables the mutual strengthening of individuals, subsystems, and the adaptive capacities of the community, which in turn is able to establish and enforce a positive trajectory of action (Norris et al., 2008). In this perspective, social mechanisms such as solidarity, support, and cohesion allow for the development and maintenance of the system's necessary flexibility, which in turn enables the effective use of its material, social, and cultural

resources in the face of crisis (Walsh-Dilley, Wolford, 2015) or the changes brought about by the implementation of AI in organizations.

Given the increasing pace of change, it becomes natural to seek solutions that stimulate employee innovation. It is investments in human capital — knowledge, experience, and competencies — that determine an organization's competitive advantage today. Since intangible resources generate new value, knowledge management and knowledge sharing become crucial. Finding a balance between fully leveraging technological capabilities and consistently investing in human capital — so that work provides satisfaction, stability, and well-being — is now one of the most significant challenges facing the contemporary economy and society.

To conclude these reflections, it is worth looking at examples of organizations undergoing digital transformation. They achieve the best results when they combine technological development with investments in human capital and the strengthening of employee resilience. Different approaches to competency assessment, process automation, or talent management lead to one conclusion: technology becomes effective only when supported by a flexible and learning-oriented human capital.

The Human Capital Balance, conducted by the Polish Agency for Enterprise Development, provides comprehensive data on employee competencies and the degree of digital technology adoption in Polish enterprises. Effective implementation of artificial intelligence is closely dependent on the level of human capital, which includes both technical competencies and readiness to learn and adapt. The study reveals that organizations characterized by greater flexibility and a culture of learning — and thus higher organizational resilience — achieve better results in implementing new technologies characterized by greater flexibility and a culture of learning — and thus higher organizational resilience — achieve better results in implementing new technologies. Similar conclusions emerge from studies conducted by PARP's SME Development Center on the readiness of Polish companies to use artificial intelligence. Significant differences in digital readiness can be observed between enterprises, resulting not only from technical resources but also from employees' adaptive competencies. Resilience turns out to be a factor differentiating both the pace and quality of implementation.

A 2026 Forrester Consulting study commissioned by SAP illustrates the global context of AI adoption in HR. This example allows Polish experiences to be compared with international trends, showing that differences in human capital and resilience levels influence the speed of technological adaptation. Organizations with high digital resilience implement AI faster and more effectively.

A case study on measuring human capital using the HR Scorecard tool (Samul, 2011) shows that assessing human capital requires considering both material and intangible resources, such as competencies, knowledge, organizational culture, and employee engagement. The analysis reveals methodological difficulties in measuring psychosocial resources, including resilience, which indicates the need to develop diagnostic tools.

Effective implementation of artificial intelligence and functioning in a digital environment require synergy between technical competencies and psychosocial resources. Resilience proves to be a key element of human capital, determining the ability to adapt, learn, and use technology effectively.

4. Summary

The analysis confirms that in conditions of rapid digitalization, the dominance of algorithmic media, and the growing presence of artificial intelligence, the key challenge is not only technological development but also the conscious strengthening of human resources through the cultivation of resilience. Human capital — encompassing knowledge, digital competencies, cognitive skills, mental health, and experience — together with resilience, understood as the ability to adapt, regulate emotions, and maintain balance under informational pressure, forms an inseparable system that determines how individuals and organizations function in the media environment of informational pressure, form an inseparable system that determines how individuals and organizations function within the media environment. The contemporary mediasphere — characterized by content overload, hyperbolization, algorithmic selection, and dynamic variability — is not a neutral space. As noted in the text, *contemporary media messages increasingly have a negative impact on audience well-being*, which makes informational competencies and psychological resilience essential resources for the conscious reception of communication. Resilience plays a protective role here — it helps maintain cognitive autonomy, reduces susceptibility to manipulation, and enables constructive information processing even under conditions of overload and polarization.

In light of the analyses presented, the future of work, communication, and participation in social life depends on the synergy between technology and humans. Artificial intelligence can support development only when accompanied by the conscious cultivation of competencies, care for media users' well-being, and the strengthening of resilience to information overload. In the context of digitalization, media dominance, and artificial intelligence, human capital and resilience form a system of mutually interconnected resources that jointly determine individuals' ability to function within a complex information ecosystem. Cognitive, digital, and informational competencies enhance an individual's resistance to information overload, while resilience enables the effective use of these competencies under conditions of pressure, uncertainty, and excessive stimuli.

Human capital determines how individuals receive, select, and interpret media content. People with high levels of informational competencies are more inclined to critically analyze messages, recognize manipulation, and use media consciously. At the same time, the growing

complexity of the information environment means that these competencies become not only cognitive resources but also prerequisites for participation in social life.

Resilience plays a protective role against information overload, stress, and polarization. Psychological resilience enables individuals to maintain cognitive autonomy, reduces susceptibility to manipulation, and supports constructive information processing. As a result, the audience is able to selectively filter content, maintain emotional balance, and make decisions based on reflection rather than impulses triggered by algorithmically amplified stimuli.

In the era of artificial intelligence, this relationship becomes even stronger. Human capital is no longer understood solely as a set of technical competencies but also includes adaptive abilities and psychological resilience. Resilience thus becomes an integral element of human capital, determining individuals' ability to cope with job automation, algorithmic pressure, and the growing intensity of digital communication. The synergy of these two resources determines the ability of individuals to function effectively in a society dominated by AI technologies. Technical and informational competencies without psychological resilience are insufficient, just as resilience without the ability to critically process information does not protect against algorithmic manipulation. Only their coexistence enables conscious, autonomous, and safe functioning in the digital environment.

As a result, human capital and resilience should be viewed as interdependent elements of a single adaptive system that enables individuals to cope with information overload, disinformation, comparison pressure, and the challenges arising from the automation and algorithmization of social life. The mutual reinforcement of these resources forms the foundation of psychological well-being, cognitive autonomy, and the ability to learn in conditions of constant technological change.

In concluding this analysis, it is worth reflecting on research limitations and directions for future studies. The relationship between human capital, resilience, and individual functioning in the environment of digital media and artificial intelligence remains insufficiently described in the literature. The lack of clear theoretical models limits the ability to systematically study the synergy between cognitive, digital, and emotional competencies. A major barrier is the high dynamism of the media environment — information overload and the growing presence of algorithmic content-selection systems. This variability makes longitudinal research and the creation of stable measurement tools difficult. Moreover, the limited number of empirical studies on the impact of algorithms, personalization, and disinformation on psychological well-being — including information stress and susceptibility to manipulation — represents a significant research gap.

Therefore, it is important to consider future research directions. There is a need to develop integrated theoretical models describing the interaction between human capital and resilience in the digital environment. Empirical studies are required to examine the impact of algorithmic content selection, personalization, and disinformation on audience well-being and their ability

to critically process information. Another important area is the development of diagnostic tools that enable the measurement of digital resilience, resistance to information overload, and susceptibility to manipulation. Comparative studies involving different generational and professional groups — especially in the context of adaptation to technological change and job automation — also constitute a crucial research direction.

The final issue is the analysis of organizational resilience in the processes of implementing artificial intelligence, due to the need for research on knowledge-management practices, organizational culture, and strategies for supporting employees during technological transformation.

References

1. Arystoteles (2003). Polityka. In: *Dzieła wszystkie*, *I*. Warszawa: PWN.
2. Goldschmitt, A.M.M., Rigotti, T. (2023). Dealing with information overload: A comprehensive review. *Frontiers in Psychology*. *14*, https://doi.org/10.3389/fpsyg.2023.1122200
3. Ford, M. (2017). *Świt robotów. Czy sztuczna inteligencja pozbawi nas pracy?* Warszawa: cdp.pl
4. Gitling, M. (2024). Kapitał ludzki w organizacji a rozwój nowoczesnych technologii. *Polityka i Społeczeństwo*, *3*(22), https://doi.org/10.15584/polispol.2024.3.6
5. Holmstrőm, J. (2022). From AI to digital transformation: The AI readiness framework. *Business Horizons, 65*(3), ISSN 0007-6813, https://doi.org/10.1016/j.bushor.2021.03.006
6. Klimaszewski, J. (2024). Czy roboty nas zastąpią, czy do nas dołączą? *Obserwator Finansowy*.
7. Magala, S. (2017). Rozmowy czasem kontrolowane (czyli jakie media są na czasie?). *Media – Biznes – Kultura. Dziennikarstwo i komunikacja społeczna*, *2*(3), 9-16. https://doi.org/10.4467/25442554.MBK.17.014.8306
8. McQuail, D. (2012). *Teoria komunikowania masowego*. Warszawa: PWN.
9. Nagy, P., Eschrich, J., Finn, E. (2020). Time hacking: How technologies mediate time. *Information Communication and Society*, *24*(15), 2229-2243. https://doi.org/10.1080/1369118X.2020.1758743
10. Norris F.H., Stevens S.P., Pfefferbaum B., Wyche K.F., Pfefferbaum R.L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, *41*(1-2),127-50.
11. Otondo, R.F., Van Scotter, J.R., Allen, D.G., Palvia, P. (2008). The complexity of richness: Media, message, and communication outcomes. *Information & Management*, *45*(1), 21-30, https://doi.org/10.1016/j.im.2007.09.003

12. Raney, A.A., Janicke-Bowles, S.H., Oliver, M.B., Dale, K.R. (2021). *Introduction to positive media psychology*. Routledge/Taylor & Francis Group.
13. Samul, J. (2011). Pomiar zarządzania kapitałem ludzkim z wykorzystaniem HR Scorecard – studium przypadku. In: B. Urbaniak (Eds.), *Efektywność zarządzania zasobami ludzkimi* (pp. 61-78). https://doi.org/10.18778/7525-546-1.05
14. Sobczak, B. (2016). News telewizyjny jako akt retoryczny. *Acta Universitatis Lodziensis. Folia Litteraria Polonica*, *31*(1), 97-112.
15. Walsh-Dilley, M., Wolford, W. (2015). (Un)Defining resilience: subjective understandings of 'resilience' from the field, *Resilience*, *3*(3), 173-182.
16. Waszkiewicz-Raviv, A. (2025). Rezyliencja i poczucie koherencji odbiorców informacji w ujęciu medioznawczym. Zagadnienia Informacji Naukowej. *Studia Informacyjne, 61*(1), 25-40. DOI:10.36702/zin2025.01.02
17. Woźniak-Kasperek, J. (2018). Przeciążenie informacyjne – wprowadzenie do tematu. Fides. *Biuletyn Bibliotek Kościelnych*, *24*(2), 77-92.

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ACADEMIC ETHOS AND DIGNITY-BASED MANAGEMENT – AN ATTEMPT TO IDENTIFY THE IMPORTANCE OF VALUES IN HIGHER EDUCATION

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Purpose: The aim of this article is to assess the significance of the values that shape the contemporary academic ethos in the light of dignity-based management practices. To achieve this aim, the following research questions were posed: What is the significance of the values that shape the academic ethos for higher education institution employees? To what extent are dignity-based management practices implemented in higher education institutions?
Design/methodology/approach: This study is theoretical and empirical. The theoretical part was developed on the basis of a critical review of the literature on the subject, while the empirical part was based on a survey (CAWI technique) conducted among 100 academic teachers. The research sample was selected purposefully.
Findings: The analysis of the results obtained indicated a diversity of responses depending on the title/academic degree of the surveyed university employees, both in terms of the values included in the ethos and in terms of the perceived level of implementation of dignity-based management practices; It also revealed a clear dissonance between the 'demand' for the values included in the ethos and the level of implementation of dignity-based management practices as perceived by the surveyed employees.
Research limitations/implications: The limitations of the study include the lack of representativeness of the sample and the research method used. Despite its many advantages, surveying does not allow for a deeper analysis of the broader context of the issues described. However, the opinions obtained should be considered valuable, as the structure of the respondents in terms of their academic degree / title (or lack thereof) was consistent with the structure of academic teachers employed in higher education institutions in Poland, which allowed for certain generalisations to be made.
Practical implications: The conclusions from the conducted research indicate that it is reasonable to create appropriate organisational conditions in higher education institutions, taking into account respect for the dignity of employees, permanently embedded in the mechanisms of the functioning of universities as their organisational resource. These conditions would contribute to strengthening the ethical attitudes and behaviour of academic staff.
Originality/value: A review of the literature on the subject shows that the concept of dignity-based management has not been explored in the context of the crisis of ethos in higher education; the attempt undertaken in this study therefore fills an existing research gap.

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Category of the paper: Research paper.

1. Introduction

Since their inception, universities have played a special role in social and economic life. This was due to their specific nature, reflected, among other things, in their mission, management and academic culture. Looking back at the history of universities over the centuries, it can be seen that, on the one hand, they are stable organisations, as their basic tasks relating to science and education have not undergone any fundamental changes (Sułkowski, 2022), but on the other hand, phenomena that have emerged in the immediate and wider environment over the last century have significantly changed the organisational system of contemporary higher education institutions, which, in terms of internal and external relations, are not and will not be an 'enclave of peace' (Leja, 2013, p. 158). The challenges facing universities in the context of, for example, the massification of higher education, globalisation, rapid technological progress and increased competition in the education market are addressed in successive amendments to the law, but are also the subject of discussion in the academic community.

Ethical issues are an important aspect of the ongoing discussions and actions taken by universities. Interest in these issues is related to the crisis of academic ethos, which, according to Joanna Dudek (2017), manifests itself in 'intellectual corruption', the mixing of the 'market' (entrepreneurship, politics, ideology) with academia, the vision of transforming the university into a bureaucratic educational corporation devoid of mission, and the conflict of interest between scientists and entrepreneurs. The issue of ethos encompasses the principles and values professed and implemented by the academic community, and therefore fits into the discussion on the directions of development of contemporary higher education. It also draws attention to the most important resources of universities, which are their employees (cf. Załoga, Ciekanowski, 2017). As Kazimierz Denek (2015) emphasises, despite the clash of different models of the university of the future, the academic community, especially teachers, plays a key role in higher education. They are responsible not only for 'practising science' or educating young people, but also for raising future generations. Hence, the issue of codifying the behaviour of members of the academic community, i.e. formalising specific norms and rules derived from ethical values, becomes important. However, the mere development of codes of ethics, despite their enormous popularity in higher education institutions (see Cywińska, 2013), may not be effective in preventing the erosion of the academic ethos. According to Remigiusz Sobański (1994), it is important to provide scholars with an 'ethical education' based on values that will determine their attitude towards science, other researchers, students, society and the

state. It is also important to reflect on the adaptation of human capital management concepts and methods to the world of higher education (Sułkowski, 2022, p. 232). Traditionally, this process was carried out by taking into account the values, rituals and patterns functioning in academic institutions, but today it seems that these measures may be insufficient, hence it is necessary to look for ways to strengthen management, including leadership, with ethical aspects. Although the crisis of academic ethos certainly has various causes, one of them may be the insufficient consideration of the subjective, dignified treatment of employees in management practices. The degree to which the need for dignity, as a need for self-respect, self-esteem and respect for others, is satisfied influences people's behaviour in the workplace (Blikle, 2018). Respect for the dignity of another person requires the creation of space for subjective treatment: recognition of their identity and diversity, the opportunity to express their views, dialogue, development and "experiencing acceptance (Hicks, 2016). Such conditions create a working environment based on fundamental human values such as reliability, honesty, responsibility, professionalism, loyalty, fairness, truthfulness and solidarity, the practical implementation of which builds trust. The experience of respect for one's own dignity, which is a fundamental need of every human being, then plays an important motivational role (Młokosiewicz, 2023).

With this in mind, the aim of this article is to assess the importance of values that shape academic ethos in the light of dignity-based management practices. In order to achieve this aim, the following research questions were also posed: What is the significance of values that shape academic ethos for higher education institution employees? To what extent are dignity-based management practices implemented in higher education institutions?

This study is part of the discussion on the reform of Polish higher education, which has been ongoing in academic circles since the 1990s. It also presents a kind of 'voice' of academic teachers on the role and importance of values / ethos in contemporary universities. While the literature on the subject contains analyses of the issue of values from the perspective of university authorities, set out in formal documents (e.g. Czakon, 2020), there are few publications presenting these issues from the perspective of academic staff. The article also reflects on the possibility of applying management methods previously used in enterprises to universities. In this respect, it contributes to the existing research gap.

2. Academic ethos and ethos-related values

Higher education institutions have always been faithful to their internal standards regarding research and teaching (Brzeziński, 2010) and, since their inception, have been distinguished by a specific organisational culture based on certain values. The voluntary acceptance of these values, perceived in terms of identifying with a specific idea of the university and the academic community, is an expression of ethos (Dudek, 2017). The concept of ethos can therefore be interpreted as a set of values and principles that guide the life of the academic community and provide guidelines for the actions of university authorities (Etos..., 2004). While the essence of ethos is understandable, it may be more difficult to specify the canon of values that comprise it. This is due to the changing concepts of the university and the challenges facing contemporary higher education.

Taking into account the transformation of universities and their environment, several model approaches to academic ethos can be identified. According to Robert Merton, ethos is defined as 'an emotionally charged set of values and norms considered binding on people of science. They are expressed in the form of commands, prohibitions, rules of preference and acceptability, which are validated institutional values' (as cited in Czakon, 2020, p. 6). This ethos, referred to as the ethos of academic science or the ethos of scholars, is based on several values/norms, known as 'CUDOS', which include: communalism, universalism, disinterestedness, organised scepticism (Bieliński, Tomczyńska, 2019; Grzesiak, 2017). Considering the links between science and business, John Ziman proposed the following values / principles of the industrial science ethos: proprietary, local, authoritarian, commissioned, expert, collectively known as 'PLACE' (Czakon, 2020; Bieliński, Tomczyńska, 2019). In turn, according to Tomasz Czakon (2020), one can speak of the ethos of post-academic science, which includes various, rather vague proposals that take into account, to some extent, the values indicated by Merton and Ziman. Piotr Sztompka (2007) notes that trust is the value that strongly differentiates the proposed models. He emphasises that the high level of trust in the academic science model resulted from adherence to the moral norms of the scientific ethos, and that today, in the era of post-academic science, these norms have been weakened as a result of fiscalisation, privatisation, commercialisation and bureaucratisation of science, and a reduction in the exclusivity and autonomy of the scientific community, which has translated into a visible destruction of the ethos.

The values that make up the ethos have been and continue to be shaped largely by academic tradition, referring to informal norms, behaviours and attitudes of community members, but also by legal provisions regulating the functioning of higher education. Traditional, so-called fundamental values include truth, integrity and responsibility (Etos..., 2004), while references to values related to the implementation of the university's mission can be found in

legal regulations and various organisational documents. In the Higher Education Act (Dz.U., 2023), the relevant provisions are as follows:

- 'The pursuit of truth and the passing on of knowledge from generation to generation is a particularly noble human endeavour'.
- 'It is the duty of public authorities to create optimal conditions for freedom of scientific research and artistic creativity, freedom of teaching, and the autonomy of the academic community'.
- 'Every scholar is responsible for the quality and reliability of their research and for educating the younger generation'.
- 'Universities and other research institutions (...) help shape the moral standards that apply in public life'.
- 'The mission of the higher education and science system is to provide the highest quality education and scientific activity, to shape civic attitudes, and to participate in social development and the creation of an innovation-based economy'.
- 'The basis of the higher education and science system is freedom of teaching, artistic creation, scientific research and the publication of its results, as well as the autonomy of universities'.
- 'The higher education and science system operates in accordance with international standards, ethical principles and good practices in the field of education and scientific activity, taking into account the particular importance of social responsibility in science'.

An analysis of the above provisions indicates that the values that make up the academic ethos are primarily: truth, freedom, responsibility, quality and reliability. It is worth emphasising the close relationship between ethos and the quality of research and teaching. Ireneusz Białecki points out that in the context of implementing a quality policy based on parameters and indicators, academic staff should ultimately 'refer to their scientific conscience, i.e. to their ethos' (Białecki, 2014, p. 27).

A catalogue of values that are desirable in times of crisis of ethics can be found in documents prepared by various organisations operating in the higher education sector. An example of this is the Code of Ethics for Researchers (2024), prepared by the Polish Academy of Sciences. In this document, the values and principles leading to the maintenance of high standards in science include: truthfulness, honesty, reliability, conscientiousness, credibility, meticulousness, objectivity, independence, openness, responsibility, justice, reliability, courage and care.

References to values can also be found in higher education institutions' organisational documents, such as statutes, formalised missions, action strategies and codes of ethics. Krzysztof Leja (2013) confirms that the missions of most technical universities in Poland contain references to academic and universal human values. Tomasz Czakon, on the other hand,

based on an analysis of the statutes of ten Polish research universities, distinguishes six groups of so-called indicators that 'reveal what declared values and norms are enshrined in the documents examined' (Czakon, 2020, p. 4). These values are expressed in the following indicators: cognitive, disciplinary, pro-social, utilitarian, humanistic, didactic and educational.

In conclusion, it is worth emphasising that in a situation of erosion of the ethos, universities should intensify their efforts to strengthen the ethical attitudes and behaviour of academic staff.

3. Dignity-based management values

Numerous researchers in the field of management – both internationally and in the Polish context – have been emphasising for many years the need to recognise human dignity as the central point of reference for management practices (Pirson, 2014; Donaldson, Walsh, 2015; Hicks, 2016; Kostera, Pirson, 2017; Blikle, 2018; Sypniewska, 2019; Zawadzki, 2018). As noted by D. Huijser and P. Nullens (2024), the concept of human dignity plays various roles in thinking about management: from paradigm shift (Waddock, 2022; Pirson, 2017; Laloux, 2014), through the protection of human rights (Kateb, 2011; Gohl, 2018), to the orientation of organisational business practices (Dierksmeier, 2011; Pirson, 2014; Donaldson, Walsh, 2015; Pirson et al., 2016; cited in: Huijser, Nullens, 2024).

Dignity is understood as a special intrinsic value of a human being, associated exclusively with humanity (Pirson, Piedmont, Nagy, Hicks, 2023) and a trait inextricably linked to human actions and constituting one of the most important values for a human being (Fontrodona, Melé, 2022). Michael Pirson and co-authors (2016) point to three main strands of conceptualisation of dignity:

- as a general category,
- as an unconditional, intrinsic value – inherent to human beings and universal,
- as a conditional and deserved value (Pirson et al., 2016).

The analysis undertaken in this study focuses on the second approach, which recognises dignity as an unconditional value.

According to Donna Hicks, respect for dignity implies acceptance of difference and diversity, recognising another person as an integral human being who has the privilege to express their views and be accepted, regardless of age, beliefs or other characteristics (Hicks, 2016). Recognising a person's dignity also involves appreciating their work, treating them as trustworthy, and creating a culture of honesty and accountability for one's actions (Zawadzki, 2018). According to Hicks, dignity is the highest common denominator that allows for cooperation and ensures peace between people, while violations of dignity are the source of many protracted conflicts, including in organisations. These conflicts can be resolved when

dignity is restored, which involves recognising the intrinsic value of human beings (Hicks, 2016).

Management that respects the dignity of employees combines the ability to motivate with dignity with the organisation and structuring of the work process in a way that allows employees to realise the values they hold dear (those deeply rooted in human nature, such as honesty, fairness, reliability, solidarity, loyalty, responsibility, professionalism, etc.), which promotes their internal satisfaction and thus creates dignified employee self-control (Kosewski, 2012). Satisfying the need for dignity in the workplace plays an important role in shaping organisational effectiveness. People who are treated with greater dignity have a higher sense of self-worth in the workplace, and by perceiving themselves as valuable members of the organisation, they are more willing to make a voluntary effort in their professional roles – an effort that is focused on organisational goals and goes beyond the minimum level required to keep their job. This means that when employees are treated with dignity, their desire to derive 'value' from their work is satisfied, which motivates them to make greater efforts (Ahmed, Liang, Anjum, Durrani, 2023, p. 4738). In economic terms, respect for employee dignity can therefore be seen as an organisational resource for two reasons: firstly, it is something that employees value, and secondly, it contributes to generating positive work-related outcomes by stimulating certain conditions/resources (such as employee engagement) that can help to achieve other resources (Thomas, Lucas, 2019; Ahmed, Liang, Anjum, Durrani, 2023). As Lech Górniak notes, basing the management process on values, ensuring their transparency and the compatibility of personal and organisational values creates psychological conditions for employees that are conducive to performing tasks at a high level, increasing personal responsibility, high self-control and strong commitment to achieving the organisation's goals. The trust that then arises in the organisation creates the possibility for employees to act freely, creates a space of psychological freedom, and encourages employees to exceed organisational expectations. In doing so, they take into account not only their own interests, but also the interests of those whom their work is intended to serve: members of their team, teams from other departments, customers and the entire organisation (Górniak, 2015, p. 102).

With regard to higher education, the concept of dignified management should be incorporated into university management processes. This is evident, for example, in the provisions of the Higher Education Act (Journal of Laws, 2023), which refers to the dignity of the teaching profession (Article 275.1), the dignity of students (Article 307.1) and the dignity of doctoral students (Article 322.1). It should be noted, however, that these terms appear only in the context of the disciplinary responsibility of the persons mentioned.

Basing management practices on respect for employee dignity brings invaluable benefits to both managers and employees themselves. It creates a friendly and supportive work environment in which employees feel a sense of agency, meaning and satisfaction from their work, perform high-quality work and identify with the organisation. This has a beneficial effect

on their mental health and well-being, which translates into both organisational efficiency and effectiveness, as well as opportunities to improve individual talents, knowledge and skills.

4. Empirical research methodology

Two research methods were used for the purposes of this study: a critical review of the literature on the subject and a survey. The empirical part of the study is part of a broader pilot study, in which the research tool was a survey questionnaire consisting of 6 closed-ended Likert questions and 1 open-ended question. The following scientific publications were used in developing the questions:

- regarding the catalogue of academic values (Code of Ethics for Researchers, 2020; Good Practices in Science. A Set of Rules and Guidelines, 2001),
- regarding dignity practices (Lewandowski, 2010; Valente, 2015; Baran, Sypniewska, 2017; Blikle, 2018); moreover, according to DeVellis and Thorpe (2021) and Pirson, Piedmont, Nagy, Hicks (2023), it was assumed that dignity is a hidden construct that cannot be observed directly; since it is internal by definition, the satisfaction of the need for dignity can be assessed by diagnosing the experience of specific behaviours on the part of other people / superiors in the workplace (this was to be achieved by specific statements in the research questionnaire).

The research sample was selected purposefully. The study covered employees of two public universities: Maria Curie-Skłodowska University in Lublin and the University of Szczecin. The research sample of 100 people accurately reflects the structure of academic teachers in higher education institutions in Poland in terms of academic degree/title (RAD-on Report, 2022). The study used the CAWI (Computer Assisted Web Interviews) technique, whereby university employees were sent a link to a research questionnaire prepared using Google Forms via email. The study was conducted in May 2025.

5. Results of empirical research

5.1. Research sample

It was assumed that the study would involve employees of higher education institutions in Poland, i.e. research and teaching staff, researchers and lecturers. The main criterion of selection for the research sample was the consistency of the number of respondents in terms of their academic degree / title with the structure of academic teachers employed at universities in

Poland, as presented in the RAD-on report (2022). The research questionnaire was therefore sent to employees of the Maria Curie-Sklodowska University in Lublin and the University of Szczecin. Taking into account the main criterion of selection for the sample, the following participated in the study:

- 10 prof. dr hab. (professorial title),
- 22 dr hab. (habilitation / postdoctoral qualification),
- 48 dr (PhD),
- 18 mgr (Master's; no doctoral degree).

The university employees surveyed were also diverse in terms of gender, age, and length of service in higher education (Table 1).

Table 1.
Structure of respondents by gender, age, length of service in higher education (%)

Criterion		N	%
Gender	female	64	64%
	male	36	36%
Age	up to 25 years old	3	3%
	26-35 years old	21	21%
	36-45 years old	25	25%
	46-55 years old	33	33%
	56-65 years old	15	15%
	over 65 years old	3	3%
Length of service in higher education	up to 5 years	16	16%
	6-15 years	25	25%
	16-25 years	26	26%
	26-35 years	24	24%
	36-45 years	7	7%
	over 45 years	2	2%

Source: own compilation based on conducted surveys.

The analysis of the results indicates that the research sample was dominated by women, with the largest group of respondents being aged 46-55, while in terms of length of service, the most numerous group was academic teachers with professional experience in the following ranges: 16-25 years, 6-15 years, and 26-35 years.

5.2. Discussion of the study results

The first question posed to respondents was: 'In your opinion, how important are the values listed below in the context of the mission pursued by contemporary universities in Poland?' Respondents could answer using a scale of 1-5, where 1 meant 'not important', 2 - 'not very important', 3 meant 'moderately important value', 4 meant 'important value', and 5 meant 'very important value'. Table 2 presents the average ratings for each value in total and broken down by academic degree /title.

Table 2.
Assessment of the importance of individual values in the context of higher education institutions fulfilling their mission (calculated as an arithmetic mean)

Value	Overall	Mgr	Dr	Dr hab.	Prof. dr hab.
Freedom	4,19	3,75	4,27	4,50	4,00
Truth	4,48	4,60	4,46	4,59	4,10
Selflessness	3,71	3,35	3,81	3,86	3,60
Justice	4,21	4,40	4,17	4,23	4,00
Reliability	4,47	4,65	4,42	4,55	4,20
Responsibility	4,31	4,50	4,25	4,36	4,10
Impartiality	4,12	4,15	4,19	4,14	3,70
Respect	4,30	4,35	4,31	4,36	4,00
Kindness	4,04	4,00	4,17	3,86	3,90
Credibility	4,44	4,60	4,35	4,59	4,20
Honesty	4,47	4,50	4,50	4,55	4,10
Openness	4,20	4,05	4,27	4,27	4,00
Solidarity	3,83	3,65	3,94	4,00	3,30
Courage	3,83	3,90	3,71	4,14	3,60

Source: own compilation based on conducted surveys.

An analysis of the responses obtained indicates that, in the opinion of the respondents, the values of greatest importance for the fulfilment of the mission of higher education institutions are truth, reliability, honesty and credibility (rating above 4.40), while the least important are selflessness, solidarity and courage (rating below 4.0). Taking into account the division of respondents according to academic degree/title, it should be noted that the assessment of professors in relation to the vast majority of values was lower than that of other groups of respondents. Furthermore, based on an additional analysis of the results in terms of other criteria of the research sample, it should be concluded that:

- women rated the importance of all values higher (compared to men),
- the youngest employees in terms of age (up to 25 years old) and employees with 36-45 years of service attached less importance to the vast majority of values.

It is worth noting that despite the generally high ratings given by respondents to the importance of values in the university's mission, no value received an average rating of 5.0.

Respondents were also asked to comment on the frequency of selected dignity-based management practices in higher education. The question was formulated as follows: ‘How often do the following situations/aspects concerning employees occur in contemporary higher education institutions in Poland, in your opinion?’ Respondents could choose answers on a scale of 1-5, where 1 meant ‘very rarely’, 2 meant ‘rarely’, 3 meant ‘sometimes’, 4 meant ‘often’ and 5 meant ‘very often’. Table 3 presents the average ratings of the frequency of occurrence of individual dignity-based management practices in total and broken down by academic degree/title.

Table 3.
Assessment of the frequency of selected dignity-based management practices in higher education (calculated as an arithmetic mean)

Types of dignity-based management practices	Overall	Mgr	Dr	Dr hab.	Prof. dr hab.
Employees are clearly informed about standards of reliable work and undesirable (i.e., undignified, unethical) behaviours	3,08	2,80	3,15	3,05	3,40
Reliable work is appreciated in practice and unreliable behaviour is clearly disapproved of	2,69	2,70	2,63	2,73	2,90
Employees can raise concerns about their work without fear of reprisals	2,63	2,25	2,58	2,73	3,40
An atmosphere of kindness and cooperation among employees is preferred	3,36	3,30	3,29	3,50	3,50
Employees are treated as individuals, not as 'easily replaceable human resources'	3,02	2,90	3,02	3,14	3,00
Individual predispositions of employees are noticed and their development is supported	2,75	2,55	2,67	2,95	3,10

Source: own compilation based on conducted surveys.

As shown in Table 3, the arithmetic mean for the six dignity-based management practices diagnosed using the questionnaire did not exceed 3.4, which means that such behaviours on the part of managers did not occur often or very often. The surveyed academic staff least often observed such management practices as the possibility of reporting their work-related concerns without fear of reprisals, appreciation of reliable work and clear disapproval of unreliable behaviour, as well as noticing individual predispositions of employees and supporting their development (scores below 3.0). Furthermore, unfortunately, they only sometimes experienced subjective treatment, were clearly informed about standards of reliable work and undesirable behaviour, and slightly more often, an atmosphere of kindness and cooperation between employees was preferred in their workplaces (ratings between 3.02 and 3.36). The lowest ratings in the perception of dignity-based management practices were recorded for master's degree holders, and the highest for professors. Taking into account the gender category, it was noted that women observed dignity-based management practices slightly less often than men, while no particular patterns were noted for the other categories.

6. Discussion of results

The considerations presented in the empirical part of the article provided answers to the research questions. The surveyed university employees highly rated the importance of values in the context of the mission pursued by contemporary higher education institutions in Poland (most ratings above 4.0). The highest-rated values included fundamental values, i.e. truth and reliability, as well as honesty and credibility. The high rating of the latter values may be a kind of signal from the academic community that it recognises the phenomenon of erosion of trust in science, as described by Piotr Sztompka (2007). It is surprising that the category of freedom

was not among the highest-rated values, as, in the opinion of Zbyszko Melosik (2019), it constitutes the core of the academic ethos and shapes the identity of the researcher. This may be related to the different perceptions of freedom among teachers at public universities (the research was conducted at two public universities) and cases of its violation (Stachowiak-Kudła, 2023). On the other hand, the lower importance rating of values like selflessness, solidarity and courage is not surprising, as these values are more relevant to relationships in higher education institutions.

According to the study, dignity-based management practices appeared only occasionally in the respondents' opinions. The high importance rating of most of the values asked about in the survey was not reflected in their perception of management practices. There was also a small but noticeable difference in the perception of dignity-based management practices by the surveyed university employees depending on their academic degree. They were observed more often by independent academic staff (habilitated doctors and professors) than by non-independent staff. The higher the academic degree of the employees, the greater the frequency of management practices observed by them that took into account respect for the dignity and subjectivity of the employee. The study may therefore suggest that dignity is not sufficiently perceived in the academic environment as an unconditional, internal value – inherent to human beings and universal – but rather as a conditional and deserved value. This corresponds with the observation made by Pirson and his co-authors, who noted that dignity as a value has been 'significantly neglected in contemporary society, which focuses on market principles of organisation and management'. In organisations and society, the dominant organisational criterion is price, and anything that has no price is overlooked in decision-making processes. It is therefore likely that human dignity is consistently neglected because it has not been valued as an asset (Pirson, Piedmont, Nagy, Hicks, 2023, p. 98). However, one must agree with Pirson that dignity cannot be part of the logic of exchange (Pirson, 2017).

An unquestionable limitation of the study is the lack of representativeness of the sample and the research method used. Despite its many advantages (including time savings and the wide range of data that can be obtained), surveying does not allow for a deeper analysis of the broader context of the issues described. However, the opinions obtained should be considered valuable, as the structure of the respondents in terms of their academic degree/title (or lack thereof) was consistent with the structure of academic teachers employed in higher education institutions in Poland, which allowed for certain generalisations to be made.

7. Conclusions

The research objective outlined at the beginning of this study has been achieved. Answers to the research questions have also been obtained. Based on the analysis of the results, it should be concluded that, in the opinion of the surveyed university employees, the values of greatest importance in the implementation of the university's mission were truth, honesty, reliability and credibility, while the least important were selflessness, courage and solidarity. The results obtained indicated a diversity of responses depending on the title/academic degree of the surveyed university employees, both in terms of the values included in the ethos and in terms of the perceived level of implementation of dignity-based management practices.

The high rating of values by respondents indicates that they have expectations regarding ethos-related values, which they would like to see implemented. Thus, the problem likely lies in developing adequate organisational conditions that respect the dignity of employees and are permanently built into the mechanisms by which higher education institutions function as an organisational resource. These conditions would be conducive to strengthening the ethical attitudes and behaviour of academic staff. It would be interesting to examine them in detail, for which qualitative research methods such as individual interviews could be used. Based on the analysis, other areas of research could also be identified, such as the identification of ethos-related values desired, for example, in the digital university model. In this context, it would also be useful to explore the possibility of developing a new model framework that combines the issue of ethos with modern concepts of university management.

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References

1. Ahmed, A., Liang, D., Anjum, M.A., Durrani, D.K. (2023). Does dignity matter? The effects of workplace dignity on organization-based self-esteem and discretionary work effort. *Current Psychology, Vol. 42,* pp. 4732-4743, Retrieved from: https://doi.org/10.1007/s12144-021-01821-5
2. Baran, M., Sypniewska, B. (2018), The significance of people-oriented management and participation for mentoring in organizations. *Journal of Positive Management, Vol. 8(4),* pp. 14-30.
3. Białecki, I. (2014). Etos i polityka jakości w nauce. *Nauka i Szkolnictwo Wyższe*, *Vol. 1(43-44),* pp. 19-29.
4. Bieliński, J., Tomczyńska, A. (2019). Etos nauki we współczesnej Polsce. *Nauka i Szkolnictwo Wyższe*, *Vol. 1(53-54)*, pp. 219-250.
5. Blikle, A.J. (2018). *Doktryna jakości* (wydanie II turkusowe). *Rzecz o turkusowej samoorganizacji.* Retrieved from: https://moznainaczej.com.pl
6. Brzeziński, J. (2010). Etos akademicki - między tradycją i wyzwaniami współczesności. *Teksty drugie, Vol. 5,* pp. 227-236.
7. Cywińska, M. (2013). Wybrane aspekty etyczne funkcjonowania wyższych uczelni w Polsce. In: J. Wyleżałek, K. Najder-Stefaniak, K. Bogacka (eds.), *Społeczne, etyczne i prawne aspekty funkcjonowania szkolnictwa wyższego w Polsce* (pp. 102-111). Warszawa: SGGW.
8. Czakon, T. (2020). Deklarowany etos nauki polskich uczelni. *Folia Philosophica, Vol. 44,* pp. 1-21.
9. Denek, K. (2015). Uniwersytet. Między tradycją a oczekiwaniami współczesności. In: W: K. Denek, A. Kamińska, P. Oleśniewicz (eds.), *Edukacja jutra. Aksjologiczno-kulturowy fundament edukacji jutra* (pp. 23-44). Sosnowiec: Oficyna Wydawnicza „Humanitas".
10. Dierksmeier, C. (2011). Reorienting management education: From the homo economicus to human dignity. *Humanistic Management Network, Research Paper Series (13-05).*
11. *Dobre obyczaje w nauce. Zbiór zasad i wytycznych* (2011). Warszawa: Komitet Etyki w Nauce Polskiej Akademii Nauk.
12. Donaldson, T., Walsh J.P. (2015). Towards a theory of business. *Research in Organizational Behavior, Vol. 35,* pp. 181-207.
13. Dudek, J. (2017). Etos uniwersytetu a globalny kłopot z jego tożsamością. *Studies in Global Ethics and Global Education, Vol. 7,* pp. 24-42.
14. Etos akademicki. Wartości i zasady postępowania przyjęte w Szkole Głównej Handlowej w Warszawie (projekt) (2004). In: K. Kloc, E. Chmielecka (eds.), *Dobre obyczaje*

w kształceniu akademickim (pp. 9-17). Warszawa: Fundacja Promocji i Akredytacji Kierunków Ekonomicznych.

15. Fontrodona, J., Melé, D. (2022). Thinking about the Future of Work: Promoting Dignity and Human Flourishing. *Humanistic Management Journal, Vol. 7(2*), pp. 181-188. Doi: 10.1007/s41463-022-00136-2
16. Gohl, C. (2018). Weltethos for business: Building shared ground for a better world. *Humanistic Management Journal, Vol. 3(2),* pp. 161-186.
17. Górniak, L. (2015). Zarządzanie przez wartości jako metoda wyzwalania potencjału pracowników w oparciu o zaufanie. *Annales Universitatis Paedagogicae Cracoviensis Studia Psychologica, Vol. 1*, pp. 95-108.
18. Grzesiak, K. (2017). Etos nauki–między klerkowskim a eksperckim modelem nauki. *Zeszyty Naukowe Zbliżenia Cywilizacyjne, Vol. 13(4),* pp. 64-76.
19. Hicks, D. (2016). A culture of indignity and the failure of leadership. *Humanistic Management Journal*, *Vol. 1*(1), pp. 113-126.
20. Huijser, D., Nullens, P. (2024). An Anatomy of Human Dignity; Dissecting the Heart of Humanistic Management. *Humanistic Management Journal*. Retrieved from: https://doi.org/10.1007/s41463-024-00183-x
21. Kateb, G. (2011). *Human dignity*. Harvard University Press.
22. *Kodeks Etyki Pracownika Naukowego* (2024). Retrieved from: https://dokumenty.pan.pl/PolskaAkademiaNauk/document/1791/Uchwala-6_2024, 12.05.2025.
23. Kosewski, M. (2012), Motywowanie i zarządzanie godnościowe w administracji publicznej. In: S. Mazur (ed.), *Jaki etos w administracji – służba publiczna, menedżerski profesjonalizm czy przestrzeganie procedur?* (pp. 35-41). Gdańsk: Instytut Badań nad Gospodarką Rynkową,.
24. Kostera, M., Pirson, M. (Eds.) (2017). *Dignity and the organization*. London: Palgrave Macmillan UK.
25. Laloux, F. (2014). *Reinventing organizations*. Brussels: Nelson Parker.
26. Leja, K. (2013). *Zarządzanie uczelnią. Koncepcje i współczesne wyzwania*. Warszawa: Oficyna a Wolters Kluwer business.
27. Lewandowski, R.A. (2010). Zarządzanie przez wartości w organizacjach ochrony zdrowia. *Współczesne Zarządzanie, Vol. 2,* pp. 117-127.
28. Melosik, Z. (2019). *Pasja i tożsamość naukowca. O władzy i wolności umysłu*. Poznań: Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza w Poznaniu.
29. Młokosiewicz, M. (2023). Zarządzanie godnościowe a kształtowanie kultury bezpieczeństwa pracy w organizacji. *Zeszyty Naukowe Akademii Górnośląskiej, Vol. 3,* pp. 44-51.
30. *Nauczyciele akademiccy w roku 2022. Raport RAD-on*. Retrieved from: https://radon.nauka.gov.pl/raporty/nauczyciele_akademiccy_2022, 12.05.2025.

31. Pirson, M. (2014). Dignity - a missing piece in the puzzle of organizational research? *Humanistic Management Network Research Paper, Vol. 11.*
32. Pirson, M. (2017). Dignity and well-being as cornerstones of humanistic management. *Humanistic Management Association*, *Research Paper Series, No. 17-9.* Gabelli School of Business, Fordham University.
33. Pirson, M., Goodpaster, K., Dierksmeier, C. (2016). Human dignity and business. *Business Ethics Quarterly, Vol. 26(4),* pp. 465-478 (October 2016).
34. Pirson, M., Piedmont, R.L., Nagy, N., Hicks, D. (2023). Establishing a Dignity Scale Measuring Intrinsic Value within Social Contexts. *Humanistic Management Journal*, *Vol. 8*, pp. 97-112. Retrieved from: https://doi.org/10.1007/s41463-023-00147-7
35. Sobański, R. (1994). Uwagi o ewentualnym kodeksie etyki pracownika nauki. In: J. Zieliński, L. Tyszkiewicz (eds.), *Etyka w środowisku akademickim* (pp. 48-52). Warszawa: Polska Akademia Nauk, Komitet Etyki w Nauce.
36. Stachowiak-Kudła, M. (2023). Postrzeganie realizacji wolności akademickiej przez nauczycieli akademickich w Polsce. *Przegląd Prawa Konstytucyjnego*, *Vol. 76(6),* pp. 273-288.
37. Sułkowski, Ł. (2022). *Zarządzanie uczelnią cyfrową: między utopią wolności a dystopią władzy*. Warszawa: PWN.
38. Sypniewska, B.A. (2019). Zarządzanie godnościowe jako odpowiedź na anomię w pracy i sytuacje upokorzenia. *Education of Economists and Managers. Problems. Innovations. Projects*, *Vol. 53, Iss. 3*, pp. 103-114. DOI: 10.33119/01.3001.0013.5265
39. Sztompka, P. (2007). *Zaufanie. Fundament społeczeństwa*. Kraków: Znak.
40. Thomas, B., Lucas K. (2019). Development and validation of the workplace dignity scale. *Group & Organization Management, Vol. 44(1),* pp. 72-111.
41. Ustawa z dnia 20 lipca 2018 r. *Prawo o szkolnictwie wyższym i nauce* (Dz.U., 2023 - tekst ujednolicony).
42. Valente, T.W. (2015). Social networks and health behavior. In: K. Glanz, B.K. Rimer, K.V. Viswanath (Eds.), *Health behavior: Theory, research, and practice* (pp. 205-222). Jossey-Bass/Wiley.
43. Waddock, S. (2022). Transforming economics values toward life: From heterodoxy to orthodoxy. *Business Ethics, the Environment & Responsibility, Vol. 31(1),* pp. 274-280.
44. Załoga, W., Ciekanowski, Z. (2017). Czynnik ludzki istotnym elementem we współczesnej organizacji. *Nowoczesne Systemy Zarządzania*, *Vol. 4(12),* pp. 31-45.
45. Zawadzki, M. (2018). Dignity in the Workplace. The Perspective of Humanistic Management. *Journal of Management and Business Administration. Central Europe, Vol. 26, No. 1*, pp. 171-188. Retrieved from: https://www.ceeol.com/search/article-detail?id=678350, 13.03.2024.

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FROM GREEN HRM TO HRM FOR THE COMMON GOOD – THE EVOLUTION OF THE SUSTAINABILITY-ORIENTED HRM CONCEPTS

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Purpose: This article aims to provide an overview of sustainability-oriented human resource management (HRM) concepts, tracing their evolution from Green HRM (GHRM) and Socially Responsible HRM (SRHRM) to Sustainable HRM (SHRM) and HRM for the Common Good (CGHRM). It also synthesizes existing literature reviews on the HRM concepts and identifies key research gaps to guide future studies.
Design/methodology/approach: An umbrella review of 63 literature reviews was conducted, focusing on HRM approaches explicitly addressing sustainability. Scopus was searched using combinations of relevant terms.
Findings: The review shows that GHRM dominates the literature. Integrative analyses indicate that adopting multilevel and cross-concept perspectives can improve theoretical understanding of the links between HRM practices and sustainability across organizational and societal levels.
Research limitations/implications: The review captures the state of the literature at a specific point in time; therefore, as new studies continue to emerge, the conclusions may require updating.
Practical implications: The findings highlight the need for organizations to adopt comprehensive sustainability-oriented HRM systems that balance environmental, social, and economic objectives.
Social implications: The article highlights that strengthening collaboration between policymakers, practitioners, and researchers can support a broader understanding and implementation of CGHRM, contributing to more responsible organizational practices and long-term societal well-being.
Originality/value: This study provides a consolidated view of sustainability-oriented HRM research, clarifies conceptual distinctions among GHRM, SRHRM, SHRM, and CGHRM, and proposes directions for future research to advance theory and practice in this evolving field.
Keywords: umbrella review, review of reviews, green HRM, socially responsible HRM, sustainable HRM, common good HRM.
Category of the paper: Literature review.

1. Introduction

Over the past two decades, sustainability has become a central concern in management research and practice, driven by escalating environmental challenges, social inequalities, demographic changes, and growing expectations toward organizations as responsible societal actors. Human resource management (HRM), traditionally focused on efficiency, performance and competitive advantage, has increasingly been reconceptualized through the lens of sustainability. This shift reflects the recognition that organizational sustainability cannot be achieved without sustainable approaches to managing people, whose knowledge, skills, values, and well-being constitute critical organizational resources. Therefore, only well-designed and coherent HRM practices, forming an integrated HRM system (Boon et al., 2019), enable organizations to balance economic, environmental, and social objectives and to contribute meaningfully to long-term sustainable development.

Since sustainability initially focused on ecological issues, early sustainability-oriented HRM approaches emphasized environmental goals, such as encouraging pro-environmental behaviors and reducing resource use. This led to the development of green HRM (GHRM), which aligns HR practices with environmental objectives but has been criticized for its narrow focus and instrumental view of employees. In parallel, socially responsible HRM (SRHRM) emerged, emphasizing ethical and social aspects of HRM, including fair employment practices, diversity, and employee well-being. However, this approach has also been criticized for prioritizing social goals only when they serve economic purposes. Recognizing that sustainability includes environmental, social, and economic dimensions, broader concepts such as sustainable/triple bottom line HRM (SHRM) have been developed. SHRM integrates long-term workforce viability, employability, work–life balance, and the tensions between short-term performance and long-term human sustainability (Guerci & Carollo, 2016). More recently, the concept of HRM for the Common Good (CGHRM) has evolved, framing HRM as a moral and societal practice. CGHRM emphasizes dignity, social justice, inclusion, and the broader societal impact of HRM, viewing organizations as responsible actors contributing to the common good (Aust et al., 2020).

Despite the growing body of literature on GHRM, SRHRM, SHRM, and CGHRM, existing research remains fragmented across conceptual frameworks, disciplines, and levels of analysis (Austen & Piwowar-Sulej, 2025a). There is still a scarcity of integrative studies that synthesize knowledge about the HRM systems analyzed within these frameworks, and clarify their similarities, differences, and underlying assumptions. Moreover, limited attention has been paid to identifying future research directions that could advance theory development and empirical inquiry in this rapidly evolving field.

Against this backdrop, the aim of this article is threefold. First, it seeks to present the evolution of sustainability-oriented HRM concepts, moving from GHRM through SRHRM and SHRM to HRM for the Common Good. Second, it provides a synthesis of the existing literature reviews on the HRM concepts. An overview of reviews (also known as a "umbrella review" or "review of reviews") collates multiple reviews with the aim to demonstrate conclusive evidence for decision making (Grant, Booth, 2009). Third, it identifies key research gaps and proposes directions for future research that can contribute to a more coherent, theoretically grounded, and socially relevant sustainability-oriented HRM agenda.

2. Theoretical background

2.1. Green HRM

Although some authors consider SRHRM as the first sustainability-oriented HRM concept (Aust et al., 2020), there is also a strong argument for viewing GHRM as its earliest form. The idea of sustainability has long historical roots, with early civilizations practicing responsible resource management to avoid depletion (ACO Recycling, 2025). Long before the term was formalized, ecologists warned that unchecked development could cause severe environmental damage. After World War II, key publications raised concerns about the planet's ability to sustain the growing human population (Kidd, 1992). Consequently, environmental management systems in companies required supporting green HRM practices to be effective (Jabbour et al., 2008).

GHRM practices aim to promote eco-friendly behavior among employees. According to Aust et al. (2020), GHRM serves two main purposes: economic and environmental. However, the environmental dimension typically exists insofar as it supports economic goals, reflecting an inside-out organizational perspective. Scholars in the field of GHRM propose diverse sets of environmentally-oriented HRM policies and practices, ranging from traditional HR functions (Piwowar-Sulej, Austen et al., 2023) to employee participation and empowerment (Tariq et al., 2016).

2.2. Socially responsible HRM

Aust et al. (2020) argue that in its initial phase, sustainability-oriented HRM was primarily manifested through SRHRM practices. Rooted in the literatures on corporate social responsibility, ethics, and organizational behavior, SRHRM emphasizes organizations' responsibility toward employees and their role in supporting the implementation of CSR objectives through HRM policies and practices (Rubel et al., 2023). Zaugg et al. (2001) conceptualize SRHRM as a configuration of traditional HR policies and practices aimed at the

long-term, socially and economically efficient recruitment, development, retention, and separation of employees. Subsequent studies broadened this perspective. Jamali et al. (2015) highlighted the importance of incorporating occupational health and safety into SRHRM frameworks, while Barrena-Martínez et al. (2017) further expanded the scope to include employment relations management (e.g., employee participation), communication and transparency, social dialogue, diversity and equal opportunities, fair compensation and benefits, as well as work–family balance initiatives. Despite this broadening scope, Aust et al. (2020) argue that SRHRM largely represents an externally oriented organizational approach, in which social objectives are pursued insofar as they support economic goals, with the overarching aim of mitigating business risks and enhancing shareholder value.

2.3. Sustainable HRM

A broader perspective on sustainability within HRM practices led to the development of sustainable HRM being associated with triple bottom line HRM, which seeks to balance economic, social, and environmental goals in the short term and the long term (Kramar, 2022). Thus, key aspects of SHRM include (Piwowar-Sulej, Bąk-Grabowska, et al., 2023):

a) environmental sustainability – encouraging eco-friendly behaviors, reducing workplace environmental impact, and fostering a green organizational culture,
b) social sustainability – supporting employee well-being, health and safety, work–life balance, diversity and inclusion, fair labor practices, and ethical treatment of workers,
c) economic sustainability – ensuring that HR practices contribute to long-term organizational success while balancing short-term performance pressures.

Sustainable HRM emphasizes that employees are not just resources for profit, but key stakeholders whose competencies, needs, and well-being must be aligned with organizational goals in ways that also benefit society and the environment. Theoretically, SHRM should create a win-win scenario: healthy, motivated, and competent employees contribute to organizational success while promoting societal and environmental responsibility. However research shows that it may negatively impact employees by promoting employee role conflict and role ambiguity (Bush, 2020).

Considering SHRM practices, similarly to before presented sustainability-oriented concepts, there is no agreement in the literature, what constitutes the HRM system. In their literature review, Austen and Piwowar-Sulej (2025a) revealed that many studies claiming to examine SHRM often conflated it with other HRM approaches or were limited in scope. For instance, Jerónimo et al. (2020) operationalized SHRM by combining GHRM practices with SRHRM practices, missing the economic aspect of sustainability. Other authors (e.g., (De Prins et al., 2020)) researched SHRM but with the use of measurement scales with items reflecting only socially responsible HRM practices, while completely ignoring environmental and economic issues. Thus, the first problem is that previously examined HRM practices often failed to address the full spectrum of the triple bottom line (economic, social,

and environmental) inherent to SHRM. The second problem is that SHRM – similarly to GHRM and SRHRM – addresses mainly shareholders' needs. The motives for the implementation of them are external pressures for increased social and ecological responsibility, and avoiding penalties for non-compliance with legal regulations (Aust et al., 2020).

2.4. Common good HRM

Common good HRM emerged in response to the shortcomings of both traditional HRM approaches and the above-presented sustainability-oriented concepts. At its beginning, HRM focused primarily on maximizing organizational efficiency and achieving economic goals, treating employees mainly as a means to boost productivity and competitiveness (Paauwe, Boon, 2009). The emergence of strategic HRM approach over 35 years ago highlighted the role of HRM in contributing to a company's financial performance (Piwowar-Sulej, 2026). Even today, many organizations continue to prioritize the shareholder value model, measuring success through financial indicators and designing HRM systems to meet shareholder expectations. All three forms of SOHRM mentioned earlier have, to varying degrees, adjusted their traditional business-oriented goals of economic profit to align with external pressures for increased social and ecological responsibility, reflecting an 'inside-out' perspective (Aust et al., 2020). This narrow focus has contributed to a crisis of trust in business, which is essential for sustaining long-term organizational success (Hollensbe et al., 2014).

Within CGHRM the emphasis is on giving equal or even higher priority to collective interests compared to individual (including organizational) preferences, needs, and desires. In CGHRM, 'inputs' refer to the use of HRM competencies, skills, knowledge, and attitudes to actively contribute to the betterment of society and address the major challenges of our time. Thus, it can be regarded as the most advance sustainability-oriented HRM concept (Aust et al., 2020; Piwowar-Sulej, 2026).

3. Methodology of literature review

To ensure a comprehensive and systematic review of reviews on SOHRM concepts, a multi-step approach was employed (Grant, Booth, 2009). First, the scope and research questions were defined, focusing on HRM approaches explicitly addressing sustainability, including GHRM, SRHRM, SHRM and CGHRM. Second, the Scopus was selected as the primary database due to its extensive coverage of peer-reviewed journals, multidisciplinary scope, and reliable indexing of management and sustainability literature (Leydesdorff et al., 2015). Third, terms used in the search included combinations of the names of sustainability-oriented HRM concepts (including the notion of sustainability-oriented HRM) with the word "review". The search

focused primarily on publication titles, as titles generally highlight the central topic and main contribution of a study. The authors found 89 documents. Fourth, the additional inclusion criteria encompassed peer-reviewed journal articles written in English. In this way, the final basis of articles included 63 articles. Fifth, the author extracted data of the documents in the form of csv file. Then analyzed each article in terms of examined sustainability-oriented HRM concepts, methodological approaches and topics highlighted in a given study.

4. Main findings

42 out of 63 articles were devoted to the GHRM concept, only two – to SRHRM and none to CGHRM. Figure 1 also shows that GHRM issues prevail in the literature reviews. Secondly, even if the authors mentioned SHRM in the title of their work, the paper was often about SRHRM (e.g., (Elnakib, Gallego-Roquelaure, 2025)). Thirdly, some of the reviews focus on specific geographical areas or industries. Fourthly, the highest number of the reviews (i.e., 11) were published in *Sustainability* by MDPI, which is not a HRM journal.

As far as GHRM is concerned, the study by Gazi et al. (2025) explored GHRM's connection to organizational sustainable performance through increasing employee involvement and reducing environmental impact. The performance was evaluated at the individual level as well as the organizational level. Their findings indicate that GHRM plays a crucial role in supporting organizational sustainability by lowering ecological footprints, boosting employee morale, and enhancing corporate reputation. Furthermore, the study highlights the importance of integrating green HRM practices into organizational strategies and operations to achieve long-term sustainability. Implementing such practices can lead to higher employee engagement, reduced turnover, and improved customer satisfaction, while also lowering costs through waste reduction and a strengthened brand image. Similarly, the study by Alrifae (2026) also linked GHRM to sustainable performance, however they focus on three elements of this performance: economic, environmental and social.

Only two literature reviews used SRHRM in the title. Omidi and Dal Zotto (2022) focused on the antecedents and outcomes of HRM system, whereas Somuah et al. (2025) provided a systematic review on the SRHRM's contribution to the creation of social value. They revealed that CSR-related pressures are the main impetus behind the adoption of SRHRM practices. Nonetheless, the social pillar of sustainability – particularly the human or "people" dimension – has received comparatively limited scholarly attention, making it the least developed aspect of sustainability research. In response, the study emphasizes the need for further investigations into how SRHRM influences social value creation.

Literature reviews with SHRM in the title, in fact, present different sustainability-oriented HRM concepts. They also did not always focused on HRM system. For example, Macke and Genari (2019) in their search criteria included also papers on sustainable leadership and sustainable organization. Kumar et al. (2020) searched for papers about SHRM and GHRM and link the concepts to sustainable performance (with its three dimensions). Ramgolam et al. (2024) focused on articles which include keywords linking "HRM" with "sustainability", however used only bibliometric analyses. They distinguished several dimensions of SHRM, including strategic–relational HRM (SRHRM), green HRM (GHRM), and combined green HRM (CGHRM), as well as efficiency-oriented HRM. In addition, they treated economic, social, and environmental sustainability as separate dimensions. However, this classification appears somewhat inconsistent, as it mixes HRM practices and orientations (e.g., SRHRM, GHRM, efficiency-oriented HRM) with sustainability outcomes or goals (economic, social, and environmental sustainability). As a result, the proposed dimensions do not represent a uniform level of analysis and may blur the conceptual boundaries between HRM systems and their intended sustainability effects. Gomes et al. (2025) also search in WoS for articles about SHRM and used bibliometrics.

Considering full integration of all sustainability-oriented concepts, the authors found three reviews that did it. The first one is by Anlesinya and Susomrith (2020). Although SHRM is highlighted in the title of the paper, the authors' search strategy included keywords such as SHRM, GHRM, SRHRM, sustainability in HRM, and HRM sustainability. They found that most of articles are GHRM oriented. They also showed that research on sustainability-oriented HRM drew on empirical data from only 27 countries. Among these, India accounted for the largest number of studies, followed by Malaysia and China. Regarding sectoral coverage, most empirical studies examined multiple industries, followed by the manufacturing sector, hospitality, education, and healthcare. The majority of the analyzed studies adopted the quantitative approach (mainly surveys and cross-sectional research design). They found only three articles that discussed sustainability-oriented concepts. Studies that considered a bundle of HRM practices were in the minority. Most of studies examined possible outcomes of HRM practices at the micro-level. The results further indicate that both internal and external determinants play a crucial role in the adoption and implementation of sustainability-oriented HRM. Internal drivers include managers' and owners' ethical leadership, organizational size, and anticipated benefits, while external influences encompass government regulations and policies, societal norms, employee-related negative externalities, customer demands, and regulatory pressure. However, research addressing micro-level determinants remains scarce.

The second integrative study is by Piwowar- Sulej (2021). Although the author used SHRM in the article title, she also explored GHRM and SRHRM. Her study was based on H-Score method, thus covered very limited sample of papers. The cited author focused on core HRM practices and revealed that HR training was the most explored practice in the

sustainability-oriented HRM research. Finally, Austen and Piwowar-Sulej (2025a) reviewed a total of 220 articles indexed in Scopus and Web of Science, focusing specifically on 125 that investigated sustainability-oriented HRM practices. They developed an integrative framework that unifies various variables and relationships into a coherent model of sustainability-oriented HRM. Their analysis highlighted not only the scarcity of multilevel approaches in this research area but also demonstrated how adopting a multilevel perspective enhances theoretical understanding of the connection between HRM and sustainability. In particular, their work illustrated how such a perspective can address sustainability challenges spanning multiple organizational and societal levels.

5. Discussion and Conclusions

The findings of this review confirm and extend the observations outlined in the introduction and theoretical background. Consistent with prior discussions, GHRM remains the most extensively studied sustainability-oriented HRM concept, reflecting the historical emphasis on environmental objectives within HRM practices. In contrast, SRHRM, SHRM, and CGHRM are far less represented, highlighting the persistent underdevelopment of the social and holistic dimensions of sustainability in HRM research. In particular, research on HRM for the Common Good remains extremely limited, which is reflected in the lack of literature reviews synthesizing knowledge in this area. Consequently, there is a pressing need for empirical studies to examine how CGHRM practices are implemented, their outcomes for organizations and society, and the contextual factors that influence their effectiveness.

The results also underscore the fragmented nature of the field, with studies varying widely in theoretical framing, scope, and methodological approach. Many reviews labeled as SHRM, for example, conflate different HRM concepts or fail to capture the full triple bottom line, reflecting the conceptual ambiguities highlighted in the theoretical background. Moreover, the predominance of quantitative, survey-based empirical research and limited attention to micro-level determinants indicates that the employee perspective – the “people” dimension of sustainability – remains insufficiently explored, despite its recognized importance in SHRM frameworks.

The analyzed reviews provide some guidelines related to future research. For example, it is important to recognize employees' perceptions of the implementation of sustainability-oriented HRM practices in companies, as well as the impact of these practices on their attitudes and behaviors, taking into account the various HRM practices (Gomes et al., 2025). In turn, Anlesinya and Susomrith (2020) recommended future research to prioritize comparative studies across countries, sectors, and firm sizes to better understand the contextual factors that influence the adoption and effectiveness of sustainable HRM practices. In particular, empirical

investigations should include underrepresented contexts such as public sector organizations and small- and medium-sized enterprises (SMEs), which have been largely neglected in existing empirical research. Such comparative analyses can reveal important boundary conditions, sector-specific dynamics, and cross-cultural differences, thereby providing more nuanced and actionable insights for the implementation of sustainability-oriented HRM practices. Chams and García-Blandón (2019) argued that research on SHRM emphasizes its impact on employee well-being, however there remains a shortage of HR practices that explicitly support the Sustainable Development Goals.

The analysis supports the notion that adopting integrative and multilevel perspectives can enhance theoretical understanding of the HRM–sustainability relationship. By linking internal and external drivers with organizational and societal outcomes, such perspectives would address key limitations identified in prior literature, including the narrow focus on environmental or economic objectives and the limited consideration of societal impacts (Austen, Piwowar-Sulej, 2025a). Overall, these findings reinforce the need for more comprehensive, ethically grounded, and contextually nuanced research that fully incorporates economic, environmental, and social dimensions into HRM practice.

Regarding practical implications, this study emphasizes that HR managers should expand their sustainability-oriented practices beyond environmental concerns. Participation with academics in the implementation of CGHRM can help organizations balance economic, social, and environmental objectives while developing the theory of this HRM concept. Additionally, HR practices should be designed with consideration of organizational context, sector, and geographic location, including public sector organizations and SMEs, to ensure their effectiveness and contextual fit. Educational programs should introduce HR managers to the full spectrum of sustainability-oriented HRM concepts. Training should also develop the ability to apply multilevel perspectives and make decisions that consider impacts on employees, organizations, and society. Finally, HR education should emphasize practical methods for assessing the effects of sustainability-oriented HRM practices on employee well-being and organizational performance, including comparative analyses across countries, sectors, and types of organizations.

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References

1. ACO Recycling (2025). *The Meaning and History of the Word "Sustainability"*. Retrieved from: https://www.acorecycling.com/the-meaning-and-history-of-the-word-sustainability/
2. Alrifae, A.A.M. (2026). Green human resource management and sustainable performance: A systematic literature review. *Sustainable Futures*, *Vol. 11*, 101580. doi: 10.1016/j.sftr.2025.101580
3. Anlesinya, A., Susomrith, P. (2020). Sustainable human resource management: a systematic review of a developing field. *Journal of Global Responsibility*, *Vol. 11, No. 3*, pp. 295-324. doi:10.1108/JGR-04-2019-0038
4. Aust, I., Matthews, B., Muller-Camen, M. (2020). Common Good HRM: A paradigm shift in Sustainable HRM? *Human Resource Management Review*, *Vol. 30, No. 3*, 100705. doi:10.1016/j.hrmr.2019.100705
5. Austen, A., Piwowar-Sulej, K. (2025a). An Integrative Literature Review on Sustainability-Oriented HRM: How Multilevel Thinking May Help to Extend the State of the Art. *Journal of Change Management*, *Vol. 25, No. 3*, pp. 229-259. doi:10.1080/14697017.2025.2526367
6. Austen, A., Piwowar-Sulej, K. (2025b). Addressing big societal challenges: Towards Common Good HRM. *Organizacja i Kierowanie*, *Vol. 197, No. 1*, pp. 2-–37.
7. Barrena-Martínez, J., López-Fernández, M., Romero-Fernández, P.M. (2017). Socially responsible human resource policies and practices: Academic and professional validation. *European Research on Management and Business Economics*, *Vol. 23, No. 1*, pp. 55-61. doi:10.1016/j.iedeen.2016.05.001
8. Boon, C., Den Hartog, D.N., Lepak, D.P. (2019). A Systematic Review of Human Resource Management Systems and Their Measurement. *Journal of Management*, *Vol. 45, No. 6*, pp. 2498-2537. doi:10.1177/0149206318818718
9. Bush, J.T. (2020). Win-Win-Lose? Sustainable HRM and the promotion of unsustainable employee outcomes. *Human Resource Management Review*, *Vol. 30, No. 3*, 100676. doi:10.1016/j.hrmr.2018.11.004
10. Chams, N., García-Blandón, J. (2019). On the importance of sustainable human resource management for the adoption of sustainable development goals. *Resources, Conservation and Recycling*, *Vol. 141*, pp. 109-122. doi:10.1016/j.resconrec.2018.10.006
11. De Prins, P., Stuer, D., Gielens, T. (2020). Revitalizing social dialogue in the workplace: the impact of a cooperative industrial relations climate and sustainable HR practices on reducing employee harm. *International Journal of Human Resource Management*, *Vol. 31,*

No. 13, pp. 1684-1704. doi:10.1080/09585192.2017.1423098

12. Elnakib, A., Gallego-Roquelaure, V. (2025). Sustainable human resources management in small-medium enterprises in developing countries: a systematic literature review. *Employee Relations: The International Journal*, *Vol. 47, No. 5*, pp. 605-625. doi:10.1108/ER-09-2024-0527
13. Gazi, M.A.I., Islam, M.F., Mia, S., Nabi, M.N., Yesmin, M., Senathirajah, A.R. bin S. (2025). Enhancing Organizational Sustainability through Green HRM: A Conceptual Review. *Journal of Environmental & Earth Sciences*, *Vol. 7, No. 5*, pp. 30-48. doi:10.30564/jees.v7i5.8676
14. Gomes, G.P., Coelho, A., Ribeiro, N. (2025). A systematic literature review on sustainable HRM and its relations with employees' attitudes: state of art and future research agenda. *Journal of Organizational Effectiveness: People and Performance*, *Vol. 12, No. 1*, pp. 37-56. doi:10.1108/JOEPP-11-2023-0497
15. Grant, M.J., Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, *26*(2), 91-108. doi:10.1111/j.1471-1842.2009.00848.x
16. Hollensbe, E., Wookey, C., Hickey, L., George, G., Nichols, C.V. (2014). Organizations with Purpose. *Academy of Management Journal*, *Vol. 57, No. 5*, pp. 1227-1234. doi:10.5465/amj.2014.4005
17. Jabbour, C.J.C., Santos, F.C.A., Nagano, M.S. (2008). Environmental management system and human resource practices: is there a link between them in four Brazilian companies? *Journal of Cleaner Production*, *Vol. 16, No. 17*, 1922-1925. doi:10.1016/j.jclepro.2008.02.004
18. Jamali, D.R., El Dirani, A.M., Harwood, I.A. (2015). Exploring human resource management roles in corporate social responsibility: the CSR-HRM co-creation model. *Business Ethics: A European Review*, *Vol. 24, No. 2*, pp. 125-143. doi:10.1111/beer.12085
19. Jerónimo, H.M., Lacerda, T.C. de, Henriques, P.L. (2020). From Sustainable HRM to Employee Performance: A Complex and Intertwined Road. *European Management Review*. *Vol. 17, No. 4*, pp. 871-884, doi:10.1111/emre.12402
20. Kidd, C.V. (1992). The evolution of sustainability. *Journal of Agricultural and Environmental Ethics*, *Vol. 5, No. 1*, pp. 1-26. doi:10.1007/BF01965413
21. Kramar, R. (2022). Sustainable human resource management: six defining characteristics. *Asia Pacific Journal of Human Resources*, *Vol. 60, No. 1*, pp. 146-170. doi:10.1111/1744-7941.12321
22. Kumar, A., Bhaskar, P., Nadeem, S.P., Tyagi, M., Garza-Reyes, J.A. (2020). Sustainability Adoption through Sustainable Human Resource Management: A Systematic Literature Review and Conceptual Framework. *International Journal of Mathematical, Engineering and Management Sciences*, *Vol. 5, No. 6*, pp. 1014-1031. doi:10.33889/IJMEMS.2020.5.6.078

23. Leydesdorff, L., de Moya- Anegón, F., Guerrero- Bote, V.P. (2015). Journal maps, interactive overlays, and the measurement of interdisciplinarity on the basis of <scp>S</scp> copus data (1996-2012). *Journal of the Association for Information Science and Technology*, *Vol. 66, No. 5*, pp. 1001-1016. doi:10.1002/asi.23243
24. Macke, J., Genari, D. (2019). Systematic literature review on sustainable human resource management. *Journal of Cleaner Production*, *Vol. 208,* pp. 806-815 doi:10.1016/j.jclepro.2018.10.091
25. Omidi, A., Dal Zotto, C. (2022). Socially Responsible Human Resource Management: A Systematic Literature Review and Research Agenda. *Sustainability*, *Vol. 14, No. 4,* 2116. doi:10.3390/su14042116
26. Paauwe, J., Boon, C. (2009). Human Resource Management. In: D.G. Collings, G.T. Wood (Eds.), *Human resource management: A critical approach* (pp. 38-54). New York: Routledge.
27. Piwowar-Sulej, K. (2021). Core functions of Sustainable Human Resource Management. A hybrid literature review with the use of H- Classics methodology. *Sustainable Development*, *Vol. 29, No. 4*, pp. 671-693. doi:10.1002/sd.2166
28. Piwowar-Sulej, K. (2026). Engaging HR managers with the sustainable development goals: toward common-good HRM. *Personnel Review*, pp. 1-20. doi:10.1108/PR-12-2024-1075
29. Piwowar-Sulej, K., Austen, A., Iqbal, Q. (2023). Fostering three types of green behavior through green HRM in the energy sector: the conditional role of environmental managerial support. *Baltic Journal of Management*, *Vol. 18, No. 4*, pp. 509-524. doi:10.1108/BJM-03-2023-0089
30. Piwowar-Sulej, K., Bąk-Grabowska, D., Grzesik, K., Zając, C. (2023). *Zrównoważone Zarządzanie Zasobami Ludzkimi – wybrane zagadnienia*. Wrocław: Uniwersytet Ekonomiczny we Wrocławiu.
31. Ramgolam, G., Ramphul, N., Chittoo, H. (2025). Sustainable Human Resource Management—A Systematic Literature Review and Directions for Future Research. *Journal of the Knowledge Economy*, *Vol. 16, No. 3*, pp. 11407-11444. doi:10.1007/s13132-024-02273-5
32. Rubel, M.R.B., Kee, D.M.-H., Yusliza, M.Y., Rimi, N.N. (2023). Socially responsible HRM and hotel employees' environmental performance: the mediating roles of green knowledge sharing and environmental commitment. *International Journal of Contemporary Hospitality Management*, *Vol. 35, No. 7*, pp. 2645-2664. doi:10.1108/IJCHM-01-2022-0098
33. Somuah, C.O., Mensah, H.K., Okyere, G.A., Gyimah, P., Kamil, N.M. (2025). A Systematic Review on Socially Responsible Human Resource Management: Implications for Social Value Creation. *Corporate Social Responsibility and Environmental Management*, *Vol. 32, No. 4*, pp. 5102-5118. doi:10.1002/csr.3229

34. Tariq, S., Jan, F.A., Ahmad, M.S. (2016). Green employee empowerment: a systematic literature review on state-of-art in green human resource management. *Quality and Quantity*, *Vol. 50, No. 1*, pp. 237-269. https://doi.org/10.1007/s11135-014-0146-0
35. Zaugg, R.J., Blum, A., Thom, N. (2001). *Sustainability in Human Resource Management*. Retrieved from: https://empiricon.ch/assets/Publikationen/Personalmanagement/03.5-EN-sustainability-in-hrm-200106.pdf

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ORGANIZATIONAL CULTURE AS A MEDIATOR OF THE IMPACT OF SELECTED TALENT MANAGEMENT PRACTICES ON THE RETENTION OF MEDICAL PERSONNEL IN POLISH HOSPITALS

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Purpose: The aim of this study was to identify the relationships between selected talent management practices - talent acquisition and talent evaluation - and employee retention among medical personnel in Polish hospitals, and to examine whether organizational culture mediates these relationships.
Design/methodology/approach: Empirical data were collected using a questionnaire survey based on a Likert scale. The study involved 296 medical professionals employed in Polish hospitals. The reliability and convergent validity of the instrument were confirmed (Cronbach's alpha > 0.70; AVE > 0.50). To test the relationships between talent acquisition, talent evaluation, organizational culture, and employee retention, structural equation modeling was conducted using SPSS and AMOS version 31.
Findings: The analysis revealed that both talent acquisition and talent evaluation significantly affect organizational culture in Polish hospitals ($\beta = 0.462$, $p < 0.001$; $\beta = 0.299$, $p = 0.006$, respectively). The direct effect of talent acquisition on employee retention was not statistically significant ($\beta = 0.149$, $p = 0.154$), whereas talent evaluation ($\beta = 0.263$, $p = 0.004$) and organizational culture ($\beta = 0.526$, $p < 0.001$) showed significant direct effects on employee retention. Analysis of indirect effects confirmed the mediating role of organizational culture in the relationships between talent evaluation and employee retention ($\beta = 0.157$, $p = 0.018$) and between talent acquisition and employee retention ($\beta = 0.243$, $p < 0.001$).
Research limitations/implications: The study was conducted exclusively in Polish hospitals, which may limit generalizability to other countries or healthcare sectors. Future research should include diverse types of healthcare institutions and consider contextual factors such as hospital size, staff specialization, and managerial competency levels.
Originality/value: This study provides empirical evidence of the mediating role of organizational culture in the relationships between talent management practices and employee retention among medical personnel in Polish hospitals. The findings indicate that both talent acquisition and talent evaluation influence employee retention through organizational culture. This study offers a valuable foundation for further research on talent management in healthcare and for designing human resource policies that support medical personnel retention.
Keywords: talent management, organizational culture, employee retention, hospitals.
Category of the paper: Research paper.

1. Introduction

In many countries, public healthcare organizations experience persistent crises manifested in high levels of staff turnover, with a substantial proportion of healthcare professionals leaving their jobs each year. This situation is largely driven by demanding working conditions that negatively affect employee well-being. As a result, talent management is increasingly perceived as a critical tool for supporting healthcare personnel, enhancing their well-being, and consequently improving individual performance and the quality of healthcare services provided to patients (Dzimbiri, Molefakgotla, 2021).

The Polish healthcare system faces particularly acute challenges, including a severe shortage of medical personnel, talent drain and migration abroad, declining quality of graduates, insufficient research output, inadequate allocation of public funds, and a weak position in international rankings. These systemic problems have intensified the need to implement effective talent management practices at the national level to restructure approaches to education and talent development, address competency gaps, and secure a qualified workforce for the future (Pomaranik, Kludacz-Alessandri, 2023). Public organizations increasingly recognize that attracting and retaining employees from diverse backgrounds contributes to improved organizational performance and higher quality of medical services, especially given the pivotal role of individual employees in effective public service delivery (Singh Sandhu et al., 2011).

Although talent management has been widely discussed in the private sector, its application in the public healthcare sector remains insufficiently explored. Only a limited number of studies have examined talent management practices in healthcare organizations, despite the critical importance of medical personnel in meeting patient needs and maintaining service quality (Hasanudin, Pratama, 2023). Moreover, existing research indicates a growing awareness of the limited scope and scarcity of empirical studies on talent management in healthcare, particularly from the perspective of employees (Berkery et al., 2023; Dzimbiri, Molefakgotla, 2021; Bibi, 2019).

In response to these research gaps, the aim of this study is to identify the relationships between selected talent management practices - talent acquisition and talent evaluation - and the retention of medical personnel employed in Polish hospitals, as well as to examine whether organizational culture mediates these relationships. Given the persistent difficulties in retaining medical staff, the findings of this study may provide valuable insights for decision-makers responsible for talent management in public healthcare organizations (De Vries et al., 2023).

2. Literature Review

Talent management has become a key concept in organizational research, emphasizing the strategic importance of talented employees as resources that enable organizations to achieve excellence and sustainable competitive advantage through their effective utilization (Meyers, 2016). Two dominant approaches to talent management can be identified in the literature: inclusive and exclusive (Vardi et al., 2023; Yildiz, Esmer, 2023). While the inclusive approach focuses on developing the talents of all employees to enhance overall organizational performance, the exclusive approach concentrates on a selected group of employees considered critical to organizational success (Bermeo, Perez, 2023; Kaliannan et al., 2023).

This study adopts the exclusive approach to talent management, focusing on medical personnel as a strategically important group within healthcare organizations. In the context of hospitals, retaining highly qualified medical professionals is essential due to the direct impact of their work on patient outcomes and service quality. Employee retention is therefore recognized as a key organizational outcome, particularly in sectors characterized by labor shortages and high turnover rates (De Vries et al., 2023).

The study focuses on two talent management practices: talent acquisition (TA) and talent evaluation (TE). The selection of these practices is theoretically grounded in talent-based theory and social identity theory. Talent-based theory posits that human talent constitutes a unique and inimitable resource that enables organizations to compete effectively, highlighting the importance of acquiring, identifying, and retaining talented employees (Rabbi et al., 2015). Social identity theory suggests that employees' identification with the organization is shaped by how they are evaluated and recognized, influencing their attitudes and behaviors, including their intention to remain with the organization (Tajfel, 1982; Tajfel, Turner, 2004; Korostelina, 2007).

Organizational culture is understood as a system of shared assumptions, values, and beliefs developed to address external adaptation and internal integration challenges (Lund, 2003; Limaj, Bernroider, 2019). It plays a crucial role in shaping employees' perceptions, attitudes, and behaviors. In healthcare settings, professionals' perceptions of organizational culture reflect the extent to which organizational values, norms, and practices facilitate cooperation, communication, and professional respect (Tzeng et al., 2002). A culture that supports talented employees, fosters trust, encourages creativity, and promotes positive interpersonal relations can enhance the effectiveness of talent management practices.

Based on the theoretical foundations and prior empirical findings, the following hypotheses are formulated:

H1: Talent acquisition (TA) affects organizational culture (OC).

H2: Talent evaluation (TE) affects organizational culture (OC).

H3: Talent acquisition (TA) affects employee retention (ER).

H4: Talent evaluation (TE) affects employee retention (ER).

H5: Organizational culture (OC) affects employee retention (ER).

H6a: Organizational culture (OC) mediates the relationship between talent evaluation (TE) and employee retention (ER).

H6b: Organizational culture (OC) mediates the relationship between talent acquisition (TA) and employee retention (ER).

The proposed relationships between the study variables are illustrated in Figure 1, which presents the conceptual research model.

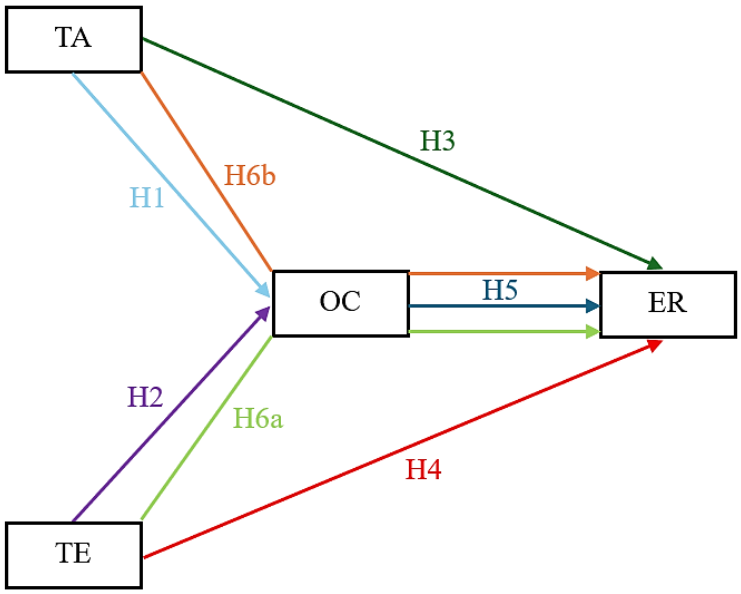

Figure 1. The conceptual research model.

Source: Own elaboration.

3. Methods

The questionnaire used in the study was divided into three parts. Part I included questions to collect information on the characteristics of medical personnel, covering socio-demographic and professional data, such as age, gender, healthcare profession, and tenure with the current employer. Part II focused on assessing respondents' subjective sense of being talented, understood as their self-evaluation of possessing above-average professional competencies, skills, and influence over others in the workplace. Part III contained questions designed to obtain detailed information on the studied constructs, including talent management practices (talent acquisition and talent evaluation), organizational culture, and employee retention. The scale items for all dimensions of the questionnaire were adapted based on a comprehensive review of the relevant literature.

The summary of the items and the corresponding constructs are presented in Table 1. Each item was measured using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 1.
Summary of the items and the corresponding constructs

Construct	Source	Items
Talent Evaluation (TE)	Misztal, 2020; El Dahshan et al., 2018; Behera et al., 2019; Nafei, 2015	TE1: The organization has a transparent and objective way of appraising staff
		TE2: Surveys to evaluate my work are carried out periodically
		TE3: Managers provide feedback to staff-on-staff appraisals carried out
Talent acquisition (TA)	Obeidat et al., 2018; El Dahshan et al., 2018; Groves, 2013	TA1: The organization undertakes long-term human resource planning
		TA2:The reputation of the facility attracts talented medical professionals
		TA3:High-potential employees are identified in the context of our organization's strategic priorities
Organizational culture (OC)	Malathi, Ayisha Millath, 2019; Moczydłowska, 2013	OC1: The facility has a friendly atmosphere
		OC2: The conditions of employment at the facility allow for a work-life balance
		OC3: Managers create a professional atmosphere in which respect is shown to medical personnel
Employee Retention (ER)	Moczydłowska, 2013, Miś, 2020, Malathi, Ayisha Millath, 2019	ER1: I identify with my current employer
		ER2: I would not want to receive a better job offer from a competitor
		ER3: I would not want to test myself in a new environment.

Source: own elaboration based on the sources in the table.

To mitigate potential common method bias, several procedural remedies were employed, including interspersing items from different constructs within the survey instrument and using reverse-coded questions. Furthermore, the presence of common method bias was assessed by conducting Harman's one-factor test. The results indicated that the first factor accounted for 45.85% of the total variance. Therefore, common method bias does not pose a significant concern in this study (Podsakoff et al., 2003).

A survey was conducted among healthcare professionals in Poland to collect research data. Healthcare entities meeting the following criteria were selected for the study: the type of medical activity provided consisted of stationary and round-the-clock hospital care, and the organizational units included hospital wards and other inpatient care units. Healthcare entities meeting these criteria represent a crucial part of the healthcare system in Poland and face considerable challenges in managing medical personnel. The sample was drawn from the Register of Entities Performing Medical Activity, an electronic database maintained in accordance with the Act on Medical Activity in Poland, which contains comprehensive information on all Polish healthcare facilities. Data were collected using Computer-Assisted Web Interviewing (CAWI) and Computer-Assisted Telephone Interviewing (CATI), with identical questionnaires applied in both methods. Furthermore, the study received interest

and support from the Medical Chambers of the following cities: Płock, Wrocław, Lublin, Gdańsk, Koszalin, Kraków, Łódź, Tarnów, Zielona Góra, and Poznań.

Participation was voluntary, and full confidentiality and anonymity were ensured. A total of 296 respondents participated in the study. The collected data were analyzed using IBM SPSS Statistics and IBM SPSS AMOS version 31. Descriptive statistics, scale reliability assessment, confirmatory factor analysis (CFA), path analysis within the structural equation model, and mediation analysis were performed. A significance level of $p < 0.05$ was applied in all analyses.

4. Characteristics of respondents

The study examined several socio-demographic and professional variables to characterize the respondents and assess their suitability for participation. These included gender, age category, healthcare profession, and tenure with the current employer. The results are presented in Table 2.

Table 2.
Socio-demographic characteristics of the study participants

Construct		Frequency (N)	Percent (%)
Gender	Male	59	19.9
	Female	237	80.1
	Total	296	100.0
Age category	Less than 31 years	51	17.2
	Between 31-45 years	60	20.3
	Between 46-60 years	166	56.1
	Above 60 years	19	6.4
	Total	296	100.0
Tenure with current employer (years)	Between 1-5 years	79	26.7
	Between 6-10 years	35	11.8
	Between 11-15 years	23	7.8
	Between 16-25 years	49	16.5
	Above 25 years	110	37.2
	Total	296	100.0
Healthcare profession	Physician	76	25.7
	Nurse	165	55.7
	Midwife	34	11.5
	Other	21	7.1
	Total	296	100.0

Source: Own elaboration.

The majority of surveyed respondents were women (80.1%), aged 46 to 60 years (56.1%), predominantly nurses (55.7%), and more than 25 years of tenure with their current employer (37.2%).

5. Results

The scale reliability results are presented in Table 3. For all tested variables, Cronbach's α was over 0.7, indicating high internal reliability of the scales and measurements.

Table 3.
Scale reliability results

Construct	Items	M	SD	Alpha-Cronbach	KMO (sig. < 0.001)	Factor Analysis (%)
Talent evaluation (TE)	TE1	3.69	1.433	0.888	0.748	82.120
	TE2	3.70	1.508			
	TE3	3.27	1.688			
Talent acquisition (TA)	TA1	3.63	1.413	0.760	0.680	67.576
	TA2	3.50	1.323			
	TA3	3.37	1.410			
Organizational culture (OC)	OC1	3.80	1.254	0.817	0.699	73.916
	OC2	3.60	1.444			
	OC3	3.56	1.506			
Employee retention (ER)	ER1	4.06	1.337	0.828	0.647	74.430
	ER2	3.32	1.580			
	ER3	3.21	1.524			

Note: M – Mean, SD – Standard Deviation, KMO – Kaiser-Meyer-Olkin Measure of Sampling Adequacy.
Source: Own elaboration.

The scales measuring TE, TA, OC, and ER exhibited excellent internal consistency (α = 0.888, α = 0.760, α = 0.817, and α = 0.828, respectively). The Kaiser-Meyer-Olkin (KMO) values indicated adequate sampling adequacy for all dimensions, and factor analysis revealed that each dimension accounted for a substantial proportion of the total variance, ranging from 67.58% to 82.12%.

A confirmatory factor analysis (CFA) was conducted to assess the constructs' validity and test the model fit (see Table 4).

Table 4.
CFA results

Construct	Reliability and convergent validity		Discriminant validity			
	CR	AVE	TA	ER	OC	TE
TA	0.888	0.521	0.722			
ER	0.911	0.590	0.722	0.768		
OC	0.916	0.615	0.697	0.804	0.784	
TE	0.945	0.723	0.786	0.728	0.662	0.851

Note: CR – Composite Reliability, AVE – Average Variance Extracted.
Source: Own elaboration.

The model was examined to assess its reliability, convergent validity, and discriminant validity using IBM SPSS AMOS v. 31. All dimensions demonstrated high composite reliability (CR > 0.7), confirming the consistency of the measurements. The average variance extracted (AVE) for each dimension exceeded the recommended threshold of 0.5 and remained

consistently lower than the respective CR values. Standardized factor loadings for all measured variables surpassed the suggested minimum of 0.5. Collectively, these results provide evidence of convergent validity for the dimensions.

Discriminant validity was evaluated using the Fornell–Larcker criterion, by comparing the square root of each AVE along the main diagonal with the correlation coefficients between dimensions (off-diagonal) in the corresponding rows and columns (Fornell, Larcker, 1981). Minor discrepancies were observed for some dimensions; however, these differences were negligible and can be disregarded (Rahim, Magner, 1995). Overall, the discriminant validity of the measurement model is supported, confirming the distinctiveness of the dimensions. Theoretical validity is considered established when both convergent and discriminant validity are confirmed.

Path analysis was performed as the next step in the research using IBM SPSS AMOS v. 31 to verify the theoretical model and hypotheses. The model was constructed with talent evaluation (TE) and talent acquisition (TA) as the independent variables, organizational culture (OC) as the intermediate variable, and employee retention (ER) as the dependent variable. The final model consists of twelve observable variables and four latent variables.

Several goodness-of-fit indices were examined to assess the adequacy of the proposed structural model. The results indicate that the model demonstrates an acceptable level of fit to the empirical data. The chi-square to degrees of freedom ratio ($\chi^2/df = 3.730$) is below the recommended threshold of 5, indicating an acceptable model fit. Both absolute and incremental fit indices support this assessment. The Goodness-of-Fit Index (GFI = 0.909), Adjusted Goodness-of-Fit Index (AGFI = 0.852), Normed Fit Index (NFI = 0.915), and Comparative Fit Index (CFI = 0.936) all exceed their respective recommended cutoff values, confirming a satisfactory model fit. Additionally, the Standardized Root Mean Square Residual (SRMR = 0.054) is below the recommended maximum value of 0.08, indicating an adequate level of residuals. Overall, the set of fit indices confirms that the proposed structural model provides a good representation of the observed data (Dash, Paul, 2021). A summary of the model-fit indices is presented in Table 5, and the structural model is illustrated in Figure 2.

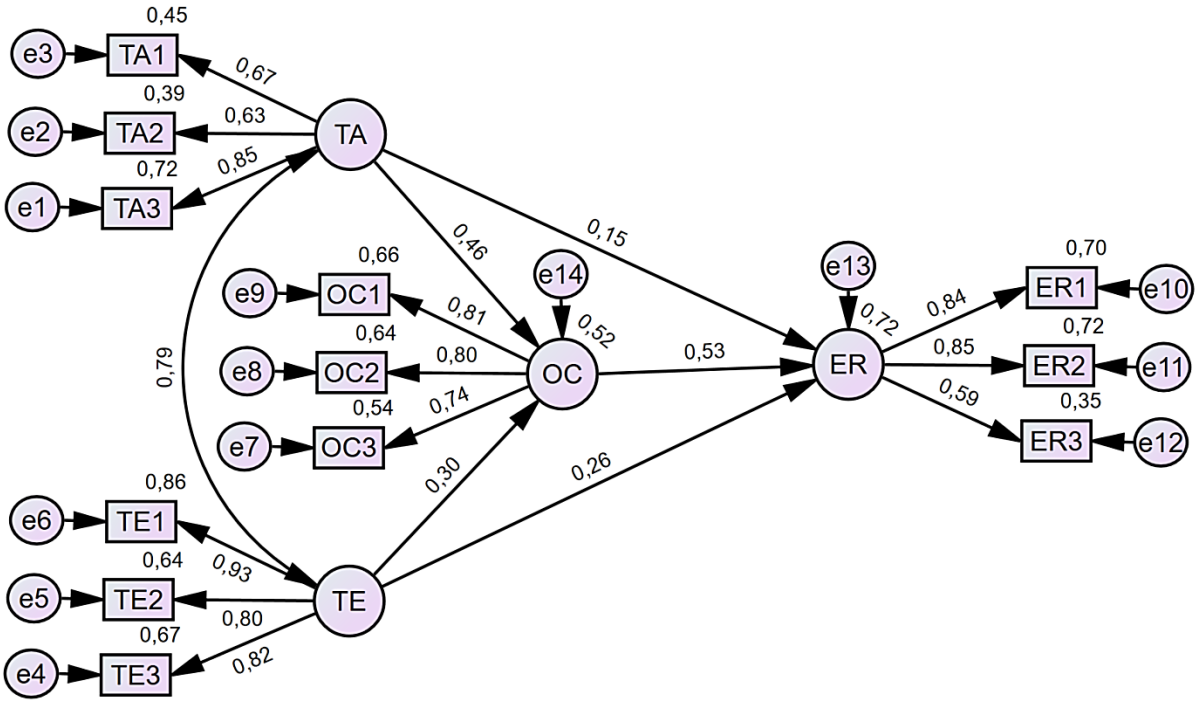

Figure 2. The obtained structural model.

Source: Own elaboration.

Table 5.
Summary of model-fit indices for structural model

Model-fit index	χ2/df	GFI	AGFI	SRMR	CFI	NFI
Results	3.730	0.909	0.852	0.054	0.936	0.915
Acceptable Value	< 5	> 0.9	> 0.85	< 0.08	> 0.9	> 0.9

Note: χ^2 - chi-square test, df - degrees of freedom, GFI - Goodness of Fit, AGFI - Adjusted Goodness of Fit Index, SRMR - Standardized Root Mean Square Residual, CFI - Comparative Fit Index, NFI - Normed Fit Index.

Source: Own elaboration.

The predictors of ER together explain 72% of its variance, demonstrating the model's good explanatory power. The calculated regression coefficients for structural model are presented in Table 6.

Table 6.
Pathway coefficients of structural equation model

Hypothesis	Path	Standardised estimate	S.E.	C.R.	P-value
H1	TA → OC	0.462	0.100	3.930	<0.001
H2	TE → OC	0.299	0.080	2.733	0.006
H3	TA → ER	0.149	0.098	1.425	0.154
H4	TE → ER	0.263	0.074	2.894	0.004
H5	OC → ER	0.526	0.091	6.347	<0.001

Note: S.E. - Standard Error, C.R. - Critical Ratio.

Source: Own elaboration.

The analysis indicated that both talent acquisition and talent evaluation exert a significant impact on organizational culture in Polish hospitals ($\beta = 0.462$, $p < 0.001$ and $\beta = 0.299$, $p = 0.006$, respectively), thereby supporting hypotheses H1 and H2. The direct effect of talent acquisition on employee retention was not statistically significant ($\beta = 0.149$, $p = 0.154$), so hypothesis H3 is not supported. In contrast, talent evaluation ($\beta = 0.263$, $p = 0.004$) and organizational culture ($\beta = 0.526$, $p < 0.001$) demonstrated significant direct effects on retention, confirming hypotheses H4 and H5.

Next, mediation analysis was conducted to examine the indirect effects using bootstrap procedures (5000 samples) with bias-corrected and accelerated 95% confidence intervals. The standardized total, direct, and indirect effects within the structural model are presented in Table 7.

Table 7.
Standardized total, direct and indirect effects within the structural model

Variable	**Total effect**			**Direct effect**			**Indirect effect**		
	TE	**TA**	**OC**	**TE**	**TA**	**OC**	**TE**	**TA**	**OC**
OC	0.299	0.462	0	0.299	0.462	0	0	0	0
ER	0.420	0.392	0.526	0.263	0.149	0.526	0.157	0.243	0
Hypothesis	**Path**			**Indirect effect**	**Standard Error**	**Lower Bound**	**Upper Bound**	**P-value**	
H6a	TE → OC → ER			0.157	0.085	0.025	0.366	0.018	
H6b	TA → OC → ER			0.243	0.088	0.115	0.454	<0.001	

Source: Own elaboration.

The results indicate that organizational culture (OC) mediates the relationships between talent evaluation (TE) and employee retention (ER), as well as between talent acquisition (TA) and ER. The indirect effect of TE on ER via OC was statistically significant ($\beta = 0.157$, SE = 0.085, 95% BCa CI [0.025, 0.366], $p = 0.018$), supporting hypothesis H6a. Likewise, the indirect effect of TA on ER through OC was significant ($\beta = 0.243$, SE = 0.088, 95% BCa CI [0.115, 0.454], $p < 0.001$), confirming hypothesis H6b.

6. Summary

In conclusion, employee retention (ER) in the studied sample is explained both by the direct effects of talent evaluation (TE) and organizational culture (OC), as well as by the indirect effects of talent management practices through organizational culture, indicating full mediation in the case of TA and partial mediation in the case of TE.

Collectively, the predictors included in the model account for 72% of the variance in employee retention, demonstrating the strong explanatory power of the proposed structural model and highlighting the critical role of organizational culture in creating a supportive work environment, which in turn enhances the effectiveness of HR practices in retaining employees.

A limitation of this study is its cross-sectional design and the exclusive focus on hospitals in Poland, which restricts the generalizability of the findings to other types of healthcare organizations or countries. Future research should consider expanding the sample to include diverse healthcare institutions and employing qualitative or longitudinal approaches to enable a more in-depth analysis of the mechanisms linking talent management practices, organizational culture, and employee retention.

References

1. Behera, R.K., Bala, P.K., Dhir, A. (2019). The emerging role of cognitive computing in healthcare: A systematic literature review. *International Journal of Medical Informatics, Vol. 129*, pp. 154-166, doi: 10.1016/j.ijmedinf.2019.04.024
2. Berkery, E. et al. (2023). Developing a talent management framework for domestically and internationally trained nurses and midwives in Healthcare organizations: a mixed- methods research protocol. *Nursing Open, Vol. 10, No. 11*, pp. 7209-7214, doi: 10.1002/nop2.1973
3. Bermeo, J.O., Perez, M.A. (2023). Trends in human talent management of and impact on inclusive organizational culture. *Handbook of Research on Promoting an Inclusive Organizational Culture for Entrepreneurial Sustainability*. IGI Global Scientific Publishing, pp. 241-263, doi: 10.4018/978-1-6684-5216-5.ch013
4. Bibi, M. (2019). Impact of talent management practices on employee performance: an empirical study among healthcare employees. *SEISENSE Journal of Management, Vol. 2, No. 1*, pp. 22-32, doi: 10.33215/sjom.v2i1.83
5. Dahshan, M., Keshk, L., Dorgham, L. (2018). Talent Management and Its Effect on Organization Performance among Nurses at Shebin El-Kom Hospitals. *International Journal of Nursing, Vol. 5, No. 2*. doi: 10.15640/ijn.v5n2a10
6. Dash, G., Paul, J. (2021). CB SEM vs PLS SEM methods for research in social sciences and technology forecasting. *Technological Forecasting and Social Change, Vol. 173*. doi: 10.1016/j.techfore.2021.121092
7. De Vries, N. et al. (2023). The race to retain healthcare workers: a systematic review on factors that impact retention of nurses and physicians in hospitals. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing, Vol. 60*, doi: 10.1177/00469580231159318

8. Dzimbiri, G.L., Molefakgotla, A.M. (2021). Talent management practices: perception of registered nurses in Malawian public hospitals. *African Journal of Economic and Management Studies, Vol. 12, No. 3*, pp. 423-438, doi: 10.1108/AJEMS-11-2020-0570
9. Fornell, C., Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, Vol. 18, No. 1,* pp. 39-50.
10. Groves, K.S. (2013). *Impact of Talent Management Practices on Hospital Clinical, Financial, & Workforce Metrics: Healthcare Talent Management Survey 2013*. Los Angeles: Groves Consulting Group.
11. Hasanudin, H., Pratama, A.Y. (2023). The Effect of Talent Management, Internal Communication and Work Life Balance on Employee Performance Through Employee Satisfaction at PT. Aru Raharja. *Jurnal Manajemen, Kepemimpinan, dan Supervisi Pendidikan, Vol. 8, No. 1*, pp. 587-606, doi: 10.31851/jmksp.v8i1.12940
12. Kaliannan, M. et al. (2023). Inclusive talent development as a key talent management approach: A systematic literature review. *Human resource management review, Vol. 33, No. 1*, doi: 10.1016/j.hrmr.2022.100926
13. Korostelina, K.V. (2007). Social Identity as Social Phenomenon and Scientific Concept. In: *Social Identity and Conflict* (pp. 15-32), doi: 10.1057/9780230605671_2
14. Limaj, E., Bernroider, E.W. (2019). The roles of absorptive capacity and cultural balance for exploratory and exploitative innovation in SMEs. *Journal of Business Research, Vol. 94*, pp. 137-153, doi: 10.1016/j.jbusres.2017.10.052
15. Lund, D.B. (2003). Organizational culture and job satisfaction. *Journal of business & industrial marketing, Vol. 18, No. 3,* pp. 219-236, doi: 10.1108/0885862031047313
16. Malathi, S., Ayisha Millath, M. (2019). Talent Management an Emerging Trend for Employee Effectiveness in Corporate Hospitals. *International Journal of Recent Technology and Engineering (IJRTE), Vol. 8, Iss. 4S5,* doi: 10.35940/ijrte.D1026.1284S519
17. Meyers, M.C. (2016). Talent management: Towards a more inclusive understanding, *Tijdschrift voor HRM, Vol. 12*, pp. 1-12.
18. Miś, A. (2020). *Zarządzanie talentami w polskich organizacjach, architektura systemu*. Warszawa: Wolters Kluwer.
19. Misztal, M. (2020). Wpływ procesów zarządczych na poziom zaangażowania pielęgniarek w pracę. *Współczesne Pielęgniarstwo i Ochrona Zdrowia, t. 9, nr 1-4.*
20. Moczydłowska, J.M. (2013). Błędy w zarządzaniu relacjami z pracownikami jako wewnętrzne źródło kryzysu w organizacji. In: S. Partycki (Ed.), *Strategie działań w warunkach kryzysu*, Lublin: Wydawnictwo KUL.
21. Nafei, W.A. (2015). Talent management and health service quality from the employee perspective: A study on teaching hospitals in Egypt. *American International Journal of Social Science, Vol. 4*, *No. 1*, pp. 91-110.

22. Obeidat, B., Yassin, H., Masa'Deh, R. (2018). The Effect of Talent Management on Organizational Effectiveness in Healthcare Sector. *Modern Applied Science, Vol. 12, No. 11*, doi; 10.5539/mas.v12n11p55
23. Podsakoff, P.M. et al. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, Vol. 88, No. 5*, pp. 879-903, doi: 10.1037/0021-9010.88.5.879
24. Pomaranik, W., Kludacz-Alessandri, M. (2023). Talent management and job satisfaction of medical personnel in Polish healthcare entities. *Frontiers in Psychology, Vol. 14,* doi: 10.3389/fpsyg.2023.1146073
25. Rabbi, F. et al. (2015). Talent management as a source of competitive advantage. *Journal of Asian business strategy, Vol. 5, No. 9,* doi: 10.18488/journal.1006/2015.5.9/1006.9.208.214
26. Rahim, M.A., Magner, N.R. (1995). Confirmatory factor analysis of the styles of handling interpersonal conflict: First-order factor model and its invariance across groups. *Journal of Applied Psychology, Vol. 80, No. 1*, pp. 122-132.
27. Singh Sandhu, M. et al. (2011). Knowledge sharing among public sector employees: evidence from Malaysia. *International Journal of Public Sector Management, Vol. 24, No. 3*, pp. 206-226, doi: 10.1108/09513551111121347
28. Tajfel, H. (1982). Social Psychology of Intergroup Relations. *Annual Review of Psychology, Vol. 33, No. 1,* pp. 1-39.
29. Tajfel, H., Turner, J.C. (2004). The social identity theory of intergroup behavior. *Political Psychology.* Psychology Press, pp. 276-293.
30. Tzeng, H.M., Ketefian, S., Redman, R.W. (2002). Relationship of nurses' assessment of organizational culture, job satisfaction, and patient satisfaction with nursing care. *International Journal of Nursing Studies, Vol. 39, No. 1*, doi: 10.1016/s0020-7489(00)00121-8
31. Vardi, S., Collings, D.G. (2023). What's in a name? talent: A review and research agenda. *Human Resource Management Journal, Vol. 33, No. 3*, pp. 660-682, doi: 10.1111/1748-8583.12500
32. Yildiz, R.O., Esmer, S. (2023). Talent management strategies and functions: a systematic review. *Industrial and Commercial Training, Vol. 55, No. 1*, pp. 93-111, doi: 10.1108/ICT-01-2022-0007

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INVISIBLE WORK IN COMPLEX PROJECT TEAMS: A MULTIDIMENSIONAL PERSPECTIVE

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Purpose: This article aims to identify, understand, and conceptualize the role of invisible work in complex project teams operating under conditions of internationalization, remote work, and interdisciplinarity. It shows that effective collaboration in such settings depends not only on formal structures and procedures but also on informal and often unrecognized practices performed by key project actors.
Design/methodology/approach: The study adopts a qualitative, interpretive approach based on four years of empirical material from the Entrepreneurial and Intrapreneurial Project Management (EIPM) program implemented within the 4EU+ alliance. The analysis draws on three in-depth testimonies from key participants, supplemented with project documentation, allowing the reconstruction of practices absent from formal project descriptions.
Findings: The analysis identifies three interrelated dimensions of invisible work: (1) emotional work stabilizing teams by regulating uncertainty and mitigating conflict; (2) relational work building micro-connections across cultural and digital boundaries; and (3) institutional work enabling navigation across misaligned organizational logics, academic calendars, and administrative requirements. Together, these practices form a hidden infrastructure that sustains collaboration despite distance, diversity, and ambiguity.
Research limitations/implications: The study relies on a single case and a limited number of testimonies, which limits generalizability. Future research could include comparative, cross-institutional, or mixed-method studies to further develop the concept of invisible work.
Practical implications: The findings highlight the need to formally recognize invisible work as a key resource in managing international academic initiatives and to support the emotional, relational, and institutional competences of tutors, student advisors, and program coordinators.
Social implications: By shedding light on invisible work, the study contributes to a better understanding of the emotional demands placed on individuals sustaining collaboration in complex educational environments and points to potential improvements in their well-being and in students' learning experiences.
Originality/value: The article contributes to the management learning and project team literature by conceptualizing invisible work as a central element of complex educational projects and offering a new perspective on managing collaboration in higher education.

Keywords: Invisible work; complex project teams; international and remote collaboration; interdisciplinary education; project management.
Category of the paper: research paper.

1. Introduction

Contemporary project teams increasingly operate in environments characterized by high levels of complexity: they are international, work remotely, and involve students and practitioners representing diverse academic disciplines and cultures (Adler, 2002; Earley, Gibson, 2002). Such configurations-typical of European initiatives, such as the 4EU+ university alliances-create a learning-rich environment while simultaneously generating a range of challenges related to cultural differences, lack of shared context, and digital communication constraints. These teams function at the intersection of multiple institutional logics, languages, work styles, and expectations, resulting in daily practices that diverge significantly from classical models of team collaboration (Stahl et al., 2010).

The existing literature on multicultural, virtual, and interdisciplinary teams has primarily focused on the visible aspects of work organization: structures, tasks, communication tools, conflicts, and role distribution (Gibson, Gibbs, 2006; Gilson et al., 2015; Rhoten, Parker, 2004). Far less attention has been given to those activities that are not formally embedded in project frameworks, do not appear in reports or schedules, yet are essential for enabling collaboration. In work with student teams, particularly in inter-university contexts, a substantial portion of the actions that maintain information flow, regulate emotions, mitigate minor tensions, build trust, or reconcile differing institutional requirements remains invisible and difficult to capture. In the literature, this phenomenon is referred to as invisible work-effort that sustains the system but is not formally recognized as work (Hochschild, 1983; Star, Strauss, 1999; Hatton, 2017).

In educational projects such as the 4EU+ Entrepreneurial and Intrapreneurial Project Management (EIPM) program, the extent of invisible work becomes particularly evident when examined from the perspective of three key roles: tutors, student advisors, and program coordinators. Each of these roles contributes distinct forms of effort, responsibilities, and practical knowledge. Tutors engage in substantial emotional and relational work, assisting teams in managing tensions, interpreting silences, building micro-connections among students, and mediating misunderstandings, activities consistent with prior research on emotional and relational labor in educational and project-based contexts (Hochschild, 1983; Boler, 1999; Cunliffe, Hibbert, 2016). Student advisors support the learning process, motivation, and wellbeing of participants, performing subtle mentoring work that remains largely invisible within formal project structures (Hibbert et al., 2014). Program coordinators carry out intensive and often unremarkable institutional work, including negotiating differences in academic calendars, aligning business partner requirements, and translating divergent operational logics

between universities, forms of institutional and coordinative labor highlighted in prior research on inter-organizational collaboration (Oliver, 1991; Lawrence, Suddaby, 2006).

As a result, a complex network of practices emerges which, although rarely articulated or formalized, underpins the functioning of the entire system. The aim of this article is to reveal, understand, and conceptualize the invisible work conducted within highly complex educational projects. To achieve this aim, the study addresses two research questions: (1) how invisible work emerges and is enacted in highly complex educational projects such as the EIPM program, and (2) how this invisible work functions as a "hidden infrastructure" that enables collaboration across cultural, communicational, and institutional boundaries (Star, Strauss, 1999; Edmondson, Harvey, 2018). Based on a case study of the EIPM program, the analysis demonstrates that invisible work plays a critical infrastructural role in sustaining collaboration under conditions of internationality, virtuality, and interdisciplinarity.

By introducing this concept into the analysis of educational practices, the article provides a novel theoretical perspective on project team dynamics and highlights that the effective management of international, remote, and interdisciplinary teams requires the recognition and appreciation of work that is typically unseen (Ashcraft, 2018; Ashcraft, Mumby, 2021).

2. Invisible work and high-complexity teams

The concept of invisible work holds an established position within the social sciences and refers to forms of activity that sustain the functioning of social and organizational systems while remaining outside formal role descriptions and structures. A classical reference point is Hochschild's (1983) concept of emotional labor, which demonstrated that the regulation of one's own and others' emotions constitutes an integral, albeit often unacknowledged, component of work particularly in educational and caregiving professions. Similarly, Star and Strauss (1999) highlighted the wide spectrum of background activities performed informally and without institutional recognition, despite their crucial significance for organizational functioning.

Contemporary research extends these insights by emphasizing the invisible nature of work in digital, educational, and project-based contexts. In the literature on digital labor, scholars stress the structural invisibility of efforts associated with platform maintenance, content moderation, and coordination of distributed work (Gray, Suri, 2019). In education, research indicates that the emotional and relational work performed by teachers, tutors, and mentors forms the foundation of the learning process, although it is rarely formally acknowledged (Boler, 1999; Cunliffe, Hibbert, 2016; Hibbert et al., 2014). Likewise, coordination of academic projects, especially in inter-institutional settings, requires numerous organizational and mediating activities that are not reflected in official evaluations of work (Lewis, Russell, 2011).

A parallel body of literature on international and cross-cultural teams emphasizes that collaboration in such configurations generates both innovative potential and increased risk of misunderstandings and conflict (Adler, 2002; Earley, Gibson, 2002). Studies on cultural differences (Hofstede, 2001; House et al., 2004; Trompenaars, Hampden-Turner, 1998) show that culture influences not only individual behavior but also expectations regarding communication, leadership, and decision-making. Meta-analyses indicate that particularly problematic are differences in trust-building and uncertainty management (Stahl et al., 2010). Work involving "cultural translation" and the creation of a temporary shared operational language is crucial in these teams, yet typically remains invisible.

Remote and hybrid teams also provide a significant context for analyzing invisible work. Research demonstrates that virtuality weakens social signals, complicates the interpretation of intentions and emotions, and increases the risk of misreading silence and limited engagement (Byron, 2008; Gibson, Gibbs, 2006; Mortensen, Neeley, 2012). Phenomena such as silent disengagement require intensive emotional and regulatory work by those in tutoring and coordinating roles, even though such effort is rarely formally captured (Ferrazzi, 2020). Studies further highlight a diminished capacity for affective attunement in digital environments, which further elevates the importance of relational invisible work (Koehne et al., 2012).

The literature on interdisciplinary teams, in turn, emphasizes epistemological tensions and the necessity of intensive translational work across different knowledge domains, methods, and quality assessment criteria (Repko, 2012; Rhoten, Parker, 2004). A central process becomes boundary work, or the negotiation of disciplinary boundaries (Gieryn, 1983), which demands both cognitive and relational effort. A substantial portion of this work remains invisible, particularly in student teams, where differences in competence and educational background further increase the complexity of collaboration.

Despite the wealth of research on international, remote, and interdisciplinary teams, as well as on emotional and relational labor, existing approaches remain fragmented and are rarely integrated in analyses of high-complexity educational projects. There is a lack of studies that treat invisible work as a central mechanism sustaining collaboration in environments combining cultural, communicational, epistemic, and institutional differences. Projects implemented within inter-university European alliances, such as 4EU+, remain particularly underexplored, where divergent academic calendars, administrative structures, and institutional logics generate specific forms of invisible work.

This article addresses this gap by analyzing invisible work as the hidden infrastructure of collaboration in complex educational projects. The case study of the 4EU+ EIPM program captures the scale, diversity, and significance of this work from the perspectives of three roles-tutor, student advisor, and program coordinator, and proposes a more integrated theoretical framework for research on collaboration in high-complexity educational environments.

3. Methodology

This study adopts a qualitative, interpretive methodological approach, premised on the assumption that understanding complex organizational phenomena requires insight into participants' experiences and an analysis of practices embedded in real-world contexts of action (Alvesson, Kärreman, 2011; Cunliffe, 2016). The empirical material was collected over a four-year implementation period of the 4EU+ Entrepreneurial and Intrapreneurial Project Management (EIPM) program and comprises three extensive testimonies from individuals occupying key project roles: an inter-university program coordinator, a tutor working directly with student teams, and a student advisor responsible for individual and instructional support.

These testimonies can be understood as a form of practical narratives-reflective accounts of experiences that reveal everyday practices and micro-interventions that are not captured in quantitative data or formal reports (Clandinin, Connelly, 2000). Each of the three perspectives contributes a distinct dimension of practical knowledge: coordinative, relational-instructional, and emotional-supportive, allowing for a multidimensional representation of invisible work and its functions within complex project teams.

The collected material was further enriched with supplementary sources, including field notes from team observations, records of project correspondence, program documentation, and reflections produced during weekly tutoring meetings. Triangulation of these data enables the capture of both declared and emergent processes, those that manifest in action but are often not articulated explicitly by participants (Denzin, 2012). The analysis was conducted within the tradition of interpretive qualitative analysis, integrating a hermeneutic approach with a practice-oriented perspective (Schatzki, 2005).

In the first stage, open coding of narratives was performed to identify recurring themes related to emotional, relational, and institutional work. In the second stage, thematic coding focused on mechanisms sustaining collaboration and on the micro-practices of invisible work. The analytical process was iterative, consistent with a reflexive approach in organizational research (Alvesson, Sköldberg, 2018), meaning that interpretations were repeatedly cross-checked against the empirical material and validated in light of theoretical frameworks concerning invisible work, complex teams, and emotional labor.

This methodology is particularly suitable for the study's objectives, as invisible work is inherently difficult to observe externally, and its analysis requires access to the experiences of individuals performing different roles within the same process. The multi-perspective design of the empirical material allows for the revelation of how different types of effort-emotional, relational, and institutional-interweave in daily practices, constituting the hidden infrastructure of collaboration in complex educational projects.

4. Findings

This section presents the empirical findings by examining how invisible work operates within the EIPM program. Rather than focusing on the chronological description of the project, the analysis concentrates on forms of work that remain largely unrecognized but are essential for sustaining collaboration in international, interdisciplinary, and predominantly remote teams. Three interrelated dimensions of invisible work emerged from the analysis: relational work, emotional work, and coordinative (institutional) work. These forms of work are primarily performed by tutors and program coordinators and function as a hidden infrastructure enabling the project to operate effectively.

4.1. Invisible Work as the Hidden Infrastructure of the EIPM Program

The Entrepreneurial and Intrapreneurial Project Management (EIPM) program, implemented within the 4EU+ European university alliance, provides the empirical setting for the study. The program engages doctoral and master's graduates from different disciplines in a seven-month project-based learning process focused on solving real challenges proposed by business partners. Participants work in international, multicultural, and interdisciplinary teams and collaborate mainly remotely, with two intensive on-site bootcamps marking the beginning and end of the program.

While the formal structure of the program defines the learning objectives, project milestones, and evaluation procedures, the empirical material shows that the functioning of teams depends heavily on a range of informal practices that are not formally assigned or recognized. These practices include mediating misunderstandings, maintaining motivation, translating institutional expectations, and coordinating activities across institutional and cultural boundaries. Together, they form a layer of invisible work that enables the formal project structure to function.

4.2. Relational Work: Building and Maintaining Collaboration

One of the most visible forms of invisible work concerns the continuous effort to build and maintain relationships within multicultural teams. Participants come from different disciplinary backgrounds, national cultures, and institutional contexts, which often leads to divergent expectations regarding communication styles, work pace, and problem-solving approaches.

In this context, tutors perform significant relational work by facilitating communication and helping participants establish shared norms of collaboration. This includes clarifying misunderstandings, encouraging quieter participants to contribute, and helping teams negotiate roles and responsibilities. Much of this work takes place outside formal meetings through informal conversations, additional consultations, or individual messages. Although crucial for team cohesion, these activities remain largely unrecorded in the formal structure of the program.

Relational work is particularly important during the early stages of collaboration, when participants transition from individual engagement to functioning as a team. During the initial bootcamp, tutors and coordinators invest considerable effort in supporting this transition by fostering trust, encouraging open communication, and helping participants navigate cultural and disciplinary differences.

4.3. Emotional Work: Regulating Tensions and Maintaining Engagement

A second dimension of invisible work involves emotional regulation within teams. The project's structure—characterized by remote collaboration, tight deadlines, and high expectations—creates conditions in which frustration, uncertainty, and stress frequently emerge.

Tutors play a key role in recognizing and managing these emotional dynamics. Their work includes identifying early signs of conflict, mediating disagreements, and supporting participants experiencing difficulties with workload or group dynamics. In many cases, tutors intervene informally through additional conversations or mediation efforts that extend beyond the formally defined mentoring role.

Emotional work intensifies at critical moments in the project cycle, particularly before mid-term reviews and final presentations. During these periods, tutors often help participants cope with performance pressure, maintain motivation, and restore cooperation within teams experiencing tensions. By stabilizing the emotional climate of the teams, this invisible work helps prevent disengagement and ensures continuity of collaboration.

4.4. Coordinative and Institutional Work: Managing Complexity Across Organizational Boundaries

A third form of invisible work concerns the coordination of activities across multiple institutional contexts. The EIPM program operates within a complex network of universities, academic calendars, and organizational procedures, while also involving external business partners and international evaluation panels.

Program coordinators perform extensive coordinative work to align these different institutional logics. This includes synchronizing schedules across universities, managing communication between academic and business actors, and adapting program procedures to different institutional expectations. Much of this work occurs behind the scenes and remains largely invisible to participants.

Institutional coordination becomes particularly visible during the preparation and implementation of the bootcamps, when logistical, academic, and symbolic elements must be aligned simultaneously. Ensuring that presentations, evaluations, and administrative requirements function smoothly requires continuous adjustments and negotiation among participating institutions.

4.5. Invisible Work Across the Project Lifecycle

Although invisible work is present throughout the program, its intensity and form change across different phases of the project. During the initial stage, relational work dominates as tutors and coordinators support team formation and the establishment of trust. During the extended remote collaboration phase, emotional work becomes more prominent as tutors manage emerging tensions and maintain team engagement. In the final stage of the program, coordinative and institutional work intensifies as multiple actors and evaluation procedures converge around the final presentations.

These findings demonstrate that invisible work is not a marginal phenomenon but a central mechanism enabling the functioning of complex, international educational projects. By sustaining relationships, regulating emotional dynamics, and coordinating institutional processes, tutors and coordinators provide the hidden infrastructure that allows interdisciplinary and geographically distributed teams to collaborate effectively.

5. Conclusion and implications for managing human resources in complex project teams

This study demonstrates that the functioning of international, remote, and interdisciplinary project teams relies to a substantial extent on work that remains structurally invisible. In response to RQ1, the findings show that invisible work emerges across all phases of highly complex educational projects as a network of emotional, relational, and institutional practices, becoming particularly salient at moments of uncertainty and potential disruption. Under such conditions, collaboration is sustained less by formal structures and procedures than by the everyday, informal efforts performed by tutors, mentors, and coordinators.

Addressing RQ2, the analysis reveals that invisible work operates as a hidden infrastructure of collaboration, enabling teams to transcend cultural, communicational, and institutional boundaries. By absorbing tensions, repairing relationships, supporting sensemaking, and translating institutional logics, invisible work prevents fragmentation and allows teams to maintain operational capacity despite organizational and cultural differences.

From a theoretical perspective, the study contributes to the literature on invisible work by showing that in highly complex educational settings it is not peripheral but central, while remaining systematically marginalized within formal management structures. The findings further demonstrate that invisible work is heterogeneous, taking different forms depending on organizational role and level, thereby extending research on relational and institutional work.

From a practical standpoint, the results highlight the need to explicitly recognize invisible work as an integral component of tutoring, mentoring, and coordinating roles. Failure to acknowledge these efforts increases the risk of overload and burnout, whereas integrating

emotional, relational, and institutional competences into human resource management systems may serve a stabilizing function. The study also points to the importance of dedicated support for coordination work and the design of collaborative systems that increase the visibility of work without bureaucratizing it.

In conclusion, invisible work constitutes a key resource enabling educational organizations to operate effectively under conditions of complexity and diversity. Its systematic recognition and support are critical for the sustainability and quality of international educational projects.

References

1. Aczel, B., Kovacs, M., van der Lippe, T., Szaszi, B. (2021). Researchers working from home: Benefits and challenges. *PLoS ONE*, *16*(3), e0249127, https://doi.org/10.1371/journal.pone.0249127
2. Adler, N.J. (2002). *International dimensions of organizational behavior (4th ed.)*. South-Western.
3. Alvesson, M., Kärreman, D. (2011). *Qualitative research and theory development: Mystery as method*. SAGE Publications.
4. Alvesson, M., Sköldberg, K. (2018). *Reflexive methodology: New vistas for qualitative research (3rd ed.)*. SAGE Publications.
5. Ashcraft, K.L. (2018). Invisible labor. In: C.R. Scott, L. Lewis (Eds.), *The international encyclopedia of organizational communication*. Wiley.
6. Ashcraft, K.L., Mumby, D.K. (2021). *Reworking gender: A feminist communicology of organization*. Sage.
7. Boler, M. (1999). *Feeling power: Emotions and education*. Routledge.
8. Byron, K. (2008). Carrying too heavy a load? The communication and miscommunication of emotion by email. *Academy of Management Review*, *33*(2), 309-327, https://doi.org/10.5465/amr.2008.31193163
9. Clandinin, D.J., Connelly, F.M. (2000). *Narrative inquiry: Experience and story in qualitative research*. Jossey-Bass.
10. Cooper, C.L., Dewe, P.J., O'Driscoll, M.P. (2001). *Organizational stress*. SAGE Publications.
11. Cunliffe, A.L. (2016). On becoming a critically reflexive practitioner. *Journal of Management Education*, *40*(6), 740-746, https://doi.org/10.1177/1052562916668919
12. Cunliffe, A.L., Hibbert, P. (2016). The role of emotion in reflexive practice. *Management Learning*, *47*(5), 563-578.
13. Denzin, N.K. (2012). *Interpretive autoethnography (2nd ed.)*. SAGE Publications.

14. Earley, P.C., Gibson, C.B. (2002). *Multinational work teams: A new perspective*. Lawrence Erlbaum Associates.
15. Edmondson, A.C., Harvey, J.-F. (2018). Cross-boundary teaming for innovation. *Human Resource Management Review*, *28*(4), 347-360, https://doi.org/10.1016/j.hrmr.2017.03.002
16. Ferrazzi, K. (2020). *Leading without authority: How the new power of co-elevation can break down silos, transform teams, and reinvent collaboration*. Harvard Business Review Press.
17. George, T.J., Atwater, L.E., Maneethai, D., Madera, J.M. (2022). Supporting the productivity and wellbeing of remote workers: Lessons from COVID-19. *Organizational Dynamics*, *51*(2), 100869, https://doi.org/10.1016/j.orgdyn.2021.100869
18. Gibson, C. B., & Gibbs, J. L. (2006). Unpacking the concept of virtuality: The effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity. *Administrative Science Quarterly*, *51*(3), 451–495, https://doi.org/10.2189/asqu.51.3.451
19. Gieryn, T.F. (1983). Boundary-work and the demarcation of science from non-science: Strains and interests in professional ideologies of scientists. *American Sociological Review*, *48*(6), 781-795, https://doi.org/10.2307/2095325
20. Grandey, A.A., Gabriel, A.S. (2015). Emotional labor at a crossroads. *Annual Review of Organizational Psychology and Organizational Behavior*, *2*, 323-349, https://doi.org/10.1146/annurev-orgpsych-032414-111400
21. Gray, M.L., Suri, S. (2019). *Ghost work: How to stop Silicon Valley from building a new global underclass*. Houghton Mifflin Harcourt.
22. Hatton, E. (2017). Mechanisms of invisibility: Rethinking the concept of invisible work. Work, *Employment and Society*, *31*(2), 336-351, https://doi.org/10.1177/0950017016674894
23. Hibbert, P., Sillince, J., Diefenbach, T., Cunliffe, A.L. (2014). Relationally reflexive practice: A generative approach to theory development in qualitative research. *Organizational Research Methods*, *17*(3), 278-298, https://doi.org/10.1177/1094428114524829
24. Hinds, P.J., Neeley, T.B., Cramton, C.D. (2014). Language as a lightning rod: Power contests, emotion regulation, and subgroup dynamics in global teams. *Journal of International Business Studies*, *45*(5), 536-561, https://doi.org/10.1057/jibs.2013.62
25. Hochschild, A.R. (1983). *The managed heart: Commercialization of human feeling*. University of California Press.
26. Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations (2nd ed.)*. Sage.
27. House, R.J., Hanges, P.J., Javidan, M., Dorfman, P., Gupta, V. (Eds.) (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Sage.

28. Jarvenpaa, S.L., Leidner, D.E. (1999). Communication and trust in global virtual teams. *Organization Science*, *10*(6), 791-815, https://doi.org/10.1287/orsc.10.6.791
29. Koehne, B., Shih, P.C., Olson, J.S. (2012). *Remote and alone: Coping with being the remote member on the team.* Proceedings of the ACM 2012 Conference on Computer-Supported Cooperative Work (CSCW '12). Association for Computing Machinery, 1257-1266. doi: https://doi.org/10.1145/2145204.2145393
30. Lawrence, T.B., Suddaby, R. (2006). Institutions and institutional work. In S. R. Clegg, C. Hardy, T.B. Lawrence, W.R. Nord (Eds.), *The Sage handbook of organization studies (2nd ed.)* (pp. 215-254). Sage.
31. Lazarus, R.S., Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
32. Le Fevre, M., Matheny, J., Kolt, G.S. (2003). Eustress, distress, and interpretation in occupational stress. *Journal of Managerial Psychology*, *18*(7), 726-744, https://doi.org/10.1108/02683940310502412
33. Leonardi, P.M. (2011). When flexible routines meet flexible technologies. *MIS Quarterly*, *35*(1), 147-167, https://doi.org/10.2307/23043493
34. Lewis, S., Russell, H. (2011). *Work–life balance and gender equality: A new agenda*. Policy Press.
35. Majchrzak, A., Jarvenpaa, S.L., Hollingshead, A.B. (2007). Coordinating expertise among emergent groups responding to disasters. *Organization Science*, *18*(1), 147-161, https://doi.org/10.1287/orsc.1060.0228.
36. Maslach, C., Leiter, M.P. (2016). Understanding the burnout experience. *World Psychiatry*, *15*(2), 103-111, https://doi.org/10.1002/wps.20311
37. Mortensen, M., Haas, M. (2018). Rethinking teams: From bounded membership to dynamic participation. *Organization Science*, *29*(2), 341-355, https://doi.org/10.1287/orsc.2017.1198
38. Mortensen, M., Neeley, T.B. (2012). Reflected knowledge and trust in global collaboration. *Administrative Science Quarterly*, *57*(2), 345-376, https://doi.org/10.1287/mnsc.1120.1546
39. Nicolini, D. (2012). *Practice theory, work, and organization: An introduction*. Oxford University Press.
40. Raval, N., Dourish, P. (2016). *Standing out from the crowd: Emotional labor, body labor, and temporal labor in ridesharing.* (Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing. ACM, 97-107. https://doi.org/10.1145/2818048.2820026
41. Repko, A.F. (2012). *Interdisciplinary research: Process and theory (2nd ed.)*. SAGE Publications.
42. Rhoten, D., Parker, A. (2004). Risks and rewards of an interdisciplinary research path. *Science*, *306*(5704), 2046, doi: https://doi.org/10.1126/science.1103628

43. Schatzki, T.R. (2005). The sites of organizations. *Organization Studies*, *26*(3), 465-484, https://doi.org/10.1177/0170840605050876
44. Stahl, G.K., Mäkelä, K., Zander, L., Maznevski, M.L. (2010). A look at the bright side of multicultural team diversity. *Scandinavian Journal of Management*, *26*(4), 439-447, https://doi.org/10.1016/j.scaman.2010.09.009
45. Stansfeld, S., Candy, B. (2006). Psychosocial work environment and mental health. Scandinavian *Journal of Work, Environment & Health*, *32*(6), 443-462, https://doi.org/10.5271/sjweh.1050
46. Star, S.L., Strauss, A. (1999). Layers of silence, arenas of voice: The ecology of visible and invisible work. *Computer Supported Cooperative Work*, 8, 9-30, https://doi.org/10.1023/A:1008651105359
47. Trompenaars, F., Hampden-Turner, C. (1998). *Riding the waves of culture: Understanding diversity in global business*. McGraw-Hill.
48. Zietsma, C., Lawrence, T.B. (2010). Institutional work in the transformation of an organizational field. *Administrative Science Quarterly*, *55*(2), 189-221, https://doi.org/10.2189/asqu.2010.55.2.189

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THE EVOLUTION OF ESF TOWARDS ESF PLUS BASED ON THE EXAMPLE OF POLISH EXPERIENCE

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Purpose: The aim of the article is to identify and assess the areas of support from the ESF (2004-2020) and the ESF+ (since 2021) in Poland and its regions in the context of the assumptions of subsequent programming documents and supporting operational programs implemented in the periods 2004-2006, 2007-2013, 2014-2020 and in the perspective of 2021-2027.
Design/methodology/approach: The article reviews the literature relating to the support of social areas within the framework of the EU structural and cohesion policy, implemented through the Structural Funds, with particular emphasis on the ESF and the evolution of this fund towards the current ESF+. The provisions of the most important strategic documents containing the assumptions for the implementation of cohesion policy in Poland in the subsequent EU financial perspectives in the years 2004-2020 and the still ongoing period covering the years 2021-2027 were analysed.
Findings: The assessment of the areas of ESF support in Poland and its regions presented in the article concerns the already completed periods 2004-2006, 2007-2013, 2020-2014 and the ongoing perspective 2021-2027. The current perspective is unique, because here the instrument of support in the field of social areas is the ESF+ fund. Support for the social sphere has been and is being carried out on the basis of strategic and program documents that reflect the needs and areas requiring intervention. The socio-economic reality changed in the following years, and the instruments of support also changed. This is illustrated by the establishment of the ESF+ fund by the EU.
Originality/value: The article is one of the first summaries of the areas of intervention of the new ESF+ fund in Poland in the current EU budget perspective (2021-2027) in the context of the experience of Polish and its regions since accession to the EU.
Keywords: EU structural funds, European Social Fund, European Social Fund PLUS.
Category of the paper: research paper, viewpoint.

1. Introduction

The European Social Fund (ESF), along with the European Regional Development Fund (ERDF), is one of the two most important structural funds of the European Union. The main areas to be supported by the fund are the labour market, the fight against poverty and the quality of human capital. During the existence of the ESF, it has evolved, keeping up with the ever-changing socio-economic reality. This was reflected in subsequent strategic and programme documents conditioning the use of structural funds in subsequent EU budget perspectives.

Poland and its regions, when they joined the EU in 2004, became a beneficiary of the Structural Funds. In subsequent financial perspectives, strategic and program documents were created, indicating the most important areas of structural policy support. The tools for their implementation were operational programmes, both of a national and regional nature

In 2021, a fund was created aimed at the social sphere, namely the ESF+ (ESF PLUS). It replaced the ESF, but without the slightest doubt it is a continuation of support for the most important problem areas in the social sphere. The article presents an overview and evaluation of the areas of intervention of the ESF (2004-2020) and the ESF+ (2021-2027) in Poland.

2. Evolution of the ESF towards the ESF+

The European Social Fund (ESF), along with the European Regional Development Fund (ERDF), was one of the two most important structural funds of the European Union. The main areas to be supported under the fund were the labour market, the fight against poverty and the quality of human capital (Poteralski, 2021).

The European Social Fund was created to improve the employability of workers within the internal market and thus contribute to raising the standard of living, which in turn is one of the fundamental objectives of the European Union's cohesion policy. One of the objectives of ESF-funded support and programmes is to adapt workers to changes in industry and production systems, especially through vocational training and retraining (Jarmołowicz, Knapińska, 2005).

The European Social Fund was created in 1957, and at the time of its establishment, only two types of assistance were assigned to its tasks: facilitating the employment of workers and supporting the professional and spatial mobility of the workforce within the territory of the Communities (Poteralski, 2024).

At the time of its creation, the ESF had only two types of assistance assigned to its tasks: facilitating the employment of workers and supporting the professional and spatial mobility of workers within the Community. The fund was intended to support activities aimed at effective re-employment of workers through vocational training and assistance with resettlement.

In addition, its resources are intended to provide assistance to workers whose employment has been reduced or suspended as a result of structural changes in production systems (industrial conversion). These were allowances designed to maintain the same level of wages until the employee was fully employed again. Support for vocational training was provided only in a situation where the unemployed person could not find a job other than the one in the new profession and at the same time in the last six months he was employed in a new profession (in which he had just been trained). Similar conditions had to be met with regard to the co-financing of labour mobility. Support could be granted if the unemployed person was forced to change their place of residence (within the Community) and was employed in a new place for at least half a year (Harasimowicz, 2022).

Analysing the areas of ESF support in the long history of its operation, it should be noted that this fund has evolved and undergone numerous reforms to respond to the changing realities of the labour market and the social sphere of the Community's functioning.

Until 2020, this fund functioned under the name of the European Social Fund, while on the threshold of the next financial perspective (2021-2027) there is talk of a new version of it, namely the European Social Fund "PLUS" (ESF+) (Poteralski, 2024).

The most important source concerning the assumptions, functioning and areas of support of the European Social Fund Plus is Regulation (EU) 2021/1057 of the European Parliament and of the Council of 24 June 2021.

The regulation refers to the European Pillar of Social Rights, proclaimed on 17 November 2017, as a response to societal challenges in Europe. The main rules, 20 in number, have been divided into 3 categories:

- equal opportunities and access to employment,
- fair working conditions,
- social protection and inclusion.

Further in the document, it is indicated that the principles of the pillar of social affairs should guide the activities carried out under the European Social Fund Plus. To this end, the ESF+ should support investment in people and systems in the policy areas of employment, education and social inclusion, thereby promoting economic, territorial and social cohesion, as enshrined in the Treaty on the Functioning of the EU (Official Journal of the EU, 2021, p. 21).

In order to streamline and simplify the funding system and create additional opportunities for synergies through integrated funding approaches, it was envisaged to include in the ESF+ actions that were supported by the Fund for European Aid to the Most Deprived and the European Union Programme for Employment and Social Innovation (Official Journal of the EU, 2021, p. 23).

The ESF+ should aim to support employment through active interventions for the integration and reintegration into the labour market, in particular young people, in particular through the implementation of the reinforced Youth Guarantee, the long-term unemployed, disadvantaged groups in the labour market and the inactive, as well as through the promotion

of self-employment and the social economy. The objective of the ESF+ should be to improve the functioning of labour markets by supporting the modernisation of labour market institutions, such as public employment services, in order to improve their capacity to provide intensive, targeted guidance and counselling services during the job-search and transition to employment, as well as their ability to stimulate labour mobility. The ESF+ should support the balanced participation of men and women in the labour market through measures aimed at, inter alia, equal working conditions, a better work-life balance and better access to childcare, including early childhood education and care. The ESF+ should also aim to ensure a healthy and well-adapted working environment in order to respond more effectively to health risks related to changing forms of work and to the needs of an ageing workforce (Official Journal of the EU, 2021, p. 24).

3. Areas of ESF support in Poland in the years 2004-2020

The use of funds under the EU Structural Funds in the next budget perspectives required the creation and agreement with the European Commission of a number of strategic and programme documents, both at the Community level and at the national and regional level. However, it can be assumed that in Polish conditions, the most important strategic documents at the national level were, respectively:

- in the years 2004-2006: National Development Plan for the years 2004-2006,
- in the years 2007-2013: National Strategic Reference Framework (National Cohesion Strategy),
- in the years 2014-2020: Partnership Agreement.

These documents constituted m.in. A synthetic approach to problem areas, defined priorities and areas of support, indicated operational programmes, tools and institutions that were responsible for planning, implementing and managing these programmes. Each of these documents formulates a headline objective and specific objectives to support the achievement of the objectives of cohesion policy support for the forecast budgetary period. These assumptions were the result of other strategic documents, setting directions and priorities for development for the coming years, both at the Community, national and regional level. They were also the subject of negotiations between the Polish authorities and the European Commission (Poteralski, 2023).

Table 1 presents the main objectives of the subsequent national strategic documents in the 2004-2006, 2007-2013 and 2014-2020 perspectives, as well as the specific objectives within the competence of the ESF.

Table 1.
Thematic objectives within the competence of the ESF in Poland against the background of the main objectives in the years 2004-2020

Perspective 2004-2006
Main objective of the National Development Plan
Developing a competitive economy based on knowledge and entrepreneurship, capable of long-term, harmonious development, ensuring employment growth and improving social, economic and spatial cohesion with the European Union at regional and national level
Specific objectives for ESF support areas
• Increasing employment and education. • Supporting the participation in development and modernization processes of all regions and social groups in Poland
Perspective 2007-2013
Main objective of the National Strategic Reference Framework
Creating conditions for the growth of competitiveness of the knowledge-based economy and entrepreneurship ensuring employment growth and increases in the level of social, economic and spatial cohesion
Specific objectives for ESF support areas
• Improving the quality of functioning of public institutions and developing partnership mechanisms. • Improving the quality of human capital and increasing social cohesion
Perspective 2014-2020
Main Objective of the Partnership Agreement
Increasing the competitiveness of the economy, improving social and territorial cohesion and improving the efficiency of public administration (increasing the efficiency and effectiveness of the state
Specific objectives for ESF support areas
• Better competences of economic staff. • More efficient use of resources in the labour market. • Increasing employability for people affected or at risk of poverty and social exclusion. • Reducing the risk of social exclusion caused by disparities in access to services. • Inclusion of inhabited communities in peripheral and degraded areas

Source: own elaboration based on: Poland. National Development Plan 2004-2006, Council of Ministers, Warsaw 2003, pp. 63-64; National Strategic Reference Framework (National Cohesion Strategy), Ministry of Regional Development, Warsaw 2007, pp. 40-42; Programming of the Financial Perspective 2014-2020. Partnership Agreement, Ministry of Development, Warsaw 2015, pp. 14-17.

Analysing the provisions of the basic strategic documents conditioning the use of funds from the Structural Funds in Poland in subsequent budget perspectives, it can be noted that in the area of the main objectives they did not change significantly in the analysed period. In all three periods, "increasing the competitiveness of the economy" was mentioned first. It also pointed to "improving social and territorial cohesion".

On the other hand, in the case of formulating specific goals, it can be noted that in the first of the analyzed periods they were quite general and largely referred to the macroeconomic and national dimension (Poteralski, 2023).

In turn, in the subsequent EU financial perspectives, the number of specific objectives relating to the areas of ESF intervention increased. They were also accompanied by objectives that were areas of complementary support from the ERDF and the ESF. These included "construction and modernization of technical and social infrastructure, which is of fundamental importance for the economy" and "increasing the competitiveness of Polish regions and counteracting their social, economic and spatial marginalization" in 2007-2013, as well as "increasing the use of ICT in the economy and society" in the 2014-2020 perspective.

National strategic documents, defining the conditions for the use of funds from the Structural Funds in Poland for the next budget perspectives of the European Union, also indicated the instruments thanks to which this was possible. These included operational programmes. Each of them served to support specific areas of EU intervention. Table 2 presents the operational programmes that are instruments of ESF support in Poland in the years 2004-2020.

Table 2.
Involvement of the ESF in operational programmes in Poland in the years 2004-2020

Perspective 2004-2006	
Operational programme	**Characteristics of the program**
Sectoral Operational Programme Human Resources Development (SPO RZL)	• a single-fund programme (ESF) of a nationwide nature
Integrated Operational Programme for Regional Development (ZPORR)	• nationwide character, but partially implemented at the level of regions (voivodeships), • a two-fund programme (ERDF and ESF), • in certain areas of ESF intervention, complementary to the SPO RZL
Perspective 2007-2013	
Operational programme	**Characteristics of the program**
Human Capital Operational Programme (PO KL)	• single-fund programme (ESF), • the only operational programme with ESF involvement in the years 2007-2013, • the programme includes both the so-called nationwide priorities (national component) and regional priorities (regional component)
Perspective 2014-2020	
Operational programme	**Characteristics of the program**
Operational Programme Knowledge Education Development (PO WER)	• single-fund programme (ESF), • nationwide program
Regional Operational Programmes (RPO)	• 16 dual-fund programmes (ERDF and ESF), in the ESF area complementary to POWER

Source: Poteralski, 2024, pp. 350- 351.

As the table shows, the system of implementation and management of ESF funds in Poland has changed in the analysed period. The first, the shortest perspective for Polish and its regions, was characterized by the operation of two operational programmes. Both were nationwide, but the ZPORR was more oriented towards implementing and solving problems at the regional level. On the other hand, in the 2007-2013 perspective, there was only 1 operational programme under the competence of the ESF. It was the Human Capital Operational Programme. However, it consisted of priorities defined as national and priorities in the so-called regional component. It seems that a much better practice was to create one nationwide program in the perspective of 2014-2020, the Operational Program Knowledge Education Development and 16 regional operational programs (RPOs). This was to enable better adjustment of the areas of intervention to the needs of specific voivodeships (regions).

4. ESF PLUS in the perspective of 2021-2027 in Poland

The financial perspective 2021-2027 is the first EU budget period in which the funds of the new fund, which is the ESF+, are available. Changes in the priorities of the new fund had to be reflected at all levels of implementation of the Structural Funds, from the level of the European Commission, through the national level, to the regional level. Ultimately, the reform of the Social Fund will affect the possibilities and conditions for the implementation of specific projects by beneficiaries entitled to submit applications for co-financing of their projects.

The changes therefore had to be visible from a strategic perspective to the level of management of the implementation of the ESF+ at national and regional level. The most important document determining the use of funds from the Structural Funds in Poland and its individual regions in the 2021-2027 perspective is the Partnership Agreement for 2021-2027. Among other things, this document sets out the priorities and areas of support for the ESF+.

Work on the content of the document, which de facto means the start of negotiations with the European Commission, began in the summer of 2020. As a consequence, Poland completed the negotiations in 2022, i.e. almost two years after the formal start of the perspective, although some programs later required technical corrections (IDEA Institute, 2025).

Table 3 shows which areas are envisaged for support, under the so-called Policy Objective 4 (PO4), which refers mainly to the competences of the ESF+.

Table 3.
EU Policy Objectives (PO) and areas of support under the ESF in Poland in the perspective of 2021-2027

Perspective 2004-2006
“A more social Europe” (PO4)
better use of human capital in the labour market, improving its quality and increasing the level of social cohesion and the availability of social and health services provided
Areas of support under PO4
• labour market, human resources, • education and competences, • inclusion and social inclusion, • health care, including long-term health care.

Source: own elaboration based on the Partnership Agreement for the Implementation of Cohesion Policy 2021-2027 in Poland, (2022), Ministry of Funds and Regional Policy, Warsaw, pp. 46-78; European Funds for Social Development Programme 2021-2027 adopted by the European Commission – version effective from 03 June 2025, Ministry of Funds and Regional Policy, www.rozwojspoleczny.gov.pl, (download date: 09.03.2026).

The Partnership Agreement for 2021-2027 contained an in-depth analysis of the most important problem areas, defined for Policy Objective 4, formulated as "Better use of human capital in the labour market, improving the quality and increasing social cohesion and accessibility of social and health services provided".

The first of them was the labor market and human resources. According to the document, the most important challenges in this area in the short term will be the continuation of measures to stabilise the situation on the labour market with the use of ESF+ funds, which will contribute to reducing the effects of the economic slowdown caused by the COVID-19 pandemic, as well as support and use of the potential of Ukrainian citizens under temporary protection in Poland due to the armed conflict in Ukraine. In the long term, it will be important to respond to the challenges identified even before the COVID-19 pandemic (Partnership Agreement, 2022, pp. 46-47).

In the area of education and competences, the most important challenges for Polish are: raising the level of competences and qualifications, increasing participation in forms of lifelong learning and better adapting education and training systems, including vocational ones, to the needs of the labour market and supporting educational infrastructure. The digital transformation and the transformation towards a green economy require the introduction of education on a larger scale that responds to the needs of the modern economy (Partnership Agreement, 2022, p. 52).

An extremely important element of ESF+ intervention in Poland in the years 2021-2027 is the issue of inclusion and social inclusion. Here, the main problem areas include the threat of poverty or social exclusion, which, although decreasing in the following years, nevertheless shows great regional and urban-rural diversity. Other priorities of ESF+ support in Poland in 2021-2027 are to support social economy entities at the regional level. It is also planned to support such groups as people with disabilities, national minorities, or people in a homelessness crisis (Partnership Agreement, 2022, pp. 60-67).

The last priority of ESF+ support in Poland in the years 2021-2027 is healthcare. In particular, it is expected to improve the accessibility, effectiveness, quality and resilience of the health care system in response to the needs resulting from epidemiological and demographic trends and crisis situations. The intervention is to consist mainly in the implementation of measures resulting in improving the quality and availability of health services and long-term care, taking into account territorial differentiation and improving the efficiency of medical services (Partnership Agreement, 2022, p. 68).

An important feature of the functioning of the Structural Funds, especially the ESF+ and the ERDF, is their mutual complementarity, which is also reflected in the complementarity of support instruments, in the form of priorities and activities of operational programmes. Therefore, the implementation of PO4 from both funds is expected to contribute to building a stronger social economy and to the transition to a knowledge-based economy. Therefore, it is important to transform towards the development of a digital society, lifelong learning that maintains good health. The aim is to ensure a high level of employment, education and training, healthcare, social inclusion and active participation in society. The activities will contribute to strengthening the following systems: healthcare, childcare for children up to 3 years of age,

education, labour market institutions and social assistance, and making them more adapted and resilient to crisis situations (Partnership Agreement, 2022, pp. 117-118).

Table 4.
Involvement of the ESF in operational programmes in Poland in the perspective of 2021-2027

Perspective 2021-2027	
Operational programme	**Characteristics of the program**
European Funds for Social Development 2021-2027 (FERS)	• single-fund programme (ESF), • nationwide program
16 Regional Operational Programmes	• 16 programmes of a dual or triple fund nature (ERDF, ESF+ and Just Transition Fund), in the area of ESF+ complementary to FERS

Source: own elaboration based on the Partnership Agreement for the Implementation of Cohesion Policy 2021-2027 in Poland, (2022), Ministry of Funds and Regional Policy, Warsaw, pp. 78, 197-205.

The system of implementation and management of ESF+ funds in Poland and its regions in the years 2021-2027 in the context of the relevant operational programmes is very similar to that of the previous financial perspective. It is presented in Table 4. In the period 2021-2027, the implementation of one nationwide operational programme and 16 operational programmes of a regional nature are envisaged.

5. Conclusion

The presence of Poland as a beneficiary of EU structural funds for over twenty years is a time when it has become possible to develop tools, methods, and especially procedures in planning, effective management and implementation of support instruments. And although the instruments of cohesion policy are precisely defined by the rules at the level of Brussels, each country and region must develop a model for the effective deployment and use of available support.

The management of structural policy implementation at the level of countries and regions is closely correlated with the guidelines on areas of support, regulated at the level of specific structural funds. One of them is the European Social Fund, established in 1957. As it evolved, corresponding to the changing socio-economic reality of Europe's regions, the priorities and areas of support in the regions eligible for this aid changed.

In 2021, the ESF+ fund was created, which is a continuation of the achievements and long history of the ESF. At the Polish level, this has been reflected in the most important areas of support for the social sphere, through such instruments as the nationwide European Funds for Social Development programme and 16 regional programmes.

It should be emphasized that in 2004 the Polish administration had to take up a huge challenge related to the launch and implementation of all necessary mechanisms for programming, managing, implementing and monitoring the use of funds from the Structural

Funds, including the ESF. This process, although agreed in the EU guidelines at the Brussels level, had to meet the specific needs at the level of Polish and its individual regions. This process should be assessed very positively. Undoubtedly, effective mechanisms and instruments have been implemented, mainly in the form of operational programmes, which enabled the effective use of ESF funds in Poland.

However, it should be remembered that in the following years, the ESF also evolved, as mentioned in this article, towards the ESF PLUS. This was mainly about some improvements and the creation of a more coherent tool at the Brussels level, which in turn would improve the implementation of the policy of support for social areas in individual regions. The coming years, ending the 2021-2027 perspective, will allow for the formulation of the first and more in-depth conclusions on the operation of the ESF in the reformed formula.

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References

1. IDEA Instytut sp. z o.o. (2025). *Przebieg i uwarunkowania procesu programowania perspektywy 2021- 2027. Raport końcowy.* Serock.
2. Harasimowcz, A. (2022). *Fundusze pomocowe Unii Europejskiej- fundusze strukturalne i Fundusz Spójności.* Białystok: Politechnika Białostocka, Oficyna Wydawnicza Politechniki Białostockiej.
3. Jarmołowicz, W., Knapińska, M. (2005). *Polityka państwa na rynku pracy w warunkach transformacji i integracji gospodarczej*. Poznań: Wydawnictwo Akademii Ekonomicznej w Poznaniu.
4. Ministerstwo Funduszy i Polityki Regionalnej (2025). *Program Fundusze Europejskie dla Rozwoju Społecznego 2021-2027 przyjęty przez Komisję Europejską - wersja obowiązująca od 03 czerwca 2025*. Retrieved from: http://www.rozwojspoleczny.gov.pl, 09.03.2026.
5. Ministerstwo Funduszy i Polityki Regionalnej (2022). *Umowa Partnerstwa dla Realizacji Polityki Spójności 2021-2027 w Polsce.* Warszawa, 30 czerwca 2022.
6. Ministerstwo Rozwoju (2015). *Programowanie Perspektywy Finansowej 2014-2020. Umowa Partnerstwa.* Warszawa.

7. Ministerstwo Rozwoju Regionalnego (2007). *Polska. Narodowe Strategiczne Ramy Odniesienia 2007-2013 wspierające wzrost gospodarczy i zatrudnienie*. Warszawa.
8. Poteralski, J. (2024). Education as an area of ESF support in Poland in 2004-2020. *Scientific papers of Silesian University of Technology. Organization and Management Series, No. 193*. Gliwice: Silesian University of Technology Publishing House, pp. 343-356.
9. Poteralski, J. (2023). SME's competitiveness as the ERDF's priority for the support of regional development - evaluation of the polish experience. *Scientific Papers of Silesian University of Technology, Organization and Management series*, *No. 174*. Gliwice: Silesian University of Technology Publishing House, pp. 343-356.
10. Poteralski, J. (2021). The Quality of Management at a Regional Level in the Perspective of the European Social Fund. In: M. Wiścicka-Fernando, S. Misiak-Kwit (eds.), *Communication. Relations. Management. No. 4.* Szczecin: Wydawnictwo Naukowe Uniwersytetu Szczecińskiego.
11. Rada Ministrów (2003). *Polska. Narodowy Plan Rozwoju 2004-2006. Dokument przyjęty przez Radę Ministrów w dniu 14 stycznia 2003*. Warszawa: Rada Ministrów.
12. Rozporządzenie Parlamentu Europejskiego i Rady (UE) 2021/1057 z dnia 24 czerwca 2021 r., ustanawiające Europejski Fundusz Społeczny Plus (EFS+) oraz uchylające rozporządzenie (UE) nr 1296/2013.

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TOXIC LEADERSHIP THROUGH THE LENS OF MACHIAVELLIANISM – A PILOT STUDY AMONG WORKING STUDENTS

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Purpose: The purpose of this article is to examine the phenomenon of toxic leadership through the lens of Machiavellianism and to investigate how Machiavellian-oriented behaviors are manifested and perceived within organizations operating in Poland.
Design/methodology/approach: A pilot study was conducted among 128 working students. The research employed a survey method using a questionnaire that included a Machiavellian leadership scale. This approach enabled the analysis of both managers' self-assessments and employees' perceptions of these behaviors.
Findings: The results indicate that toxic tendencies rooted in Machiavellianism occur at a moderate level; however, their intensity varies across specific dimensions of the construct and depending on the respondents' perspective.
Research limitations/implications: The study was pilot in nature and involved a limited, specific group of respondents, which restricts the generalizability of the findings. Future research should expand the sample and incorporate additional qualitative methods to deepen the analysis.
Practical implications: The findings may serve as a valuable source of insight for organizations in identifying subtle manifestations of toxic leadership. Understanding the mechanisms of Machiavellian leadership may contribute to fostering healthier workplace relationships, improving employee well-being, and promoting more ethical management standards.
Originality/value: The article contributes a novel perspective to the study of toxic leadership by linking it with the concept of Machiavellianism and highlighting differences in its perception from the viewpoints of managers and employees.
Keywords: toxic, Machiavellian, leadership.
Category of the paper: research paper.

1. Introduction

Leadership is widely recognized as a fundamental force shaping employees' attitudes, behaviors, and overall functioning within organizations. For decades, leadership research has predominantly focused on identifying styles and behaviors associated with effectiveness, ethical conduct, and organizational success. Consequently, the mainstream literature has emphasized constructive leadership approaches and their beneficial outcomes for employees and organizations alike.

More recently, however, scholars have increasingly turned their attention to the darker side of leadership, seeking to understand dysfunctional, unethical, and destructive leader behaviors and their consequences (Büyükyılmaz, Kara, 2024), which are far from a marginal phenomenon. Early estimates indicated that nearly three out of ten leaders may exhibit toxic leadership patterns (Veldsman, 2012), while later findings revealed that up to 56% of employees reported working under leaders whose behavior contributed to an unhealthy work environment (Lazarczyk, 2017).

The growing scholarly interest in toxic leadership stems from its profound and wide-ranging negative consequences. Destructive leader behaviors have been shown to undermine employee loyalty, motivation, productivity, health, and overall well-being (Kilic, Gunsel, 2019; Labrague et al., 2021), job satisfaction and work motivation (Labrague et al., 2021; Wolor et al., 2022), psychological well-being (Kilic, Gunsel, 2019), organizational commitment (Kilic, Gunsel, 2019; Brouwers, Paltu, 2020; Eris, Arun, 2020), organizational citizenship behavior (Behery et al., 2018), individual and organizational performance (Kilic, Gunsel, 2019), as well as increased turnover intentions (Hattab et al., 2022). These findings position toxic leadership as a critical organizational risk factor rather than an isolated leadership failure.

Despite the expanding international body of literature, research on toxic leadership remains unevenly distributed across cultural and national contexts. Most empirical studies are conducted in Anglo-Saxon or non-European settings, while research situated in Central and Eastern Europe - and particularly in Polish organizations - remains limited. Leadership behaviors perceived as toxic may be shaped by national culture, organizational norms, historical legacies, and value systems, yet these contextual determinants are rarely incorporated into empirical models. Another underexplored issue is the discrepancy between leaders' self-perceptions and employees' evaluations of leader behavior. International studies suggest that toxic leaders often lack self-awareness, but empirical evidence comparing self-assessments and subordinate perceptions remains scarce - particularly in Poland. Moreover, demographic factors such as gender and age, which may influence both the manifestation and perception of toxic behaviors, have received limited systematic attention in prior research (Gupta, Chawla, 2024).

In response to these gaps, this study addresses the following research questions: What is the prevalence and intensity of toxic leadership behaviors in Polish organizations? To what extent do leaders' self-assessments of toxic leadership differ from employees' evaluations of their leaders' behaviors? Are there significant differences in the manifestation of toxic leadership behaviors with respect to leaders' gender and age? By addressing these questions, the study seeks to contribute to the growing literature on toxic leadership and to provide empirically grounded insights relevant to the Polish organizational context.

The article is structured as follows. The first section reviews the theoretical foundations and key conceptualizations of toxic leadership. The second section presents the research methodology, including the sample and measurement instruments. The third section reports the empirical findings. The fourth section discusses the results, and finally, the article concludes with implications for theory and practice, limitations of the study, and directions for future research.

2. Literature background

The term toxic has been widely used in the leadership literature to describe a broad range of dysfunctional, destructive, and harmful leader behaviors. Toxic leadership is an umbrella concept encompassing many "bad" leadership styles, such as abusive supervision, destructive leadership, exploitative leadership, despotic leadership, narcissistic leadership, pseudo-transformational leadership, authoritarian leadership, and unethical leadership (Rhodesly et al., 2025). Although the concept is frequently invoked, its meaning varies across studies, reflecting different theoretical perspectives and levels of analysis. Toxic leadership can be viewed as a multidimensional construct. As a result, scholars have proposed multiple definitions of toxic leadership that emphasize personality traits, behavioral patterns, intentionality, and organizational consequences. The following analysis synthesizes key definitions from the literature to clarify the core attributes and dimensions of toxic leadership.

Scholarly literature conceptualizes toxic leadership through a recurring set of destructive personality traits exhibited by leaders. Researchers emphasize characteristics such as an egoistic attitude, a strong self-centered orientation, aggressiveness, despotism, poor temperament, and the sustained display of hostility and obstructive behavior toward followers, all of which fall within the scope of toxic leadership (Thoroughgood et al., 2018). Whicker (1996) highlights personality-related determinants of toxic leaders, such as maliciousness, manipulativeness, narcissistic self-focus, and a tendency to demean others. In this perspective, toxic leaders not only prioritize their own interests but also systematically undermine the work environment through negative and harmful interactions with subordinates. The literature also highlights traits

such as unfaithfulness, neuroticism, and persistent aggressive behavior as further components that intensify the destructive nature of toxic leadership (Badar et al., 2023).

Toxic leadership can be understood as a persistent pattern of destructive leadership behaviors that exert a harmful impact on both employees and organizational functioning. In general terms, a toxic leader may be described as "a manager who bullies, threatens, and shouts" (Reed, 2004), though contemporary research emphasizes that toxicity extends beyond isolated behaviors to form a coherent and identifiable pattern. Wilson-Starks (2003) conceptualizes toxic leadership as a process of "poisoning" the organization through excessive control that suppresses autonomy, creativity, and innovation, while Reed (2004) emphasizes that toxicity often results from the cumulative effect of demotivating behaviors that gradually deteriorate organizational climate. Toxic leadership is widely defined as a form of negative or ineffective leadership in which a leader engages in systematic and persistent destructive behaviors that can harm both employees and the organization (Webster et al., 2016). Schmidt (2008) associates five personality traits with toxic leadership behaviors: self-promotion, abusive supervision, unpredictability, narcissism, authoritarianism. Authoritarian leadership, in particular, involves attempts to exert excessive authority and control over subordinates to the extent that leaders seek to dominate all aspects of work processes (Dobbs, 2014; Schmidt, 2014).

Toxic leadership is characterized not only by the presence of destructive behaviors but also by their intentional and enduring nature, which clearly differentiates toxic leaders from those whose harmful impact may be inadvertent (Lipman-Blumen, 2005). Erickson et al. (2015) argued that leadership behavior can be classified as toxic only when it is intentional, consistently patterned, and sustained over an extended period of time. This emphasis on intentionality underscores that toxic leadership is not accidental but reflects a deliberate and persistent pattern of harmful conduct toward followers. However, research shows that although the intentions of toxic leaders may be relatively less harmful, their behaviors can still be detrimental to the organization (Milosevic et al., 2020).

Toxic leadership processes are broadly understood as patterns of destructive consequences that produce serious and long-lasting harm to individuals and organizations, and even to wider social systems (Lipman-Blumen, 2005). At the individual level, exposure to toxic leadership has been consistently associated with adverse job-related outcomes, including reduced job satisfaction and engagement, withdrawal behaviors, diminished performance, lower motivation, poor morale, absenteeism, and turnover intentions (Hadadian, Sayadpour, 2018; Morris Jr, 2019). At the organizational level, toxic leadership contributes to deteriorating work conditions, quality problems, and compromised safety standards (Smith, Fredricks-Lowman, 2020; Zaabi et al., 2018). Moreover, such leadership can shape and reinforce a toxic organizational culture, creating an environment in which similarly destructive leaders are more likely to emerge over time (Erickson et al., 2015; Lipman-Blumen, 2005).

The literature portrays toxic leadership as a multidimensional construct encompassing a wide range of behavioral and personal characteristics and their influence on employees and organizations. Padilla et al. (2007) argue that toxic leadership should be recognized as a distinct constellation of destructive traits and behaviors that predictably and deliberately harm subordinates. Another research emphasises negative behaviors, such as micromanagement, bullying, jealousy, narcissism, unethical conduct, unfair treatment, and incompetence (Magwenzi, 2018). Expanding this view, Lipman-Blumen (2005) proposes a multidimensional framework for understanding toxic leaders, highlighting the intentionality and intensity of their toxicity as well as the various forms of destructive behavior and dysfunctional personal qualities they exhibit.

The above analysis of the presented approaches reveals several shared elements of toxic leadership, including the abuse of power, excessive control, narcissistic self-orientation, and a consistently negative impact on subordinate morale and organizational climate. While some approaches emphasize personality traits and intentionality (Lipman-Blumen, 2005; Padilla et al., 2007; Whicker, 1996), others focus on behavioral patterns, cumulative effects, and structural mechanisms of control (Dobbs, 2014; Reed, 2004; Schmidt, 2014; Wilson-Starks, 2003). These differences underscore that toxic leadership is not a single behavior but a complex, multidimensional construct that requires an integrated perspective encompassing individual characteristics, leader-follower interactions, and organizational context.

3. Research methods

The study followed a quantitative research approach and was designed as a pilot study conducted on a small research sample. Data were collected using a self-administered questionnaire survey, which allowed for the standardized measurement of respondents' perceptions and traits. The primary aim of the pilot was to provide preliminary insights before large-scale data collection. A non-probability sampling strategy combining purposive and convenience sampling was applied. The research sample consisted of 128 respondents, all of whom were university students. The inclusion criteria required participants to be adult, full-time working students, ensuring that respondents had direct experience of organizational contexts and leadership practices (Tab. 1). Participation in the study was anonymous and voluntary, and all participants provided their informed consent prior to taking part.

The study employed measurement instruments consistent with the scale proposed by Dahling et al. (2009). The scale was measured as a multidimensional construct of Machiavellian leadership, encompassing amoral manipulation, a desire for status, a desire for control, and distrust of others. The individual items of the constructs were adapted according to the respondent type - for managers, for example, phrased as "I am willing…," and for employees

as "My manager is willing…". The items were operationalized using a Likert-type response format. The selected scale has demonstrated satisfactory psychometric properties in prior research (Dahling et al., 2009).

Table 1.
Demographic characteristics of respondents

Variable	Category	N = 128	%
Age	18-25 years	59	46%
	26-35 years	56	44%
	36-50 years	13	10%
Gender	Female	59	46%
	Male	69	54%
Job experience	Less than 1 year	7	6%
	1-3 years	49	38%
	4-10 years	53	41%
	11-20 years	13	10%
	more than 20 years	6	5%
Position	Non-managerial employee	95	74%
	Manager/ Leader/ Supervisor	33	26%

Source: own study.

Table 1 shows that most respondents were aged 18-35 (90%), with only 10% between 36 and 50. The sample included slightly more men (54%) than women (46%). Most participants had 1-10 years of experience (79%), while smaller groups reported longer or very short tenure. The majority (74%) held non-managerial positions, and 26% occupied leadership roles.

4. Research results

Table 2 presents descriptive statistics for four dimensions of Machiavellian leadership as assessed by employees (N = 95) and by managers themselves (N = 33): amorality, desire for control, desire for status, and distrust of others. Overall, employees tended to rate their managers higher on most Machiavellian dimensions than managers rated themselves, except distrust of others, where assessments were very similar. Employees rated managers higher in amorality (M = 2.57, SD = 1.57) than managers rated themselves (M = 1.58, SD = 0.84), suggesting workers see more questionable behavior than managers admit. For desire for control, managers' self-ratings were higher (M = 3.63, SD = 1.16) than employees' assessments (M = 3.12, SD = 1.49), and the same pattern appeared for desire for status (managers: M = 3.56, SD = 1.23; employees: M = 2.98, SD = 1.58). Ratings of distrust were nearly identical (employees: M = 2.65, SD = 1.50; managers: M = 2.56, SD = 1.05), showing shared perceptions. In all dimensions, respondents used the full scale (1–5), indicating honest answers and clear differences in leadership behaviors. Cronbach's alpha values for employees indicate good internal consistency across all constructs (α ranging from 0.79 to 0.94). In the managers' group, the reliability coefficients are lower, which is likely due to the smaller sample size.

Table 2.
Descriptive statistics of Machiavellian leadership

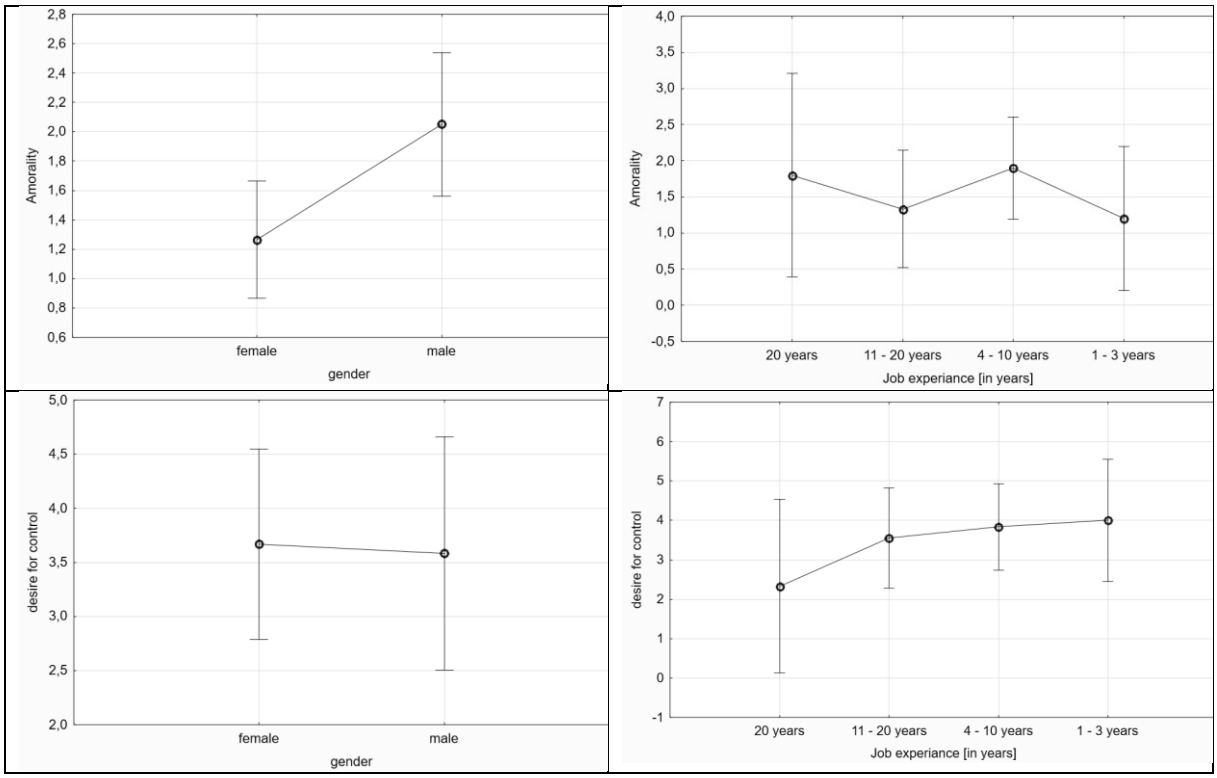
Constructs	Employees N = 95					Managers N = 33				
	M	**SD**	**Min.**	**Max.**	**α**	**M**	**SD**	**Min.**	**Max.**	**α**
(1) amorality	2.57	1.57	1	5	0,94	1.58	0,84	1	5	0,72
(2) desire for control	3.12	1.49	1	5	0,79	3.63	1.16	1	5	0,70
(3) desire for status	2.98	1.58	1	5	0,85	3.56	1.23	1	5	0,75
(4) distrust of others	2.65	1.50	1	5	0,90	2.56	1.05	1	5	0,69

Note: M – mean, SD – standard deviation, Min. – minimum value, Max. – maximum value.

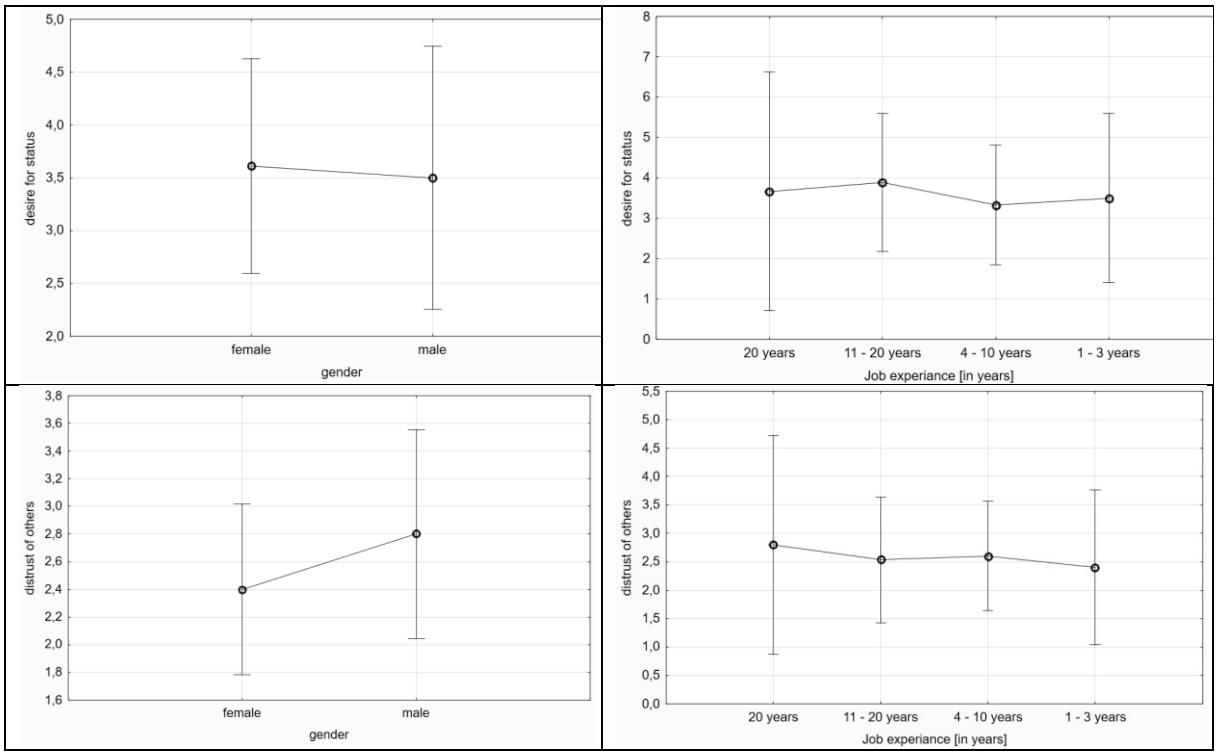
Source: own study.

Next, the analysis of differences was conducted using analysis of variance (ANOVA). Table 3 shows that the only significant difference concerns amorality by gender ($p < 0.05$): male managers rated themselves higher than female managers. No significant gender differences appeared for desire for control, status, or distrust ($p > 0.05$). Job experience did not produce significant differences in any dimension ($p > 0.05$). Although small variations in mean scores are visible across gender and experience groups, they are inconsistent and statistically insignificant, indicating similar self-assessments of Machiavellian traits among managers.

Table 3.
Differences in self-assessed Machiavellian leadership dimensions by gender and job experience



Cont. table 3.



Source: own study.

5. Discussion

The results of this study provide an interesting insight into how Machiavellian leadership behaviors are manifested and perceived in Polish organizations, as well as how differently they are evaluated depending on the perspective of the respondent. Overall, the findings suggest that toxic, Machiavellian-oriented tendencies are present at a moderate level, but their intensity varies across dimensions and between employee and manager assessments.

A particularly noteworthy pattern concerns managers' self-evaluations across the four dimensions. Managers rated themselves relatively low in terms of amorality and distrust of others, while at the same time clearly rating themselves higher on desire for control and desire for status. This pattern may indicate that managers are more willing to acknowledge traits that can be interpreted as professionally justified, or even desirable in leadership roles, such as striving for control and status, while being less inclined to attribute to themselves traits that are socially undesirable or morally questionable, such as amorality or distrust.

At the same time, the results raise an important theoretical question: although desire for control and desire for status are treated as elements of Machiavellian behavior, it is not entirely clear why these dimensions are so strongly stigmatized. From the perspective of motivational theories, the need for power is considered a strong and legitimate driver of behavior (McClelland), while status is closely related to respect, prestige, and recognition, consistent

with Maslow's hierarchy of needs. In this context, striving for control and status may not necessarily be inherently toxic, but rather become problematic only when combined with manipulative or amoral tendencies. This interpretation is supported by the observation that a leader driven by self-interest and a clear focus on power or status may, paradoxically, serve the needs of their organization and subordinates more effectively than leaders guided primarily by idealistic or altruistic motives (Davis, 2015). Such a leader tends to assess organizational realities with greater pragmatism and clarity, prioritizing what is necessary for stability and performance (Davis, 2015). This can suggest that Machiavellian traits do not always translate directly into harmful or destructive leadership practices.

The differences between managers' and employees' assessments further emphasize the importance of perspective in studying toxic leadership. Employees appear more sensitive to behaviors related to amorality and manipulation, while managers emphasize aspects linked to authority and achievement. This perceptual gap suggests that certain leadership behaviors may be rationalized differently depending on whether they are experienced from the position of authority or subordination. Moreover, another research suggests that followers possess greater agency than has traditionally been acknowledged - they not only withdraw their support from toxic leaders but also actively attempt to reduce their influence by developing workarounds and learning adaptive strategies (Milosevic et al., 2020).

6. Conclusion

The findings indicate that toxic, Machiavellian-oriented leadership behaviors occur at a moderate level in Polish organizations, meaning they are neither marginal nor extreme but remain a noticeable part of managerial practice. The dimensions of these behaviors vary in prominence, indicating a nuanced pattern across control, status orientation, distrust, and moral flexibility.

At the same time, a clear discrepancy emerges between leaders' self-assessments and employees' evaluations of the same behaviors. Managers tend to perceive themselves as less prone to morally questionable and manipulative actions, while employees more readily identify such tendencies in their leaders. Conversely, leaders report a stronger need for control and status than employees attribute to them. This divergence highlights perceptual gaps between leaders' self-perceptions of their conduct and subordinates' perceptions of it, underscoring the importance of multi-source assessment in research on toxic leadership.

Several limitations should be acknowledged when interpreting the results of this pilot study. First, the research was conducted with a relatively small sample, which limits statistical power and restricts the generalizability of the findings. Second, all participants were university students, which means the sample was relatively homogeneous. This homogeneity may limit

the variability of experiences and perspectives represented in the data, which could influence the scope and applicability of the conclusions. Next, the use of a non-probability sampling strategy (purposive and convenience sampling) further limits the representativeness of the sample and prevents the generalization of the findings to the broader population of Polish employees and managers. In addition, the reliance on self-reported data introduces the risk of common method bias. Therefore, the results should be treated as exploratory and indicative.

Future research should build on the exploratory nature of this pilot study by extending the analysis to larger and more diverse samples in order to strengthen the psychometric verification of the measurement tool. In particular, assessing the reliability and validity of the scale on a broader research sample would allow for more robust confirmation of its usefulness in studying Machiavellian leadership behaviors. Further studies should also verify the observed patterns related to gender and age in the context of Machiavellian tendencies, as these relationships require confirmation in more representative populations. Additionally, it would be valuable to examine whether the desire for status and control should always be interpreted as inherently Machiavellian and negative. Under certain organizational conditions, these traits may relate to effective leadership rather than toxic behavior. Future research could compare them with indicators of employee and managerial performance and engagement to determine whether some Machiavellian traits may contribute to positive outcomes depending on context and intensity.

References

1. Badar, K., Aboramadan, M., Plimmer, G. (2023). Despotic vs narcissistic leadership: Differences in their relationship to emotional exhaustion and turnover intentions. *International Journal of Conflict Management*, *Vol. 34, Iss. 4*, pp. 818-837.
2. Behery, M., Al-Nasser, A.D., Jabeen, F., El Rawas, A.S. (2018). Toxic leadership and organizational citizenship behavior: A mediation effect of followers' trust and commitment in the Middle East. *International Journal of Business & Society*, *Vol. 19, Iss. 3.*
3. Brouwers, M., Paltu, A. (2020). Toxic leadership: Effects on job satisfaction, commitment, turnover intention and organisational culture within the South African manufacturing industry. *SA Journal of Human Resource Management*, *Vol. 18, Iss. 1,* pp. 1-11.
4. Büyükyılmaz, O., Kara, C. (2024). Linking leaders' toxic leadership behaviors to employee attitudes and behaviors. *Serbian Journal of Management*, *Vol. 19, Iss. 2*, pp. 393-412.
5. Dahling, J.J., Whitaker, B.G., Levy, P.E. (2009). The development and validation of a new Machiavellianism scale. *Journal of Management*, *Vol. 35, Iss. 2*, pp. 219-257.
6. Davis, G.F. (2015). Editorial essay: What is organizational research for? *Administrative Science Quarterly*, *Vol. 60, Iss. 2*, pp. 179-188.

7. Dobbs, J.M. (2014). *The relationship between perceived toxic leadership styles, leader effectiveness, and organizational cynicism* (Doctoral dissertation). San Diego: University of San Diego.
8. Erickson, A., Shaw, B., Murray, J., Branch, S. (2015). Destructive leadership: Causes, consequences and countermeasures. *Organizational Dynamics*, *Vol. 44, Iss. 4*, pp. 266-272.
9. Eris, Y., Arun, K. (2020). The dark side of the leader: The effect of the toxic leadership behavior on the job satisfaction of employees. *Journal of Business Research-Turk*, *Vol. 12, Iss. 2*, pp. 1861-1877.
10. Gupta, A., Chawla, S. (2024). Toxic leadership in workplaces: Insights from bibliometric, thematic analysis, and TCM framework. *International Journal of Organizational Leadership*, *Vol. 13, Iss. 1*, pp. 179-200.
11. Hadadian, Z., Sayadpour, Z. (2018). Relationship between toxic leadership and job related affective well-being: The mediating role of job stress. *European Online Journal of Natural and Social Sciences: Proceedings*, *Vol. 7, Iss. 1*, pp. 137-145.
12. Hattab, S., Wirawan, H., Salam, R., Daswati, D., Niswaty, R. (2022). The effect of toxic leadership on turnover intention and counterproductive work behaviour in Indonesia public organisations. *International Journal of Public Sector Management*, *Vol. 35, Iss. 3*, pp. 317-333.
13. Kilic, M., Gunsel, A. (2019). The dark side of the leadership: The effects of toxic leaders on employees. *European Journal of Social Science*, *Vol. 2, Iss. 2*.
14. Labrague, L.J., Lorica, J., Nwafor, C.E., Cummings, G.G. (2021). Predictors of toxic leadership behaviour among nurse managers: A cross-sectional study. *Journal of Nursing Management*, *Vol. 29, Iss. 2*, pp. 165-176.
15. Lazarczyk, L. (2017). *Life meets work survey finds 56% of employees have a toxic leader*. Retrieved from: http://link.gale.com/apps/doc/A495545435/AONE, 16.03.2026.
16. Lipman-Blumen, J. (2005). Toxic leadership: When grand illusions masquerade as noble visions. *Leader to Leader*, *Iss. 36*, pp. 29-36.
17. Magwenzi, B.V. (2018). *The toxic triangle: Exploring toxic leadership in nursing administration – a phenomenological study* (Doctoral dissertation). Kirksville: A.T. Still University of Health Sciences.
18. Milosevic, I., Maric, S., Lončar, D. (2020). Defeating the toxic boss: The nature of toxic leadership and the role of followers. *Journal of Leadership & Organizational Studies*, *Vol. 27, Iss. 2*, pp. 117-137.
19. Morris, J.A. (2019). *Understanding coping strategies and behaviors of employees affected by toxic leadership* (Doctoral dissertation). Minneapolis: Walden University.
20. Padilla, A., Hogan, R., Kaiser, R.B. (2007). The toxic triangle: Destructive leaders, susceptible followers, and conducive environments. *The Leadership Quarterly*, *Vol. 18, Iss. 3*, pp. 176-194.
21. Reed, G.E. (2004). Toxic leadership. *Military Review*, *Vol. 84, Iss. 4*, pp. 67-71.

22. Rhodesly, D., Gara Bach Ouerdian, E., Ben Sassi, N. (2025). Toxic leadership and turnover intention: Does gender matter? Evidence from a North African country. *Journal of Management Development*, *Vol. 44, Iss. 6*, pp. 793-805.
23. Schmidt, A.A. (2008). *Development and validation of the toxic leadership scale* (Doctoral dissertation). College Park: University of Maryland.
24. Schmidt, A.A. (2014). *An examination of toxic leadership, job outcomes, and the impact of military deployment* (Doctoral dissertation). College Park: University of Maryland.
25. Smith, N., Fredricks-Lowman, I. (2020). Conflict in the workplace: A 10-year review of toxic leadership in higher education. *International Journal of Leadership in Education*, *Vol. 23, Iss. 5*, pp. 538-551.
26. Thoroughgood, C.N., Sawyer, K.B., Padilla, A., Lunsford, L. (2018). Destructive leadership: A critique of leader-centric perspectives and toward a more holistic definition. *Journal of Business Ethics*, *Vol. 151, Iss. 3*, pp. 627-649.
27. Veldsman, T. (2012). The growing cancer endangering organisations: Toxic leadership. In: *Conference on Leadership in Emerging Countries*. Johannesburg: University of Johannesburg.
28. Webster, V., Brough, P., Daly, K. (2016). Fight, flight or freeze: Common responses for followers coping with toxic leadership. *Stress and Health*, *Vol. 32, Iss. 4*, pp. 346-354.
29. Whicker, M.L. (1996). *Toxic leaders: When organizations go bad*. Westport: Quorum Books.
30. Wilson-Starks, K.Y. (2003). Toxic leadership. *Transleadership*, *Vol. 1*.
31. Wolor, C.W., Ardiansyah, A., Rofaida, R., Nurkhin, A., Rababah, M.A. (2022). Impact of toxic leadership on employee performance. *Health Psychology Research*, *Vol. 10, Iss. 4*, p. 57551.
32. Zaabi, H.H.A., Elanain, H.M.A., Ajmal, M.M. (2018). Impact of toxic leadership on work outcomes: An empirical study of public banks in the UAE. *International Journal of Public Sector Performance Management*, *Vol. 4, Iss. 3*, pp. 373-392.

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CONDITIONS FOR IDENTIFYING SOCIALLY IRRESPONSIBLE ACTIONS IN A SMALL ENTERPRISE

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Purpose: The purpose of this article is to identify and evaluate selected conditions influencing the identification of social irresponsibility in a small enterprise.
Design/methodology/approach: The article draws on a narrative review of the literature and the results of pilot empirical studies.
Findings: Research shows that internal and external conditions in identifying socially irresponsible practices are equally important to the surveyed entrepreneurs.
Research limitations/implications: The results of the empirical research allow for cautious conclusions that are valid only for the group of companies under study. The preliminary stage of the research, the purposive selection of the sample, the subjective responses of the respondents, and the idiographic nature of the empirical research within the project of which this study is a part indicate an analysis of a specific segment of reality and its particular characteristics.
Practical implications: These considerations address issues directly related to the practice of dysfunctional management in small enterprises, which are particularly prone to socially irresponsible behavior and the negative influence of their environment. Supporting entrepreneurs in formulating recommendations for the systematic and methodical identification of dysfunctional behaviors toward stakeholders has become a necessary challenge.
Social implications: Verifying the conditions for identifying socially irresponsible actions may have an impact on expanding knowledge and gradually changing the behavior of entrepreneurs and stakeholders in this area of the company's activity.
Originality/value: The recognition and assessment of selected conditions for identifying socially irresponsible actions in small enterprises gradually fills the cognitive and research gap in the scope of conceptualization, construction of methodological principles and empirical verification of social irresponsibility of small enterprises.
Keywords: social irresponsibility, small enterprise, conditions.
Category of the paper: Research paper.

1. Introduction

Disturbing trends in the socio-economic environment of modern enterprises, such as technological violence, modern employee slavery, greenwashing, crisis of values, etc., which influence dysfunctional management and stakeholder relations, require careful observation and verification in terms of threats to organizational balance.

At the same time, implementing the assumptions of the concept of corporate social responsibility without axiological redefinition and identifying manifestations of irresponsibility is insufficient to combat these adversities (Carroll, 2021; Clark et al., 2021). Therefore, the need to recognize socially irresponsible actions is becoming increasingly widespread, universal, and applies to all types of enterprises. In this context, small enterprises are a group of enterprises that deserve special attention due to their specific characteristics and the context of their operations (Udayasankar, 2008)[1].

A significant research gap (Carroll, 2025) in the area of issues linking social irresponsibility, with particular emphasis on the conditions for identifying socially irresponsible actions with the specificity of functioning of small enterprises, allows for consideration of several problematic issues included in the following questions:

1. What are the characteristics of identifying socially irresponsible actions in a small enterprise, and what are its conditions?
2. Which internal conditions, and to what extent, are important in identifying socially irresponsible actions in a small enterprise?
3. Which external conditions and to what extent, are important in identifying socially irresponsible actions in a small enterprise?

The purpose of this article is to identify and evaluate selected conditions influencing the identification of social irresponsibility in a small enterprise. This article builds on the author's reflections presented in her publications (Sokołowska-Durkalec, 2020, 2022) and provides an empirical verification and continuation of selected assumptions contained therein.

2. Identifying socially irresponsible actions in a small enterprise and its conditions

Small enterprises are a special group of enterprises, characterized by specific features that determine the tendency to be irresponsible or responsible (Graafland, Noorderhaven, 2020). Including social irresponsibility in the social responsibility system of small enterprises is methodologically justified. If we assume that, analogous to the universal understanding of

[1] Micro-enterprises were included in the group of small enterprises, therefore they were not separated.

corporate social responsibility (CSR) (Sokołowska, 2020; Sokołowska, 2013; Carroll, 1979; Carroll, Brown, 2018; Kang, Wood, 1995; Freeman, Philips, 2002), corporate social irresponsibility (CSI) means the lack or insufficient economic, legal, ethical, and philanthropic commitment of an enterprise to internal and external entities/stakeholders, it can be treated as a complementary concept to CSR or a stage/stage in achieving its maturity (Sokołowska-Durkalec, 2022).

The CSI concept consists of an ideological layer with a set of constitutive assumptions, primarily negative values and intentions, and an instrumental layer with a catalog of methods, techniques, and tools for dysfunctional management. In a small enterprise, the key figure in the system is the entrepreneur, whose attitude toward socially irresponsible actions can range from passive to indifferent to active. The consequence of an active attitude is the realization of the CSI management process (instrumental impact on areas and entities) described in a set of subsequent steps, such as: identification of CSI manifestations, i.e. areas (economic, legal, ethical and philanthropic) and CSI entities/stakeholders (internal entities: owner/owners, manager/managers, employees and external entities: customers, suppliers, local community, etc.)[2], planning (e.g.: declaration of values, development or selection of measurement methods, reporting and shaping CSI, etc.), organizing (i.e. ensuring appropriate conditions for the implementation of the concept: organizational structure, organizational culture, strategic solutions, integration within the existing management system, etc.), shaping (specific socially irresponsible actions within areas dedicated to entities, using supporting concepts, methods, methods, management tools) and controlling CSI (measurement/monitoring of CSI (possibly reporting), analysis and assessment of effects and possibly corrective actions, both in a positive and negative perspective) (cf. Sokołowska-Durkalec, 2025). All elements may be separate or coexist with the implementation (or be the result of dysfunctional realization) of the CSR concept.

A crucial element of the system is the identification of manifestations of social irresponsibility and deliberately planned socially irresponsible actions, either as a complement to the identification of CSI manifestations or with a clear indication of the distinct nature of the two processes. This involves identifying actions in the following areas: economic, legal, ethical, and philanthropic, towards internal and external stakeholders of the enterprise. Although they primarily refer to the objective occurrence of these areas and entities, they can be viewed as the first stage/stage in subjectively shaping this dimension of the enterprise's activities, resulting in the conscious realization of corporate social irresponsibility.

[2] A description of possible manifestations and socially irresponsible actions is contained in the author's selected publications, included in the bibliography in this article.

A comprehensive presentation of the potential inclusion of social irresponsibility in a CSR and CSI management system should be summarized with a detailed methodology. Identifying socially irresponsible behavior in a small enterprise includes elements such as: (cf. Sokołowska-Durkalec, 2025):

- substantive preparation (training, self-education) in the field of the CSI and CSR concept (especially its assumptions and principles of implementation and realization) for owners, managers and, if necessary, for stakeholders,
- building tools for identifying CSI manifestations (e.g.: survey questionnaires, interviews, observations; conversation scenarios; social experiment scenarios, etc.) (due to the lack of dedicated assessment standards),
- identifying the subject of irresponsibility and stakeholders in terms of determining their expected goals, value drivers, main expectations and type of power,
- identifying important aspects of stakeholder relationships, including classifying stakeholders into key and secondary,
- identifying socially irresponsible actions of stakeholders towards the enterprise,
- including the identification of socially irresponsible actions in the management process, mainly strategic management, more precisely in the strategic analysis process (analysis of the enterprise's interior and its environment – e.g. SWOT analysis),
- including the identification of socially irresponsible activities in everyday control processes (selected aspects of the company's operations in a functional and/or process perspective – control by the owner and manager(s),
- including the identification of socially irresponsible activities in other control processes: controlling, audits, reporting and certification,
- analysis and assessment of socially irresponsible actions in terms of their consequences for the company's operations and its stakeholders, together with an assessment of historical actions and responses to them (including an assessment of the risk of failure to identify manifestations of social irresponsibility),
- creating and/or using existing methodology and instruments to counteract identified socially irresponsible behavior,
- ongoing reporting, drawing conclusions, improvement.

The context and sequential definition of the process of identifying socially irresponsible actions is part of the CSR and CSI management system and is inextricably linked to the conditions.

This process (despite its rather fragmented nature from the perspective of the entire social responsibility management system) depends on internal conditions related to the entrepreneur's attitude towards CSR and CSI and its institutionalization in the company's operations, the scope and influence of internal stakeholders, and favorable or unfavorable organizational and management solutions, etc. An entrepreneur may demonstrate a detrimental/negative,

indifferent, or active/positive attitude towards CSR and CSI manifestations (existing and deliberately unidentified activities in economic, legal, ethical, and philanthropic areas toward internal and external stakeholders) or consciously manage CSI. By properly analyzing the phenomenon and placing it in the situational context, i.e., internal and external conditions, it is possible to move along a continuum from irresponsible actions, through neutral, to responsible ones (it seems that their gradation may be important, especially when building a CSI maturity model).

External conditions, on the other hand, include socio-economic trends related to the immediate and extended economic, political, and legal environments of a small business. A comprehensive assessment of irresponsible actions will depend on the influence of participants in the immediate and extended environment, as well as a strong institutional environment with well-developed mechanisms for enforcing law and legislation, ethical social norms, a culture of ethics and social behavior, etc.[3].

3. Research assumptions

The results presented in this article are pilot studies that identified the conditions and validity of research on this topic, and tested research tools. They pertain to the research project entitled: *Social Irresponsibility of Small Enterprises – Theoretical, Methodological, and Practical Challenges*. The aim of this part of the empirical quantitative research is to identify selected conditions of identifying socially irresponsible actions in a small enterprise.

The study was conducted between August and November 2020 on a purposively selected sample of 78 Polish small (including micro) enterprises. The purposive selection of the sample took into account the following criteria: 1. the criterion of the number of employees, i.e., the surveyed enterprise employing up to 50 employees during the study period (including micro-enterprises employing up to 10 people); 2. the activity criterion—conducting business operations and being active in both a formal and literal sense; 3. the independence criterion—the independence of business operations; 4. the substantive criterion—the ability to identify specific characteristics in the surveyed enterprise that highlight the socially responsible nature of its operations (e.g., enterprises presenting best practices in Responsible Business Forum reports, from the Fair Play list of companies, exhibitors at the CSR Best Practices Fair, and enterprises in which manifestations of social responsibility management have been identified). The substantive criterion was applied due to the level of awareness among entrepreneurs regarding processes related to CSR and—by extension—CSI.

[3] The specification of internal and external conditions, extracted from a review of the literature on the subject and the author's research experience, is presented in the description of reports on the results of empirical research, thus omitting the extensive review part of the article.

The study employed a survey method. For the purposes of this research, a *survey questionnaire* was developed by the author of the article and distributed in paper form to business owners and/or managers (or employees designated by them), containing questions (closed-ended and semi-open-ended—19 multidimensional questions) regarding the subject matter under study, preceded by an introduction and instructions, and followed by a summary.

This article presents an analysis of respondents' answers to two research questions:

1. Which internal conditions[4] and to what extent (5-very important, 4-important, 3-neutral, 3-irrelevant, 1-very insignificant) are important in identifying socially irresponsible activities in your company?
2. Which external conditions[5] and to what extent (5-very important, 4-important, 3-neutral, 3-irrelevant, 1-very insignificant) are important in identifying socially irresponsible activities in your company?

The following hypotheses were formulated:

H1. Internal conditions of identifying socially irresponsible actions are similarly important for entrepreneurs.

H2. External conditions of identifying socially irresponsible actions are similarly important for entrepreneurs.

For presenting the results of empirical research, a frequency analysis was chosen, that is, an analysis of the distribution of responses in the surveyed sample and descriptive statistics. The statistical analysis was conducted using the IBM SPSS Statistics 29 package, which ensures the accuracy and reliability of the obtained results.

4. Characteristics of the research sample

The research sample of 78 (N=78) Polish small enterprises is diverse. The group included 28% of enterprises with no employees, 41% of microenterprises employing up to 10 people, and 31% employing more than 10 people. Family businesses constituted a large representation (58%) among the surveyed enterprises. Data regarding the scope of operations of the surveyed enterprises was fairly evenly distributed: regional: 30%, local: 23%, national: 21%, and international: 26%. The majority of the surveyed enterprises (69%) had been operating for over 10 years, 17% for 4 to 10 years, and the youngest companies, operating on the market for up to 3 years, accounted for 14% of the total. The dominant business activity is in the service sector (66%), with trade (20%) and manufacturing (14%) represented at a similar level[6]. The majority

[4] A list of 11 internal conditions was proposed in the survey questionnaire.
[5] A list of 8 external conditions was proposed in the survey questionnaire.
[6] The distinguishing criteria (in the metadata) also included other variables; however, due to the limited scope of this article, a detailed presentation of these variables has been omitted (including in relation to the subject matter under study).

of the participants in the study were business owners (75%), who personally answered the interview questions. In the remaining businesses, the entrepreneurs were represented by hired managers (15%) and other employees (10%).

5. Results of empirical research

A detailed analysis of the empirical research results allows for a clear statement that entrepreneurs' perception of the importance of selected internal and external conditions for identifying socially irresponsible actions in the enterprises they run is convergent (which was confirmed by the analysis of the arithmetic mean, median and standard deviation – Tables 1 and 2). The most important (very important) internal conditions were identified by the respondents as: (1.1) the attitude (system of values, level of awareness, knowledge and behavior) of the entrepreneur towards manifestations of social irresponsibility and the resulting specific actions (69%)[7]; (1.11) a favorable financial situation of the enterprise (60%); (1.10) a favorable way of managing the enterprise (business model, concepts, methods, techniques and management tools, leadership style) (57%); (1.2) the attitude (system of values, level of awareness, knowledge and behavior) of internal stakeholders (management staff and other employees) towards manifestations of social irresponsibility and the resulting specific actions (57%), as well as (1.3) appropriate preparation of the entrepreneur (awareness of the significance of the problem of social irresponsibility and knowledge about it) and equipping them with instruments (methods, techniques and tools) facilitating the recognition of irresponsible behavior (53%).

Respondents considered the following internal conditions to be the least significant (very insignificant), while simultaneously indicating that they were highly significant: (1.4) the diversity of relationships with internal stakeholders, their varied goals, expectations, and scope of authority (1%); and (1.5) the principle of reciprocity in dealings with internal stakeholders, the natural asymmetry of information and privileges, and the cognitive capabilities of the parties involved (1%). Average scores were obtained for: (1.8) the entrepreneur's recognition of tangible benefits resulting from identifying manifestations of social irresponsibility (51%); (1.9) favorable internal organizational conditions, particularly in terms of organizational management and social factors (e.g., flexible organizational structure, teamwork, pro-social organizational culture, strategic solutions reinforced by a set of declared and upheld values, development of a code of ethics, etc.) (32%); (1.7) the entrepreneur's awareness of sanctions for failing to identify and disclose instances of social irresponsibility

[7] Respondents were given a choice of several answer options; therefore, the percentages for each individual category do not add up to 100%.

(29%); The most neutral condition turned out to be: (1.6) the discrepancy between the motives for taking action within the company, their implementation, and the results (16%).

Table 1.
Distribution of responses according to the number of indications for question 1

	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10	1.11
1	0	0	0	0	0	1	0	0	0	0	1
2	0	0	0	1	1	1	0	0	0	0	0
3	0	0	1	7	8	13	3	4	2	1	3
4	15	17	23	29	33	28	33	34	20	18	20
5	54	45	42	25	17	15	23	25	40	45	47
mean	4,7829	4,72586	4,62122	4,25805	4,11864	3,94826	4,33893	4,33333	4,61293	4,6875	4,57745
median	5	5	5	4	4	4	4	4	5	5	5
deviation	0,41241	0,44617	0,51534	0,71691	0,69097	0,83919	0,57071	0,59097	0,54935	0,49608	0,70531

Source: own study based on primary data.

In turn, the respondents identified the following as the most significant external conditions: (2.1) the diversity of relationships with the company's external stakeholders, their varied goals, expectations, and scope of power (46%); (2.2) the principle of reciprocity in dealings with external stakeholders, the natural asymmetry of information and privileges, and the cognitive capabilities of the parties involved (37%); (2.4) guidelines imposed by institutions regarding the identification of socially irresponsible activities (35%).

Table 2.
Distribution of responses according to the number of indications for question 2

	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
1	1	1	1	1	0	1	0	0
2	0	1	0	0	0	1	1	2
3	3	6	13	5	3	2	3	4
4	25	24	22	32	35	39	38	33
5	36	29	23	28	27	24	25	25
mean	4,461538	4,295082	4,118644	4,30303	4,369231	4,253731	4,298507	4,265625
median	5	4	4	4	4	4	4	4
deviation	0,724875	0,836548	0,865237	0,737927	0,570269	0,719521	0,623302	0,712438

Source: own study based on primary data.

Entrepreneurs also considered the following to be significant external conditions: (2.6) the economic and social situation and the potential of the region where the company is headquartered (50%); and (2.7) the economic and social situation of the country and the framework of national and international policy (48%). The least significant conditions (while still being indicated as highly significant) are: (2.5) favorable characteristics of the institutional environment, including established mechanisms for lawmaking and enforcement, ethical social norms, a culture of ethics in society, and community-oriented attitudes (1%). Average/neutral responses include: (2.3) the discrepancy between the motives behind actions taken by external stakeholders, their implementation, and the outcomes (16%) and (2.8) the economic, social, and political situation on the international stage (13%).

The research results did not reveal any significant differences between respondents' responses or any distinctive entities or groups of entities identified based on the criteria differentiating enterprises. Furthermore, no significant differences were found between the conditions groups.

6. Discussion

The analysis of the research results reveals that the social dimension of internal conditions is of greatest importance to the respondents: the attitudes of entrepreneurs, managers, and employees towards identifying socially irresponsible actions. Respondents prioritize financial situation and the organizational and management context equally with these areas. Somewhat surprisingly, the lesser importance is given to the perception of the details of relationships with internal stakeholders, the principle of reciprocity in contacts with internal stakeholders, information asymmetry and privileges, and stakeholders' cognitive abilities. These factors, while ranked highest among external conditions, are dedicated to external stakeholders. Perceiving socially irresponsible actions through the lens of the influence of phenomena, trends, and entities from the economic, social, and political environments is also significant. The influence of the institutional environment, with its wealth of applied axiology in the form of ethical norms and laws, received the least recognition from entrepreneurs, confirming the low social capital found in contemporary Polish enterprises, especially small ones.

The catalog of internal and external conditions presented is not exhaustive, and the carefully selected selection of those most relevant in terms of their impact on identifying CSR manifestations (Sokołowska, 2013) indicates similarities in the interpretation of research results for two opposing yet complementary categories – CSR and CSI. It also demonstrates a well-chosen set of conditions. The slight variation in the importance of entrepreneurs' perceptions of internal and external determinants in identifying socially irresponsible behavior confirms H1 and H2. It can be assumed that the respondent selection criteria, which took into account extensive knowledge and awareness of the importance of CSR and CSI in business management, ensured substantive preparation and influenced the balanced perception of the impact of these conditions on the process of identifying irresponsible behavior. Although – due to the structure of the survey questionnaire and the questions contained therein – it is difficult to determine the dominant importance of internal and external conditions and their significance for individual elements/stages of the identification process, a balance in the perception of the above-mentioned conditions is a suggestion for the development of this area of research in the next stages.

7. Summary

One of the key arguments for dealing with the subject matter is the certain predisposition to undertake responsible and/or irresponsible actions in a small enterprise, which result from its specific features, which also include the specificity of the environment. The presented research results warrant very cautious conclusions, both from the literature review and from the empirical research conducted. In the first case, the need for terminological clarification as one of the stages of conceptualizing CSI, also in relation to the operating conditions of small enterprises, is a significant limitation related to the initial phase of research development. The set of conditions in this article was also presented taking into account research experiences regarding the conditions of the process of identifying socially responsible activities in a small enterprise. However, when it comes to reports from empirical studies, it is necessary to emphasize such limitations as: pilot/preliminary nature of the research, assumed idiographic nature of empirical research in the entire project of which this research is a fragment, purposeful selection of the research sample, research process spread over time, etc.

It's worth emphasizing that the reality examined here is burdened with another limitation: the declarative nature of respondents' responses, which requires objectivity through the inclusion of a group of stakeholders whose opinions can be compared with those of entrepreneurs, as well as broadening and deepening the research. Another limitation may also be the subjective perception of frequency. The scope of the study also prevented verification of the relationships between individual determinants within groups: internal and external, and between groups. Furthermore, no significance was found for the determinants in the process of identifying socially irresponsible behavior. Future in-depth research should include other control variables that may influence socially irresponsible behavior, as well as consider the cross-sectional nature and outcome of the issue. The survey questionnaire also requires improvement.

In subsequent studies, the author of the article plans to present the remaining results of pilot empirical research on the same group of enterprises in the field of identification and assessment of motives, benefits and costs of socially irresponsible actions.

References

1. Carroll, A.B. (1979). A Three-Dimensional Conceptual Model of Corporate Performance. *The Academy of Management Review*, *Vol. 4, No. 4*, 497-505, doi: 10.2307/257850
2. Carroll, A.B. (2021). Corporate Social Responsibility: Perspectives on the CSR Construct's Development and Future, *Business & Society*, *Vol. 60, No. 6,* pp. 1258-1278, doi: 10.1177/00076503211001765
3. Carroll, A.B. (2025). The three-dimensional corporate social performance model revisited and refreshed. *J. Sustain. Bus., Vol. 10, No. 5*, doi: 10.1186/s40991-025-00109-2
4. Carroll, A.B., Brown, J.A. (2018). Corporate Social Responsibility: A Review of Current Concepts, Research, and Issues. In: Weber J., Wasielewski D. (Eds.), *Corporate Social Responsibility*, (pp. 39-69). U.K.: Emerald Publishing Co., doi: 10.1108/s2514-175920180000002002
5. Clark, C.E., Riera, M., Iborra, M. (2021). Toward a Theoretical Framework of Corporate Social Irresponsibility: Clarifying the Gray Zones Between Responsibility and Irresponsibility, *Business & Society*, *Vol. 61, No. 6,* pp. 1473-1511, doi: 10.1177/00076503211015911
6. Freeman R.E., Philips R.A. (2002). Stakeholder Theory: Libertarian Defense. *Business Ethics Quarterly*, *Vol. 12, No 3,* pp. 331-349, doi:10.2307/3858020
7. Graafland, J., Noorderhaven, N. (2020). Technological Competition, Innovation Motive and Corporate Social Responsibility: Evidence from Top Managers of European SMEs, *Economist (Netherlands)*, *Vol. 168, No. 1,* pp. 1-22. doi: 10.1007/s10645-019-09351-z
8. Kang, Y.C., Wood, D.J. (1995). Before-Profit Social Responsibility. *Proceedings of the International Association for Business and Society*, *Vol. 6*, pp. 809-829, doi: 10.5840/iabsproc1995672
9. Sokołowska, A. (2013). Społeczna odpowiedzialność małego przedsiębiorstwa. Identyfikacja-ocena-kierunki doskonalenia. *Seria: Monografie i Opracowania, nr 232*, Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.
10. Sokołowska-Durkalec, A. (2020). Identification of Social Irresponsibility Manifestations in the Social Responsibility Management System in a Small Enterprise—Importance, Place and Conditions. In: K. Bachnik, M. Kaźmierczak, M. Rojek-Nowosielska, M. Stefańska, J. Szumniak-Samolej (Eds.), *CSR in Contemporary Poland* (pp. 41-53), Cham: Palgrave Macmillan, doi: 10.1007/978-3-030-42277-6_4
11. Sokołowska-Durkalec, A. (2022). Negative values and negative impact – selected manifestations of social irresponsibility of small enterprise. In: K. Bachnik, M. Kaźmierczak, M. Rojek-Nowosielska, M. Stefańska, J. Szumniak-Samolej (Eds.), *Corporate Social Responsibility and Sustainability. From Values to Impact* (pp. 54-67). New York: Routledge.

12. Sokołowska-Durkalec, A. (2025). *Dylematy konceptualizacji społecznej nieodpowiedzialności przedsiębiorstwa.* Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, doi: 10.15611/2025.07.8
13. Udayasankar, K. (2008). Corporate social responsibility and firm size. *Journal of Business Ethics*, *Vol. 83, No. 2*, pp. 167-175. doi: 10.1007/s10551-007-9609-8

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A NEW APPROACH TO HUMAN CAPITAL VALUATION

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Purpose: identifying contemporary approaches to Human Capital Value (HCV).
Design/methodology/approach: systematic review of publications using the PRISMA approach, followed by content analysis.
Findings: several significant new approaches to HCV were identified, most of them based on modification of the valuation metrics system and individual selection of tools for a specific study.
Research limitations/implications: the article is based solely on a qualitative approach to research.
Practical implications: the article can serve as a basis for exploring and systematizing human capital valuation metrics for specific enterprises.
Originality/value: a comprehensive analysis of approaches to human capital valuation since 2018 was conducted.
Keywords: Human Capital, Human Capital Valuation, HCV, valuation methods.
Category of the paper: Conceptual work, Research paper.

1. Introduction

In recent years, human resource management has become more structured, its terminology has evolved, and it has reached a mature stage in the field of knowledge, which has a significant impact on research in the area of HR. Both M. Kasa et al., who emphasize the importance of education in promoting competent and qualified human capital (Kasa et al., 2020), and J. Deng, and R. Long, who consider personnel a strategic resource that significantly contributes to the long-term development of an organization (Jun-Rong, Rong-Rong, 2017), agree that people are the most valuable resource in enterprises (Rakhimzhanova et al., 2024). This approach to human resources as the most important factor in the competitive business environment of HR 4.0, as well as the economic progress from a production-based economy to a service-oriented economy, has led to the development of the following fields of study: human capital (HC); human capital management; human capital as an investment in resources and personnel accounting (Vithana et al., 2023).

The development of the concept and definition of Human Capital has a long history in science, but it was not until the 1960s that the foundations of the theory of investment in employees were presented by the American economist T.W. Schultz (Schultz, 1961), which sparked great interest among academic researchers such as G. Becker (Becker, 1964), R.H. Hermanson (Hermanson, 1964), and J.S. Hekimian and C. Jones (Hekimian, Jones, 1967). The work was continued in the early 1970s by E. Flamholtz (Flamholtz, 1974) and J. Mincer (Mincer, 1974), and the area of research was called HR accounting (Beattie, Smith, 2010). The next stage in the development of the approach to human resources as capital is the research of L.C. Thurow (Thurow, 1970), who expanded the concept to include social, cultural, philosophical, and psychophysical elements (Stuss, 2015).

After a decline in interest, the rejuvenation of research on human capital as part of the broader concept of intellectual capital gained momentum around the beginning of the 21st century (Beattie, Smith, 2010). This was driven by the development of research on all aspects of knowledge in organizations, including employee knowledge, its changes, and its impact on management processes (Bechtel, 2007) in the context of changes within the HR 4.0 concept.

The conducted analyses allowed organizations, especially businesses, to realize that employees, with their experience, education, personality, and behaviour, constitute a significant resource that generates significant value (Makieła, Stuss, 2019). The aim of this study was to identify contemporary approaches to Human Capital Value (HCV) in the conducted research. This issue is particularly important today in connection with the transformations in HR 4.0 processes and the perspective of HR 5.0.

2. Theoretical Background

Human capital was first defined by G. Becker as the knowledge and skills that individuals acquire through education, training, and various other experiences, such as fieldwork (Becker, 1964). Currently, the most commonly used definition of human capital is as the human factor of an organization—that is, the combined intelligence, skills, and expertise that give an organization its unique character (see Table 1).

Human capital has become a key determinant of organizational success in today's knowledge-based economy. Researchers have long recognized that investing in employee knowledge, skills, and abilities can lead to improved organizational performance and innovation capacity (Ray et al., 2023; Vithana et al., 2023).

Table 1.
The concept of Human Capital (Human Capital) – an overview of selected references

Author	Definition
(Johnson, 1999)	Human Capital refers to the knowledge, skills and abilities of employees, as well as the manifestation of intelligence and innovative capacity.
(Bratnicki, 2000, p. 101)	Human Capital is: competence (practical skills, theoretical knowledge, talents); intellectual dexterity (innovativeness of people, ability to imitate, entrepreneurship, ability to change); motivation (willingness to act, personality predispositions, commitment, organizational power, leadership, tendency to ethical behavior).
(Cote, 2001)	Human Capital includes, on the one hand, qualifications and skills (competencies) that are acquired through education and experience, and on the other hand, innate characteristics, i.e. talents and abilities, resulting from psychological, emotional and mental conditions that determine the motivations and forms of behaviour of people, including employees.
(Wang, Chang, 2005)	Human Capital is the knowledge and skills that individuals create, maintain and use, and the employee growth/decline rate is its relevant indicator.
(Baron, Armstrong, 2008, pp. 20-21)	A company's Human Capital is those elements capable of learning, change, innovating, and being creative. When properly motivated, they can ensure the organization's long-term sustainability.
(Fong et al., 2011)	Human Capital knowledge is the insights, interpretations, context, experience, and wisdom that help an organization achieve its goals, mission, and vision, and ultimately increase its value. Organizations should continually invest in their Human Capital to improve their competitive advantage.
(Wronowska, 2012, pp. 14-18)	In this approach, human capital is treated as a company's most valuable asset, a collection of knowledge, skills, experiences, motivation, competencies, responsibility, education, intellectual abilities, and problem-solving skills.
(Kucharcikova et al., 2024)	Human Capital represents individuals who are carriers of knowledge, ideas, and experiences that contribute to increasing the efficiency and competitiveness of a company and society as a whole. Human capital management helps companies achieve their business goals. Human Capital is not the number of employees in a company, but rather their abilities, skills, talents, willingness to share existing knowledge and the effectiveness of investments in it.
(Musaigwa, Swanepoel, 2024)	Human Capital refers to the knowledge, skills and abilities of employees in an organization.
(Ren, Yu, 2025)	Human Capital is a fundamental element of intellectual capital and plays a leading role in corporate innovation. It primarily provides an intellectual guarantee for improving a company's level of innovation through the application of employees' knowledge, experience, and innovative thinking.

Source: own study based on the indicated sources.

A firm's total human capital represents the sum of employees' knowledge and experience. Systematic management of employee knowledge and experience lays the foundation for internal structural capital. This, in turn, can be transformed into a foundation for expanding the firm's infrastructure and enhancing capabilities. Furthermore, at the level of financial structure, establishing a firm's infrastructure relies on long-term capital investments (Han et al., 2017). Therefore, human capital analysis is important for two reasons: first, it enables the logical separation of causes and effects, and second, it provides a theoretical basis for deriving the relationship between human capital and employee innovation performance in any given firm (Rafique et al., 2024). The accumulation of human capital and its subsequent transmission are key aspects of this innovation process. On the other hand, the resource-based view argues that human capital is valuable, limited, difficult to replicate, and non-substitutable (Bos-Nehles

et al., 2017). Research has shown that organizations with better human capital management practices typically experience higher productivity, enhanced innovation, and better financial performance (Gallego, Gutiérrez Ramírez, 2023; Islam, Amin, 2022; Malhotra et al., 2025).

The concept of Human Capital Management (HCM) emphasizes and draws attention to employees' current knowledge, its importance and utilization for the enterprise, and its systematic development and enhancement. In this way, HCM creates a competitive advantage in the market and simultaneously represents the ability to utilize people's potential, both for daily work and to increase quality and innovation (Kucharcikova et al., 2024). Consequently, it should be assumed that human capital management is the comprehensive development of human potential expressed through the value of the enterprise. Therefore, human capital management involves creating organizational value through employees. The conceptualization of strategic human capital valuation as part of an organization's strategic measurement and management system is to help build employee performance (Samson, Bhanugopan, 2022). This is also confirmed by studies showing a significant positive correlation between human capital management practices and organizational performance (Ghouri et al., 2020; Kitchot et al., 2021; Moustaghfir et al., 2020; Patil, Kulkarni, 2024).

Human Capital Management can also be understood as an approach to employees that views them as assets whose present value can be measured and increased through investment. However, because these studies have been approached across multiple disciplines, theoretical areas, and levels, they have led to construct ambiguity in assessing the impact of human capital valuation results at the individual/firm level and the individual level. Universalist, configurational, and contingency theories advocate the utilization of human capital at the individual, managerial, and organizational levels, which generates long-term returns for businesses (Vithana et al., 2023).

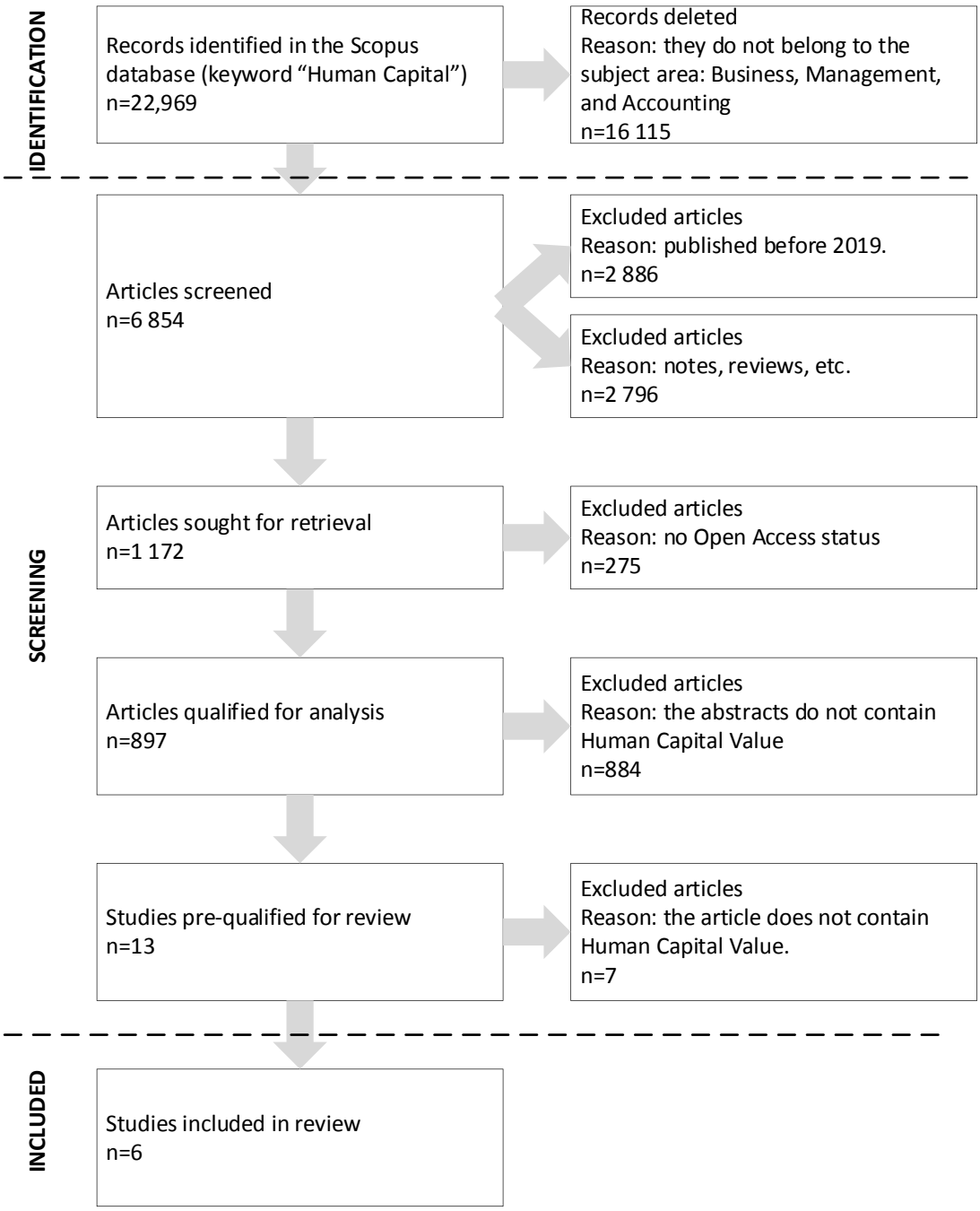

Figure 1. Systematic literature review process.

Source: own study.

3. Research methodology

Seeking answers to the question of how approaches to human capital valuation have changed, a systematic literature review was used. The systematic review was conducted based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) model

(see Figure 1). The adopted search strategy and selection of articles included in the review were defined using the following queries: TITLE-ABS-KEY ("human capital" or "HC").

In the initial phase of the research process, 22,969 studies were identified in the Scopus database. The first stage of selection involved narrowing the results to the "Business, Management, and Accounting" area (n = 6,854). Then, taking 2019 as a reference year (this year the author published a modified and tested version of the new approach to human capital valuation (Makieła, Stuss, 2019) and considering only articles published in peer-reviewed scientific journals (n = 1172) remained. This criterion was intended to ensure high-quality empirical material and reduce the risk of including publications with insufficient methodological reliability or low cognitive value, such as editorial notes, reviews, and other forms of publication that do not meet the criteria for a scientific article.

Additionally, only publications available in the open access model (n = 897) were qualified for the analysis. This requirement stemmed from the need for full access to the content, including both the theoretical part and a detailed description of the methodology used and the presentation of research results, which is a condition for conducting a reliable and in-depth literature synthesis. Based on the analysis of abstracts, 884 publications were then excluded, which did not contain substantive references to the concept of human capital valuation, leaving (n = 13) articles meeting the entry criteria.

Finally, after full-text analysis, six publications were included for the identification and interpretation of key research topics, which aligned with the study's objective: describing contemporary approaches to the value of human capital within HR analytics.

4. Research Results

Human capital valuation is one of the most complex and least structured areas of research in management and economics. Its challenges stem primarily from the intangible nature of human capital, which encompasses knowledge, competencies, experience, attitudes, and employee development potential. The available literature (see: Table 2) demonstrates significant variation in theoretical approaches to the concept of human capital itself, as well as its measurement and valuation methods. This translates into a lack of consistent and universally accepted analytical models.

Table 2.
Selected indicators of human capital valuation

Author	Approach to human capital valuation
(Makieła, Stuss, 2019)	The metrics used in the research process include both quantitative measures (economic value added of human capital, value added of human capital, profitability of investments in human capital, workforce turnover, investments in professional development of employees, indicator of income from human capital) and qualitative measures (data on company efficiency, CSR, demographic data, data on employee development, talent management).
(Vorobyov, 2020)	Human Capital Return on Investment (HC ROI) refers to the value that employees contribute to the production of products or the delivery of services compared to the resources spent on them. This allows for a better identification and understanding of the factors that help or hinder a company's productivity and performance.
(Veselinovic et al., 2021)	To obtain indicators of human capital efficiency, it is necessary to calculate: Human Capital Cost Factor (HCCF). Human Economic Value Added (HEVA), Human Capital Cost Factor (HCCF), Human Capital Market Value (HCMV), Human Capital Value Added (HCVA), Human Capital Return On Investment (HCROI)
(Yarovaya et al., 2021)	Conceive that human capital efficiency (HCE) is the efficacy of knowledge and skills emanating from investment in human capital (I). The knowledge and skills contribute toward the value addition (VA). Based on this, we define human capital efficiency (HCE) achieved through perpetual investments will outdo their peers. Human capital investment refers to various compensations that include payroll, commissions, bonuses, training, development, etc.
(Abdelkhalek, Boccanfuso, 2021)	Human Capital Index (HCI). It combines demographic, education, and health dimensions on a complementary statistical and econometric basis.
(Vithana et al., 2023)	Employee contribution to a firm's value added appears to be one such general measure, demonstrating the importance of reintroducing value-added accounting alongside conventional financial statements. Alternative industry-, sector-, or company-specific measures that can be disclosed in annual reports can also play a significant role in providing information on human capital value creation. Disaggregation's of firm expenditures on human resources, the value added of human capital as a proportion of total value added, firm investments in training and development, and cost or revenue per employee ratios are commonly used as quantitative financial indicators; however, a variety of qualitative indicators can capture the qualitative aspect of human capital value creation. Furthermore, a human capital disclosure framework for communicating human capital value creation should consider the process of using human capital at the individual level to manage human capital resources at the organizational unit or firm level. Therefore, the disclosure framework should include input indicators at the individual level, process indicators at the organizational unit and firm levels, and output and outcome indicators that measure the value creation process and outcome.
(Kucharcikova et al., 2024)	As part of the HCM process, simple metrics are proposed to assess the level of HC utilization. These metrics will take into account key performance indicators, such as sales and specific operational conditions: Metric A: Average sales per employee. Sales depend primarily on employees serving customers, and employees are the carriers of HC. For this reason, it is crucial to know the share of sales per employee—this will determine HC effectiveness, i.e., whether it made sense to invest in HC (education, work environment, health). Efficiency is most often expressed as the ratio of outputs to inputs. By substituting the value of average sales per entry point and the average number of employees (full-time employees + temporary workers) per shift per entry point, we obtain the average sales per employee per shift. Metric B: Average sales per customer per shift. The effective use of employee knowledge, skills, and abilities translates into increased overall sales and competitiveness. The advantage of this metric is greater objectivity, as it is converted to the number of customers. The value of the indicator is obtained as a share of the company's average sales per shift and the average number of customers per shift.

Source: own study based on the indicated sources.

Additional difficulties arise from the practical operation of companies, which still rely on a resource-based approach, focusing on human resource management rather than on viewing employees as strategic assets that create organizational value. Consequently, many companies do not systematically collect data enabling the identification, measurement, and valuation of human capital, limiting themselves to labour cost records. The lack of appropriate information systems and the insufficient linkage between personnel data and the organization's economic performance further complicate the valuation process. Another significant limitation in the development of research on human capital valuation is the low level of formalization of the measures used, which hinders their standardization, comparability of results, and practical application. External conditions, including geopolitical, institutional, and cultural determinants, also play a significant role in this context. Differences in legal systems, labour market models, levels of economic development, and organizational culture mean that human capital valuation methods must be adapted to the specific characteristics of a given country or region. All of this means that human capital valuation remains an area requiring further, in-depth interdisciplinary research, combining theoretical perspectives with the realities of economic practice. The value of human capital is related to the number of employees but is not strictly limited to this number.

However, although the concept of human capital, as previously demonstrated, is long-standing, its valuation was most often based on the belief that it constitutes part of intellectual capital and, in this respect, the market value of the enterprise (Kucharcikova et al., 2024). It's important to remember that some researchers previously explicitly argued that an employee has no value to an organization unless they possess a skill based on which they are paid (Johanson, 1999), as the availability of a well-suited, qualified, efficient, and productive human resource for the company is not properly reflected in financial reporting. Most companies still either never report human capital, as it is usually difficult to value it in monetary terms, or they are unwilling to disclose the costs and value of human capital in their financial statements.

Therefore, the selection of metrics is crucial in valuing human capital. Accurately quantifying the size and effectiveness of human capital is difficult. In any case, when selecting and constructing direct or indirect (auxiliary) metrics, it is important to remember their relationship with the company's key performance indicators.

5. Conclusions

Nowadays, companies are increasingly aware of the value of human capital and have begun to present it in their annual reports, despite the difficulties in measuring the effectiveness of human capital utilization. They primarily seek appropriate metrics that reflect their capital size. As studies emphasize (Gadzhiev et al., 2020; Rong, Karia, 2024; Santa et al., 2022), the quality

of human capital should be the focus of business managers. Moreover, the quality of human capital influences the sustainable economic growth of individual countries.

The human capital management process is influenced by Industry 4.0 and the emerging Industry 5.0. These changes, implemented in companies, can increase the productivity and efficiency of HCM processes. Human capital valuation is currently one of the key, innovative tools supporting strategic human resources management, particularly in the context of the digital transformation characteristic of Industry 4.0. Traditional methods of assessing company value, based primarily on tangible assets, are proving insufficient in an environment where competitive advantage is primarily determined by digital competencies, adaptability, creativity, data literacy, and readiness to collaborate with advanced technologies.

In the HR 4.0 approach, which integrates digital technologies with human resources management processes, human capital valuation serves as a diagnostic and prognostic tool, enabling the precise determination of employee competencies relative to company requirements. This includes, among other things, assessing the level of technical competencies, analytical skills, the ability to collaborate in a hybrid environment, as well as innovation potential and learning capacity. This allows for the identification of competency gaps, assessment of the risk associated with talent shortages, and planning investments in employee development based on data rather than managerial intuition.

As a result, human capital valuation becomes not only a tool supporting operational HR activities but also a key element in building a company's long-term strategy. It enables a better understanding of the degree to which human resources are prepared to implement new technologies, enabling the company to fully leverage the potential of automation, artificial intelligence, and data analytics. Thus, human capital valuation aligns with a new management paradigm, where the integration of knowledge, technology, and people plays a key role.

References

1. Abdelkhalek, T., Boccanfuso, D. (2021). Human Capital Index (HCI) – from uncertainty to robustness of comparisons. *Applied Economics*, *54*, 1-15. https://doi.org/10.1080/00036846.2021.2005768
2. Baron, A., Armstrong, M. (2008). *Zarządzanie kapitałem ludzkim*. Oficyna Wolters Kluwer Business.
3. Beattie, V., Smith, S.J. (2010). Human capital, value creation and disclosure. *Journal of Human Resource Costing & Accounting*, *14*(4), 262-285. https://doi.org/10.1108/14013381011105957
4. Bechtel, R. (2007). Calculating Human Capital: The Market Based Valuation of the Human Resource. *German Journal of Human Resource Management: Zeitschrift Für*

Personalforschung, *21*(3), 206-231. https://doi.org/10.1177/239700220702100302
5. Becker, G. (1964). *Human Capital: A Theoretical Analysis of Special Reference to Education*. Columbia University Press.
6. Bos-Nehles, A., Renkema, M., Janssen, M. (2017). HRM and innovative work behaviour: a systematic literature review. *Personnel Review*, *46*(7), 1228-1253. https://doi.org/10.1108/PR-09-2016-0257
7. Bratnicki, M. (2000). *Kompetencje przedsiębiorstwa : od określenia kompetencji do zbudowania strategii*. Agencja Wydawnicza Placet.
8. Cote, S. (2001). *The Well-being of Nations: The Role of Human and Social Capital*. OECD. https://doi.org/10.1787/9789264189515-en
9. Flamholtz, E.G. (1974). Human resource accounting: a view of theory and research. *Journal of Management Studies*, *11*, 44-61.
10. Fong, C., Ooi, K., Tan, B., Lee, V., Yee-Loong Chong, A. (2011). HRM practices and knowledge sharing: an empirical study. *International Journal of Manpower*, *32*(5/6), 704-723. https://doi.org/10.1108/01437721111158288
11. Gadzhiev, N., Konovalenko, S., Trofimov, M., Leontieva, J., Akhmedova, K. (2020). Management mechanism of human capital formation under a postindustrial economy. *E3S Web of Conferences*, *164*, 10005. https://doi.org/10.1051/e3sconf/202016410005
12. Gallego, J.M., Gutiérrez Ramírez, L.H. (2023). Quality certification and firm performance. The mediation of human capital. *International Journal of Productivity and Performance Management*, *72*(3), 710-729. https://doi.org/10.1108/IJPPM-12-2020-0643
13. Ghouri, A., Mani, V., Khan, M., Khan, N., Srivastava, A. (2020). Enhancing business performance through green human resource management practices: an empirical evidence from Malaysian manufacturing industry. *International Journal of Productivity and Performance Management*, *69*(8), 1585-1607. https://doi.org/10.1108/IJPPM-11-2019-0520
14. Han, C., Thomas, S.R., Yang, M., Ieromonachou, P., Zhang, H. (2017). Evaluating R&D investment efficiency in China's high-tech industry. *The Journal of High Technology Management Research*, *28*(1), 93-109. https://doi.org/10.1016/j.hitech.2017.04.007
15. Hekimian, J.S., Jones, C. (1967). Put people on your balance sheet. *Harvard Business Review*, *43*(22), 105-113.
16. Hermanson, R.H. (1964). *Accounting for Human Assets*. Graduate School of Business, Michigan State University.
17. Islam, M.S., Amin, M. (2022). A systematic review of human capital and employee well-being: putting human capital back on the track. *European Journal of Training and Development*, *46*(5/6), 504-534. https://doi.org/10.1108/EJTD-12-2020-0177
18. Johanson, U. (1999). Why the concept of human resource costing and accounting does not work: A lesson from seven Swedish cases. *Personnel Review*, *28*, 91-107. https://doi.org/10.1108/00483489910249018

19. Johnson, W.H.A. (1999). An integrative taxonomy of intellectual capital: measuring the stock and flow of intellectual capital components in the firm. *International Journal of Technology Management*, *18*(5/6/7/8), 562. https://doi.org/10.1504/IJTM.1999.002788
20. Jun-Rong, D.E.N.G., Rong-Rong, L.O.N.G. (2017). A study of the impact of idiosyncratic human capital on China's regional economic growth. *Science Research Management*, *38*(12), 116-121.
21. Kasa, M., Kho, J., Yong, D., Hussain, K., Lau, P. (2020). Competently skilled human capital through education for the hospitality and tourism industry. *Worldwide Hospitality and Tourism Themes*, *12*(2), 175-184. https://doi.org/10.1108/WHATT-12-2019-0081
22. Kitchot, S., Siengthai, S., Sukhotu, V. (2021). The mediating effects of HRM practices on the relationship between SCM and SMEs firm performance in Thailand. *Supply Chain Management: An International Journal*, *26*(1), 87-101. https://doi.org/10.1108/SCM-05-2019-0177]
23. Kucharcikova, A., Durisova, M., Staffenova, N. (2024). Implementation of the human capital management concept: an empirical study of small trading company. *Humanities and Social Sciences Communications*, *11*(1), 1620. https://doi.org/10.1057/s41599-024-03946-x
24. Makieła, Z., Stuss, M. (2019). Wycena kapitału ludzkiego jako narzędzie wspomagające współczesne działania HR. *Przedsiębiorczość i Zarządzanie*, *20*(1, cz. 2), 101-110.
25. Malhotra, G., Dandotiya, G., Shaiwalini, S., Khan, A., Homechaudhuri, S. (2025). Benchmarking for organisational competitiveness: a resource-based view perspective. *Benchmarking: An International Journal*, *32*(3), 943-964. https://doi.org/10.1108/BIJ-09-2023-0668
26. Mincer, J. (1974). *Schooling, Experience, and Earnings*. Columbia University Press.
27. Moustaghfir, K., El Fatihi, S., Benouarrek, M. (2020). Human resource management practices, entrepreneurial orientation and firm performance: what is the link? *Measuring Business Excellence*, *24*(2), 267-283. https://doi.org/10.1108/MBE-12-2019-0119
28. Musaigwa, M., Swanepoel, J. (2024). Organisational design and human capital management for an increasingly agile service. *South African Journal of Industrial Engineering*, *35*(3). https://doi.org/10.7166/35-3-3099
29. Patil, K.P., Kulkarni, M.S. (2024). Harmonising human and robotic workforces in Industry 5.0. In: *Modern Technologies and Tools Supporting the Development of Industry 5.0* (pp. 179-208). CRC Press. https://doi.org/10.1201/9781003489269-6
30. Rafique, T., Mohsin, M., Abid, M.A., Ashrif, A.N., Anwar, S. (2024). Understanding the impact of human capital on radical and incremental innovation: the role of entrepreneurial passion and alertness. *Future Business Journal*, *10*(1), 1-13. https://doi.org/10.1186/s43093-024-00318-4
31. Rakhimzhanova, G., Shayakhmetova, L., Tolepov, A., Maidyrova, A., Tadjieva, S. (2024). Economic Assessment of the Quality of Human Capital. *Montenegrin Journal of Economics*, *20*(4), 225-238. https://doi.org/10.14254/1800-5845/2024.20-4.19

32. Ray, C., Essman, S., Nyberg, A.J., Ployhart, R.E., Hale, D. (2023). Human Capital Resources: Reviewing the First Decade and Establishing a Foundation for Future Research. *Journal of Management*, *49*(1), 280-324. https://doi.org/10.1177/01492063221085912
33. Ren, J., Yu, Y. (2025). Relationship Between Intellectual Capital, Executive Motivation, and Corporate Innovation Level —Evidence from Chinese Listed Manufacturing Companies. *Journal of Advanced Computational Intelligence and Intelligent Informatics*, *29*(1), 118-130. https://doi.org/10.20965/jaciii.2025.p0118
34. Rong, C., Karia, N. (2024). Human capital management practice and performance of Chinese third-party logistics companies. *Global Business & Management Research*, *16*, 240-255.
35. Samson, K., Bhanugopan, R. (2022). Strategic human capital analytics and organisation performance: The mediating effects of managerial decision-making. *Journal of Business Research*, *144*, 637-649. https://doi.org/10.1016/j.jbusres.2022.01.044
36. Santa, R., Ferrer, M., Tegethoff, T., Scavarda, A. (2022). An investigation of the impact of human capital and supply chain competitive drivers on firm performance in a developing country. *PLOS ONE*, *17*(12), e0274592. https://doi.org/10.1371/journal.pone.0274592
37. Schultz, T.W. (1961). Investment in Human Capital. *The American Economic Review*, *51*(1), 1-17.
38. Stuss, M.M. (2015). Wycena kapitału ludzkiego w spółce giełdowej na przykładzie PKN Orlen S.A. *Zeszyt Naukowy.Pl*, *36*.
39. Thurow, L.C. (1970). *Investment in Human Capital*. Wadsworth Publishing Company.
40. Veselinovic, N., Krstić, B., Veselinović, M. (2021). Measuring the efficiency of human capital. *Economics of Sustainable Development*, *5*, 1-17. https://doi.org/10.5937/ESD2102001V
41. Vithana, K., Jayasekera, R., Choudhry, T., Baruch, Y. (2023). Human Capital resource as cost or investment: A market-based analysis. *The International Journal of Human Resource Management*, *34*(6), 1213-1245. https://doi.org/10.1080/09585192.2021.1986106
42. Vorobyov, N. (2020). Review of research on human capital development. *KANT*, *35*, 6-15. https://doi.org/10.24923/2222-243X.2020-35.1
43. Wang, W.-Y., Chang, C. (2005). Intellectual Capital and Performance in Causal Models Evidence from the Information Technology Industry in Taiwan. *Journal of Intellectual Capital*, *6*, 222-236. https://doi.org/10.1108/14691930510592816
44. Wronowska, G. (2012). *Kapitał ludzki: ujęcie teoretyczne*. Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie.
45. Yarovaya, L., Mirza, N., Abaidi Hasnaoui, J., Hasnaoui, A. (2021). Human Capital efficiency and equity funds' performance during the COVID-19 pandemic. *International Review of Economics & Finance*, *71*, 584-591. https://doi.org/10.1016/j.iref.2020.09.017

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THE COMMON GOOD IN MULTI-LEVEL RESPONSIBLE INNOVATION GOVERNANCE

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Purpose: The paper develops a firm-level concept of responsible innovation grounded in the firm's common good, with social capital regarded as the primary cross-level mechanism.
Design/methodology/approach: This is a conceptual study that integrates responsible innovation governance with the common good perspective. It develops a multi-level mechanism to explain how firm-level practices and broader governance conditions relate to responsible and creative innovation.
Findings: (mandatory) The paper proposes a mechanism in which a common-good orientation influences virtue- and humanistic-management practices, which in turn foster social capital that enables responsible and innovative creativity. It argues that responsibility and creativity are complementary in workplace innovation.
Research limitations/implications: Future research could test this framework by examining whether a firm-level common-good orientation fosters virtue practices at organisational and group levels, promotes social capital as a cross-level mediating mechanism, and thereby supports responsible innovation.
Practical implications: The common good approach provides a more comprehensive conceptual framework for innovation, which is no longer viewed as a purely value-free technical process.
Social implications: It helps identify the essential institutional infrastructure elements of collective action that create the conditions for effective community governance, especially now, when, alongside digitisation and the pandemic-driven reorganisation of work, the workplace is less tied to physical space.
Originality/value: The article contributes to discussions on responsible innovation by highlighting the role of firms and workplace actors in shaping innovation outcomes. It emphasises social capital (trust, reciprocity, and cooperation) as a factor connecting individual behaviour, organisational practices, and broader governance structures.
Keywords: common good, multi-level governance, responsible innovation, responsible research, social capital.
Category of the paper: Conceptual paper.

1. Introduction

Contemporary accounts of workplace innovation often prioritise material incentives, performance metrics, and efficiency-oriented governance. Yet innovation is never value-neutral, as it is produced through social relations and can generate benefits and harms that matter for human dignity, wellbeing, and the ecological conditions of life.

A growing body of research has addressed these concerns through the concept of responsible innovation (RI) and related governance debates. However, RI has often been positioned within policy and research-governance discourses, such as responsible research and innovation (RRI), which contributes to a recurring problem of level of analysis: firm-level practices and the moral agency of organisational actors can become obscured when responsibility is discussed mainly as a property of systems, programmes, or innovation outputs. At the same time, recent empirical developments indicate that firm-level RI can be operationalised, supporting more precise organisational theorising (Zhang et al., 2023).

A common-good perspective offers a normative anchor for such theorising by asking how innovation management can be oriented towards human flourishing. This resonates with long-standing concerns in humanistic management and business ethics that instrumental, "resource-based" views of employees sit uneasily with an authentic commitment to dignity and autonomy (McCall, 2001). It also echoes warnings against fetishising technical means while obscuring human ends.

The common good may have concrete organisational forms in the workplace. Conceptualisations of the firm's common good as collaborative work emphasise that organisations are sites where people can develop capabilities, virtues, meaning, and relationships while producing goods and services that address societal needs. From this perspective, innovation management is reinterpreted as a practice of organising collaboration under uncertainty in a way that can either support or erode human flourishing. Related recent work in human resource management explicitly connects workplace practices to the pursuit of the common good and sustainable development (Aust et al., 2024; Cooke, 2025).

Governance of workplace innovation can be understood through two interconnected dimensions. The first is responsibility, understood here as forward-looking responsibility: an ex ante approach to anticipating harm, maintaining ethical acceptability, and protecting shared resources before damage occurs. The second is creativity, viewed as developing and applying novel solutions to urgent social needs. Responsibility without creativity risks becoming compliance-driven inertia, whereas creativity without responsibility risks generating socially costly innovations. Recent research on innovation supports this complementarity, showing that ethical framing can enhance the creativity of value-oriented idea generation and improve early detection of potential harms during innovation planning (Bednar, Spiekermann, 2024). Studies on digital innovation practice highlight why ethical frameworks are often not

adopted, pointing to multi-level barriers, including individual skills, organisational priorities, and structural constraints (Ernst, Matter, 2025).

This paper is guided by the question: How does the common good, as expressed in virtue ethics and humanistic management, translate into RI practices at the firm level, and what role does social capital play?

2. Manifestations of the common good in innovation activity

Across influential definitions, several elements recur: (1) novelty and change, (2) practical application, and (3) value creation. Lee et al. (2012) equate innovation with any change, new idea, or approach that creates value for the company and its environment—customers, suppliers, partner organisations, communities, and even the broader good of humanity. Perhaps the most technical definition of innovation appears in the Oslo Manual, which defines it as a new or improved product or business process introduced to the market that differs significantly from previous versions (OECD & Eurostat, 2018).

The approach to the innovation process has evolved, with increased stakeholder engagement, partly driven by technological and social innovations. The initial opening of innovative company activities to external actors was seen as a source of competitive advantage. Now, it is also linked to the concept of RI. Bringing businesses together with other societal actors in the research and innovation process to align innovation with societal expectations has become, first and foremost, an important item on political agendas, especially within the EU (Von Schomberg, 2013).

According to Blok and Lemmens (2015), the concept of RI in its current form is naive, mainly due to disagreements and conflicts of interest among stakeholders. As the authors explain, these disagreements involve stakeholders' values, goals, understanding of contemporary challenges, and power. Managing an RI process is challenging due to a lack of transparency and, most notably, limited ability to predict its effects. Finally, there is the difficulty that although responsibility is shared, ownership of the results is not. All these factors lead researchers to conclude that the practical usefulness of the RI concept is highly questionable.

Current articulations of RI do not seem to provide a promising framework for enhancing workplace innovation management to address modern grand challenges. Let us consider the very notion in which the virtue of responsibility is assigned not to the inventor but to the product of their activity or the process leading to it. Such an approach makes sense if RI is understood as a proxy for the “responsible individuals”. Masking genuine relationships hampers the ability to recognise the problem and implement countermeasures. Moreover, responsibility has

a relational dimension, as evidenced by the word's Latin origin, respondere (to respond) (Grinbaum, Groves, 2013).

The current form of RI, which draws on general ideas related to sustainable development, instead focuses on the product and the innovation process. u and Horst (2015), who explore the concept of RI, evaluate its current form as aligned with neoliberal governmentalities. Therefore, questions about what is best for society, mainly whether the directions of individual innovation paths are correct, are not even considered (Stirling, 2008). According to these researchers, the operationalisation of RI in science and technology is problematic because the concept has shifted to the macroeconomic level and the field of international politics, thereby limiting the agency of responsible actors.

Gianni (2016), on the other hand, sees great potential in RI, although reinforced by the critical reference value of social freedom. Freedom, as a shared point of reference, enables a connection between science and society. Furthermore, he considers RI as an ethical framework to balance economy, law and morality, enabling the development of a legitimate and effective approach to innovation. Additionally, ethics is one of the six key elements promoted by the European Commission to achieve RI. According to Gianni, ethics with governance helps us select the best approach to responsibility by creating a common institutional framework that integrates various individual perspectives.

Exploring and approximating the seemingly contradictory perspectives on innovation and responsibility within the common good economy framework can further illuminate this relationship. Most importantly, it can help identify a new dimension of significance for managing innovation in companies, specifically in how it is created, while keeping people at the centre of research. In this context, understanding its purpose and the tools required to achieve it deserves further consideration.

The implementation of innovations yields results. The effects of innovation are usually judged by the extent to which a company's goals are achieved, such as generating profits, increasing sales, enhancing brand awareness, or reducing costs and improving efficiency through innovations in business processes (Crépon et al., 1998). Innovation can also have a broad impact on other organisations, economies, society, and the environment, including access to modern medicine, clean water, and clean air. Implementing such solutions at a societal level addresses the needs of both present and future generations, fulfilling the principles of sustainable development. Unfortunately, sometimes the adoption of innovations, despite their commercial success, can provoke security issues, endanger human health, or damage the environment. Therefore, the criteria of RI should be based on three aspects, according to Pavie (2018). First, innovation strategies should not attempt to do everything to meet new customer needs; second, they should not be rushed; and third, they should consider all significant consequences of innovation, including those that impact the ecosystem.

The extent of innovation's economic and social impacts largely depends on its diffusion and absorption. The latter requires a shift in citizens' attitudes towards investing in protecting the common good, including human health, life, and the environment. Implementing pro-social and eco-innovations cannot be achieved solely through declarations, directives, and regulations. Not everyone supports these initiatives, partly because innovation challenges the status quo and involves high costs with no guarantee of success. Nonetheless, such innovations remain a priority, especially amid rising social inequalities, climate change, environmental degradation, resource depletion, and biodiversity loss (World Economic Forum, 2021). Addressing these issues demands profound changes in how production processes are structured and encourages more sustainable and inclusive development. This means that companies' innovation strategies within the context of RI should go beyond mere legislative obligations and corporate social responsibility (CSR). Our review of publicly available innovation policies on corporate websites shows that CSR has often been reduced to a set of specific issues used to balance legitimacy with the effectiveness of innovation.

Commitment to creating the common good shifts our focus from what we should not have done to what we should do. To use van de Poel and Sand's terminology, we move from backwards-looking responsibility to forward-looking responsibility (Van De Poel et al., 2021). Backwards-looking responsibility, as the authors explain, refers to evaluating innovative actions and encompasses three types of responsibility: accountability, blame or praiseworthiness, and liability. Forward-looking types of responsibility in innovation are obligation (to avoid harm or to do well) and virtue. Responsibility as virtue is related to the character of the activities of the innovator. Williams (2008) considers responsibility as one of the central virtues of modern liberal societies, standing for "readiness to respond to a plurality of normative demands".

The main point we want to highlight here is the relationship between innovative activity and acting for the economy of the common good. We can identify four different expressions of the common good in innovation activity. First, the common good can be the outcome of an innovative process. Examples include innovations that safeguard human health and life, such as vaccines, medicines, innovative treatment methods, or modern medical equipment, as well as eco-innovations that provide access to clean water and combat climate change. The second form relates to innovative solutions that protect the common good, including air, oceans, natural resources, soil, animals, and plants. Third, the knowledge generated at each stage of the innovation process can also serve as a common good. This knowledge can be produced through basic scientific research and development, or it can be an end in itself, in the form of pure knowledge or embedded within innovation. The fourth significant aspect involves the involvement and cooperation of actors in the innovation process: scientists, universities, enterprises, and citizens. Finally, society's voluntary commitment and partnership in various activities and initiatives are vital in creating and supporting value. Though not monetised, this generates social wealth and thereby strengthens social capital. The essential elements here

are virtues, moral values, and principles that enrich interpersonal relationships and society as a whole, as they are fundamental to human life and development.

Sison and Fontrodona (2013) explain what can be understood as the company's common good. They describe the common good as collaborative work that develops knowledge, skills, virtues and meaning, while producing goods and services that meet society's needs and wants. The firm's common good is intrinsic (it cannot exist outside the firm), social (it depends on a community acting together), and practical (it is an activity, not a theory alone).

Organising collaborative work "pays off" for the company's innovation. According to Yeoman (2020), when projects pursue human flourishing and the common good, they feed new knowledge back into the organisation, spurring innovation and continually refreshing organisational practices.

3. Relevance of virtues in managing innovation activity

Ex-ante innovation measurement (Weresa, 2014) relies mainly on quantitative measures, most often expenditures. It leaves little room for normative considerations. A few exceptions apply to industries and services such as biotechnology, information and communication technologies, and security (Pellé, 2017). According to Svanberg and Svanberg (2021), the ethical dimension of commercial activities can be found in CSR efforts, such as donations, charity, or sponsored work by the company's employees, which are often linked to marketing and the company's core business. However, virtue-based actions rarely aim for such an end. Aurelius (2013) makes this clear: "Have I done something for the general interest? Well then, I have had my reward".

For individuals, virtuous actions contribute to what theorists call human "flourishing". According to Cunningham (2014), a person who pursues only narrow self-interest and is restrained, if at all, merely by fear of legal consequences or social disapproval, is diminished if they otherwise show no concern for acting generously, truthfully, or justly, because the capacity for virtues is an important part of what it means to be human.

The innovation process, as a form of collective action with an uncertain outcome, requires virtues at the micro, meso, and macro levels. The first type of virtue characterises individuals and their relationships with others; the second pertains to groups within organisations or research institutes; and the macro level encompasses entire communities, whether local, national, or supranational, such as the EU.

The three levels are inseparable, as shown in Wieland's (2001) model. Virtues demonstrated by employees are shaped by culture, education systems, and prevailing societal attitudes. Therefore, although this level is individual, it heavily depends on other factors, such as the macro-level education system. A company can also be a place where certain attitudes are

cultivated, which requires additional investment. The second and third elements encompass formal and informal institutions. Depending on the legal framework and laws, the company shapes its internal rules. Values rooted in culture also influence how it considers the moral aspects of its decisions. The final factor is coordination mechanisms, which depend strictly on the company. The less "moral" the regulations (including individual self-bonding, formal institutions, and non-formal institutions), the more investments the company requires.

At the individual level, the focus is on people's education and values in their families and local cultures. According to Hampden-Turner and Trompenaars (1993), societal values originate in education systems, and then they become evident in the cultures of organisations.

At the meso level, virtues essential for group cooperation become significant. Cunningham (2014) enumerates three civic virtues: mutual toleration, concern for others, and commitment to the public good.

In Ostrom and Ahn (2001), social capital and its following forms are essential for successful cooperation: networks/civic engagement, trust and reciprocity norms, rules, and laws (institutions). As they explain, trust allows individuals to act with a risk related to the trustee's behaviour; networking helps individuals who want to collaborate with others and a minority of society survive and develop; and institutions have a positive effect on the predictability and outcomes of human activities.

As Ostrom (2000) observes, for most people to cooperate and for that cooperation to persist, trust must be accompanied by reciprocity. Such individuals bring norms and values that support cooperation over time, while cooperation can erode rapidly when enforced by externally imposed rules.

Researchers identify virtue within economics in different ways. Burbidge (2016), who argues that virtue ethics rests on the communicability of ends, lists the main approaches to social virtues including locating them in market externalities (by Arrow), internal goods (by MacIntyre), the agent (by Sen), and conditional cooperation (by Ostrom). In a virtue-based business, profit and growth are treated as means. Post-materialist management, therefore, depends on intrinsic motivation for the common good and holistic criteria of success (Zsolnai, 2013).

Among virtues essential for cooperation at the macro level, justice appears to be one of the most critical values supported by the state. Justice-based actions can preserve virtues also at the meso level, enabling companies to innovate for the common good. Virtuous organisations or companies that do not make such efforts may be overly exposed to market forces, which could erode many vital virtues and innovations necessary for the common good. Felber (2010) explains how governments may promote such companies by giving them preference.

The development of companies based on the common good paradigm encourages the creation of new products and services by introducing new principles. Furthermore, regulations grounded in the justice-related principle regarding future generations could provide renewable energy providers with more opportunities through investment policies, starting with public and

educational institutions. Klein (2015) discusses alternative solutions, such as a responsibility rule (partly in place in the EU through the polluter-pays principle) or broader measures (e.g., initiatives aimed at environmental restoration). The state might support local initiatives, which are more likely to utilise local production factors and minimise transport impacts and bolsters local communities. Adherence to market rules, even if the market is somewhat based on virtues, as Bruni and Sugden (2013) argue, ultimately relies on the price system.

Vital human values, including nature, human dignity, and justice, cannot be priced. Here, a virtue-based approach becomes more significant. Bruni (2021) discusses the importance of virtues cultivated within enterprises, highlighting the draining of ethical capital in society.

4. Conclusions

The virtue-based approach in the workplace reveals two vital dimensions for managing innovation, both of which are important in confronting societal challenges, such as pandemics, climate and environmental crises, income inequalities, digitalisation, and AI development. RI activity can be anticipated, and the common good framework clarifies why what may seem like only a macroeconomic issue is also a concern for individuals acting as employees and managers. Shifting attention to responsibility rooted in virtues can effectively limit innovation that exacerbates current problems. Ex-post solutions that dominate the responsibility are often ineffective for a rapidly changing field of innovation. Additionally, in the absence of global regulations, societies have an interest in fostering responsible conduct within and across networks of transnational, national, and regional companies.

The creative aspect of innovation overlaps with this approach, as creativity underpins challenging the status quo and implementing changes. Like responsibility, creativity is an individual trait. It requires the courage to pursue work despite adversity and to explore unknown areas. Openness to change is easier in an environment characterised by high social capital, such as trust and networking.

Harnessing its potential depends on the institutions and tools within socio-economic systems. Encouraging people to pursue materialistic values may increase engagement in many projects while limiting their willingness to work together and increasing the likelihood of a moral hazard. Sison and Fontrodona (2012) demonstrate that the opportunistic pursuit of self-interest by a firm's shareholders and managers can erode their moral obligation to build a community grounded in relationships that respect members' intrinsic worth and dignity.

The common good approach provides a more comprehensive conceptual framework for innovation, which is no longer viewed as a purely value-free technical process. It helps identify the essential institutional infrastructure elements of collective action that create the conditions for effective community governance, especially now, when, alongside digitisation and the

pandemic-driven reorganisation of work, the workplace is less tied to physical space. Future research could test this framework by examining whether a firm-level common-good orientation fosters virtue practices at organisational and group levels, promotes social capital as a cross-level mediating mechanism, and thereby supports responsible innovation.

References

1. Aurelius, M. (2013). *Marcus Aurelius Meditations Book.* Oxford University Press.
2. Aust, I., Cooke, F.L., Müller-Camen, M., Wood, G. (2024). Achieving Sustainable Development Goals Through Common Good HRM: Context, Approach and Practice. *German Journal of Human Resource Management 38, no. 2*. pp. 93-110.
3. Bednar, K., Spiekermann, S. (2024). The Power of Ethics: Uncovering Technology Risks and Positive Value Potentials in IT Innovation Planning. *Bus. Inf. Syst. Eng., 66*, pp. 181-201. https://doi.org/10.1007/s12599-023-00837-4.
4. Blok, V., Lemmens, P. (2015). The emerging concept of responsible innovation. Three reasons why it is questionable and calls for a radical transformation of the concept of innovation. In: *Responsible Innovation 2: Concepts, Approaches, and Applications* (pp. 19-36). Springer International Publishing. https://doi.org/10.1007/978-3-319-17308-5_2
5. Bruni, L. (2021). Critique of Managerial Reason. *Humanistic Management Journal, 6*, 5–18. https://doi.org/10.1007/s41463-020-00100-y.
6. Bruni, L., and Sugden, R. (2013). Reclaiming Virtue Ethics for Economics. *The Journal of Economic Perspectives, 27(4),* 141-163.
7. Burbidge, D. (2016). Space for virtue in the economics of Kenneth J. Arrow, Amartya Sen and Elinor Ostrom. *Journal of Economic Methodology 23(4),* 396-412. https://doi.org/10.1080/1350178X.2016.1157201
8. Cooke, F.L. (2025). From Strategic HRM to Sustainable HRM? Exploring a Common Good Approach Through a Critical Reflection on Existing Literature. *Human Resource Management, Vol. 64, Iss. 5*. pp. 1183-1502.
9. Crépon, B., Duguet, E., Mairesse, J. (1998). Research, innovation and productivity: An econometric analysis at the firm level. *Economics of Innovation and New Technology, Vol. 7/2*, pp. 115-158.
10. Cunningham, F. (2014). Virtue Ethics. In: A.C. Michalos (ed.), *Encyclopedia of Quality of Life and Well-Being Research* (pp. 6943-6947). Netherlands: Springer. https://doi.org/10.1007/978-94-007-0753-5_3163
11. Davies, S.R., Horst, M. (2015). Responsible Innovation in the US, UK and Denmark: Governance Landscapes. In: *Responsible Innovation 2: Concepts, Approaches,*

and Applications (pp. 37-56). Cham: Springer. https://doi.org/10.1007/978-3-319-17308-5_3

12. Ernst, L.E., Matter, P. (2025). The ethical innovator: bridging the gap for integrating ethics into digital innovation practice. *Journal of Responsible Innovation, 12(1).* https://doi.org/10.1080/23299460.2025.2476246
13. Felber, C., Campos, V., Sanchis, J.R. (2019). The Common Good Balance Sheet, an Adequate Tool to Capture Non-Financials? *Sustainability 11(14).* https://doi.org/10.3390/su11143791
14. Gianni, R. (2016). *Responsibility and Freedom*, Wiley. https://ereader.perlego.com/1/book/997634/13
15. Grinbaum, A., Groves, C. (2013). What Is "Responsible" about Responsible Innovation? Understanding the Ethical Issues. In: *Responsible Innovation*. Wiley. https://ereader.perlego.com/1/book/1003946/2
16. Hampden-Turner, C., & Trompenaars (1993). *The seven cultures of capitalism: Value systems for creating wealth in the United States, Japan, Germany, France, Britain, Sweden, and the Netherlands.* Currency Doubleday.
17. Klein, N. (2015). *This Changes Everything: Capitalism vs. The Climate*. https://www.amazon.com/This-Changes-Everything-Capitalism-Climate/dp/1451697392
18. Lee, F.S. (2012). Heterodox Economics and its Critics. *Review of Political Economy, 24(2),* 337-351. https://doi.org/10.1080/09538259.2012.664360
19. McCall, J.J. (2001). Employee Voice in Corporate Governance: A Defense of Strong Participation Rights. *Business Ethics Quarterly, 11(1)*, 195-213. https://doi.org/10.2307/3857877
20. OECD, and Eurostat (2018). *Oslo Manual 2018. Handbook of Innovation Indicators and Measurement.*
21. Ostrom, E. (2000). Collective Action and the Evolution of Social Norms. *The Journal of Economic Perspectives, 14(3),* 137-158.
22. Ostrom, E., Ahn, T.K. (2001). A Social Science Perspective on social capital: Social Capital and Collective Action. *Workshop in Political Theory and Policy Analysis Indiana University.* https://www.researchgate.net/publication/242569787_A_Social_Science_Perspective_on_Social_Capital_Social_Capital_and_Collective_Action
23. Pavie, X. (2018). From responsible innovation to innovation-care. In: *Responsible Research and Innovation*. Taylor and Francis. https://ereader.perlego.com/1/book/1380311/24
24. Sison, A.J.G., Fontrodona, J. (2013). *Journal of Business Ethics, Vol. 113, No. 4.* Special Issue on Putting Virtues into Practice, pp. 611-625.
25. Svanberg, M.K., Svanberg, C.F.C. (2021). Is there Such a Thing as a Good Profit? Taking Conventional Ethics Seriously. *Philosophia*. https://doi.org/10.1007/s11406-020-00310-6

26. Van De Poel, I., Sand, M., Nl, S. (2021). Varieties of responsibility: two problems of responsible innovation. *Synthese, 198*, 4769-4787. https://doi.org/10.1007/s11229-018-01951-7
27. Von Schomberg, R. (2013). A vision of Responsible Research and Innovation. In: R. Owen, M. Heintz, J. Bessant (Eds.), *Responsible Innovation*. John Wiley.
28. Weresa, M. (2014). *Polityka innowacyjna.* PWN.
29. Wieland, J. (2001). The Ethics of Governance, *Business Ethics Quarterly, 11(1),* 73-87. https://doi.org/DOI: 10.2307/3857870
30. Williams, G. (2008). Responsibility as a Virtue. *Ethic Theory Moral Prac*, *11*, 455-470. https://doi.org/10.1007/s10677-008-9109-7
31. World Economic Forum (2021). *The Global Risks Report 2021*. 16th Edition. Weforum.Org.
32. Yeoman, R. (2020). *Ethics, Meaningfulness, and Mutuality.* Routledge.
33. Zhang, S., X., Chen, J., He, L., Choudhury, A. (2023). Responsible Innovation: The development and validation of a scale, *Technovation, Vol. 124.* https://doi.org/10.1016/j.technovation.2023.102754
34. Zsolnai, L. (2013). Handbook of Business Ethics. *Ethics in the new economy.* Peter Lang.

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COST-EFFECTIVENESS OF SGLT2 INHIBITORS IN HEART FAILURE: A COMPARATIVE REVIEW OF ECONOMIC EVALUATIONS

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Purpose: The aim of this study was to review and compare published economic evaluations assessing the cost-effectiveness of sodium–glucose cotransporter-2 (SGLT2) inhibitors in patients with heart failure across different health care systems.
Methodology: A systematic literature review of economic evaluations was conducted using the Scopus database. Studies published within the last five years that assessed the cost-effectiveness of SGLT2 inhibitors in patients with heart failure or cardiovascular disease were identified. Due to heterogeneity among studies, a qualitative comparative analysis was performed.
Findings: The reviewed studies consistently demonstrated a favorable cost-effectiveness profile of SGLT2 inhibitor therapy in patients with heart failure. In most analyses, ICER values remained below commonly accepted willingness-to-pay thresholds. However, substantial regional differences in ICER estimates were observed, reflecting variations in drug pricing, health care system structures, and national economic conditions.
Practical implications: The results provide evidence supporting the economic value of SGLT2 inhibitor therapy in the management of heart failure. These findings may support health policy decisions, reimbursement strategies, and the broader implementation of these therapies in clinical practice.
Social implications: Improving access to cost-effective therapies for heart failure may reduce hospitalization rates, improve patients' quality of life, and decrease the overall burden of cardiovascular diseases on health care systems and society.
Value: This study provides a comparative synthesis of recent economic evaluations assessing SGLT2 inhibitors across different countries and health care systems. By highlighting regional differences in cost-effectiveness outcomes, the study contributes to a better understanding of the economic impact of these therapies and supports evidence-based decision-making in health care policy.
Keywords: cost-effectiveness, quality-adjusted life years (QALY), incremental costs and incremental (QALY), incremental cost-effectiveness ratio (ICER), sodium–glucose cotransporter-2 (SGLT2) inhibitors, heart failure.
Category of the paper: research paper.

1. Introduction

Cost-effectiveness analysis (CEA) is a widely used tool in health economics that evaluates the relationship between the costs of medical interventions and the health outcomes they generate. By comparing the resources required for a given therapy with the clinical benefits achieved, CEA supports evidence-based decision-making in health policy and resource allocation.

Health care systems worldwide are currently facing increasing financial pressure driven by population ageing, rising medical costs, and the growing prevalence of chronic diseases. Cardiovascular diseases constitute a major contributor to these expenditures. Among them, heart failure (HF) represents one of the most significant public health challenges due to its high morbidity, mortality, and frequent hospitalizations (Roger, 2021). Globally, heart failure affects more than 64 million people and its prevalence increases markedly with age, affecting approximately 1-2% of the adult population in developed countries and more than 10% of individuals over the age of 70 (Savarese, Lund, 2017; Ponikowski et al., 2016). As a result, HF generates a substantial burden on health care systems through both direct medical costs and indirect costs related to disability and loss of productivity.

In recent years, sodium–glucose cotransporter-2 (SGLT2) inhibitors have emerged as an important therapeutic option in the management of heart failure. Initially introduced for the treatment of type 2 diabetes, these agents have demonstrated significant cardiovascular and renal benefits in large randomized clinical trials. Current international guidelines recommend SGLT2 inhibitors as part of the standard pharmacological therapy for patients with heart failure across a broad spectrum of left ventricular ejection fraction (Heidenreich et al., 2022). The mechanisms underlying their clinical benefits include improved cardiac function, reductions in preload and afterload, enhanced renal protection, and favourable metabolic effects (Verma, McMurray et al., 2018).

Given their expanding role in clinical practice, it is important to evaluate not only the clinical effectiveness of SGLT2 inhibitors but also their economic value. Economic evaluations such as cost-effectiveness analyses allow assessment of whether the health benefits associated with a therapy justify the costs incurred by health care systems. Such analyses may be conducted from different perspectives, including those of the health care payer, the national health system, or society, each capturing different categories of direct and indirect costs.

In this context, understanding the economic impact of SGLT2 inhibitor therapy in heart failure is particularly relevant for health policy and reimbursement decisions. Therefore, the aim of this study was to review and compare published economic evaluations of SGLT2 inhibitors in patients with heart failure, with particular emphasis on cost-effectiveness analyses conducted in different countries and health care systems.

2. Cost-effectiveness analysis as a tool for evaluating medical interventions

In pharmacoeconomic studies, health outcomes are most commonly expressed in quality-adjusted life years (QALYs). This measure integrates both life expectancy and health-related quality of life into a single metric, allowing the overall health benefit of a medical intervention to be quantified. One QALY represents one year of life in perfect health, whereas values below one reflect years lived with reduced health status due to illness or disability.

Economic evaluations typically estimate incremental costs and incremental QALYs, which represent the differences in costs and health outcomes between a new intervention and the comparator, often standard of care. Based on these values, results are commonly summarized using the incremental cost-effectiveness ratio (ICER). The ICER indicates the additional cost required to gain one additional unit of health benefit, most often expressed as cost per QALY gained (Schwarzer et al., 2015; Drummond et al.,2015).

To determine whether an intervention is considered economically justified, ICER values are compared with a willingness-to-pay (WTP) threshold, which represents the maximum amount a health care system is willing to pay for gaining one additional QALY. These thresholds vary between countries and health systems. In the United States, a commonly cited reference threshold is approximately 100,000 USD per QALY. This value is not formally established by a single regulatory institution but originates from cost-effectiveness analyses used in health technology assessment (HTA) and is widely applied in pharmacoeconomic literature as a benchmark for reimbursement and clinical decision-making (Grosse, 2008; Shiroiwa et al., 2010).

The interpretation of cost-effectiveness results may also depend on the analytical perspective adopted in the evaluation. Economic analyses may be conducted from the perspective of a health care payer, a national health care system, or society. Each perspective captures different categories of costs. While payer-based analyses focus primarily on direct medical expenditures, the societal perspective additionally incorporates indirect costs such as productivity losses, disability, and informal care.

In the case of heart failure, economic evaluations are particularly relevant due to the high costs associated with long-term disease management and frequent hospitalizations. The use of SGLT2 inhibitors may influence both direct and indirect costs by reducing the risk of hospitalization, improving patient prognosis, and enhancing quality of life. These potential clinical and economic benefits highlight the importance of assessing the cost-effectiveness of SGLT2 inhibitor therapy across different health care systems.

3. Methods

A systematic review of original studies evaluating the cost-effectiveness of SGLT2 inhibitors in patients with heart failure and cardiovascular diseases was conducted. A total of 82 articles were identified in the Scopus database on December 11, 2025. The search strategy included the following keywords: “costs”, “effectiveness”, “heart failure”, “SGLT-2”, “cost-effectiveness”, “cardiovascular disease”, “dapagliflozin”, “empagliflozin”, “sodium–glucose cotransporter-2 inhibitors”, and “risk of cardiovascular disease”.

A total of 54 articles were screened based on titles, abstracts, and conclusions, of which 22 reported outcomes related to QALY. Ultimately, eight texts assessing the cost-effectiveness of SGLT2 inhibitors (describing 9 studies) were included in the analysis.

The review focused on pharmacoeconomic evaluations reporting economic outcomes, particularly ICER.

Only the most recent studies published within the last five years were included. The majority of pharmacoeconomic analyses on SGLT2 inhibitors were conducted between 2021 and 2024.

The inclusion criteria required that the studies employed formal economic models, particularly Markov models or hybrid modeling approaches, used to assess the long-term clinical and economic outcomes of the interventions. The included analyses compared SGLT2 inhibitor therapy with standard of care or alternative pharmacological treatment strategies.

Exclusion criteria included studies involving patient populations treated with SGLT2 inhibitors solely for type 2 diabetes mellitus (T2DM), diabetic nephropathy, or chronic kidney disease without coexisting cardiovascular disease. Additionally, clinical guidelines, review articles, and methodological papers were excluded from the analysis.

During the analysis of the selected studies, the following data were extracted: country or health care system evaluated, patient population, intervention and comparator, economic model used, analytical perspective, time horizon, total costs, QALY, incremental costs, incremental QALY, and ICER.

To ensure a high quality of study selection and evaluation, criteria derived from the Consolidated Health Economic Evaluation Reporting Standards (CHEERS) checklist and elements of the Drummond methodological framework for economic evaluation were applied (Husereau et al., 2022; Drummond et al., 2015).

The following parameters were assessed: clarity of the study objective, description of the study population, definition of the comparator, reporting of the economic model, stated analytical perspective, time horizon, reporting of costs, reporting of outcomes (QALY and/or ICER), and inclusion of sensitivity analysis.

Due to the heterogeneity of the included studies, resulting from differences in health care system structures across countries as well as variations in drug pricing in different geographical settings, a meta-analysis was not performed.

Instead, a qualitative synthesis was conducted, and the results were summarized in a comparative table including the main study characteristics, total costs, QALY, incremental costs, and ICER. A comparison of ICER values across different countries was also performed.

4. Results

A total of nine studies meeting the predefined inclusion criteria were included in the final analysis. These studies evaluated the cost-effectiveness of SGLT2 inhibitors in patients with heart failure or type 2 diabetes mellitus with increased cardiovascular risk.

The identified economic evaluations were conducted across health care systems, including the United States, China, Korea, India, Thailand, and countries from the Asia-Pacific region. Most studies evaluated the cost-effectiveness of adding an SGLT2 inhibitor, such as dapagliflozin or empagliflozin, to standard care in patients with heart failure with reduced ejection fraction.

The majority of analyses used Markov models to simulate disease progression and long-term outcomes. A lifetime time horizon was adopted in most studies to capture the long-term clinical and economic consequences of treatment. The perspective of the analyses varied between studies and included health care payer perspectives, national health system perspectives, and, in some cases, a societal perspective.

Clinical effectiveness inputs were typically derived from large randomized controlled trials, including DAPA-HF, EMPEROR-Reduced, and DECLARE–TIMI 58, or from meta-analyses of available trial data.

The main characteristics of the included studies are presented in Table 1.

Table 1.
Characteristics of included economic evaluations of SGLT2 inhibitors

Study	Name	Country	Population	Intervention	Comparator	Model	Perspective	Time horizon	Data source
S_1	Quadruple therapy analysis (Yan et al., 2023)	USA	HFrEF	SGLT2 inhibitor + GDMT	GDMT	Markov	healthcare system	lifetime	HF clinical trials
S_2	Dapagliflozin across EF (Bhatt et al., 2024)	USA	HF (all EF)	dapagliflozin + SOC	SOC	Markov	payer	lifetime	DAPA-HF, DELIVER
S_3	Dapagliflozin scenario analysis (Bhatt et al., 2024)	USA	HF	dapagliflozin + SOC	SOC	Markov	payer	lifetime	DAPA-HF

Cont. table 1.

S_4	Empagliflozin real-world study (Kim et al., 2024)	Korea	HF	empagliflozin + SOC	SOC	Markov	payer	-	real-world registry
S_5	Empagliflozin Asia-Pacific analysis (Liao et al., 2021)	Asia-Pacific	HFrEF	empagliflozin + SOC	SOC	Markov	payer	lifetime	EMPEROR-Reduced
S_6	Dapagliflozin vs empagliflozin (Nechi et al., 2023)	USA	HFrEF	dapagliflozin	empagliflozin	Markov	healthcare system	-	HF trials
S_7	Add-on SGLT2 therapy (Sasidharan et al., 2025)	India	HFrEF	SGLT2 inhibitor + SOC	SOC	Markov	healthcare system	lifetime	HF clinical studies
S_8	therapy HF (Huang et al., 2024)	China	HF	quadruple therapy including SGLT2	SOC	Markov	payer	20 years	meta-analysis of trials
S_9	Dapagliflozin add-on T2D (Deerochana wong et al., 2021)	Thailand	T2D + cardio-vascular risk	dapagliflozin + SOC	SOC	decision tree + Markov	societal	lifetime	DECLARE-TIMI 58

Note: - no data.

Source: own data summary.

Economic evaluations conducted in the United States demonstrated a favorable cost-effectiveness profile of SGLT2 inhibitor therapy. Yan et al. (2023) reported incremental costs of 39,386 USD and an incremental gain of 0.54 QALY, corresponding to an ICER of 73,000 USD/QALY. The analysis was based on a cohort of 8,399 adult patients from the United States. Similar findings were reported by Bhatt et al. (2024), who evaluated the cost-effectiveness of dapagliflozin in patients with heart failure across the full spectrum of ejection fraction. In this study, incremental costs amounted to 45,509 USD, with an incremental gain of 0.53 QALY, resulting in an ICER of 85,554 USD/QALY. In a scenario analysis incorporating a reduction in drug price, incremental costs decreased to 21,321 USD, while the incremental QALY remained unchanged (0.53), leading to a substantial reduction in ICER to approximately 40,081 USD/QALY. Nechi et al. (2023) compared the cost-effectiveness of dapagliflozin and empagliflozin in patients with heart failure with reduced ejection fraction, reporting incremental costs of 37,684 USD and an ICER of 44,763 USD/QALY.

Lower ICER values were observed in studies conducted in Asian countries. In a real-world analysis based on data from the Korean Acute Heart Failure (KorAHF) registry, including 3108 patients with HFrEF and 2070 patients with HFpEF, Kim et al. (2024) reported an ICER of 6764 USD/QALY. In the Asia-Pacific region, Liao et al. (2021) reported ICER values for empagliflozin ranging from 8846 to 53,791 USD/QALY. The lowest ICER was observed in a study conducted in China by Huang et al. (2024), where a minimal increase in costs of 353 USD and a substantial gain of 2.85 QALY resulted in an ICER of 124 USD/QALY. Deerochanawong et al. (2021) demonstrated that the addition of dapagliflozin to standard therapy in patients with type 2 diabetes and high cardiovascular risk in Thailand was associated

with incremental costs of 5,748 USD and an incremental gain of 0.30 QALY, corresponding to an ICER of 18,988 USD/QALY. In India, Sasidharan et al. (2025) reported incremental costs of 73,408 INR (approximately 842 USD) and an ICER of 612,406 INR/QALY (approximately 7,030 USD/QALY). The values reported in Indian rupees were converted to U.S. dollars using the average exchange rate for 2025 to enhance comparability.

The main economic outcomes are presented in Table 2.

Table 2.
Economic outcomes of included economic evaluations of SGLT2 inhibitors

Study	Total cost SOC	Total cost intervention	Incremental cost	QALY SOC	QALY intervention	Incremental QALY	ICER
S_1	124 001 USD	163 387 USD	39 386 USD	6.03	6.57	0.54	73 000 USD/QALY
S_2	109 003 USD	154 512 USD	45 509 USD	6.04	6.57	0.53	85 554 USD/QALY
S_3	-	-	21 321 USD	-	-	0.53	40 081 USD/QALY
S_4	-	-	-	-	-	-	6 764 USD/QALY
S_5	-	-	-	-	-	-	8 846–53 791 USD/QALY
S_6	-	-	37 684 USD	-	-	-	44 763 USD/QALY
S_7	299 793 ₹ (3440USD)	373 201 ₹ (4285USD)	73 408 ₹ (842 USD)	-	-	-	612 406 ₹ /QALY (7030 USD/QALY)
S_8	87 087 USD	87 441 USD	353 USD	18.60	21.44	2.85	124 USD/QALY
S_9	8 707 USD	14 455 USD	5 748 USD	9.28	9.58	0.30	18 988 USD/QALY

Note: - no data.

Source: own data summary.

Overall, the reporting quality of the included studies was high. Most economic evaluations clearly reported the study objective, population, comparator and economic model used, as well as key outcomes such as ICER. However, some studies did not provide complete information on incremental costs or QALY, which limited direct comparability between analyses. The detailed results of the quality assessment are presented in Table 3.

Table 3.
Evaluation of the quality of economic analyses (CHEERS and Drummond)

Study	Objective clearly stated	Population described	Comparator defined	Economic model reported	Perspective stated	Time horizon reported	Costs reported	Outcomes (QALY / ICER)	Sensitivity analysis
S_1	✓	✓	✓	✓	✓	✓	✓	✓	✓
S_2	✓	✓	✓	✓	✓	✓	✓	✓	✓
S_3	✓	✓	✓	✓	✓	✓	△	✓	✓
S_4	✓	✓	✓	✓	✓	△	△	✓	✓
S_5	✓	✓	✓	✓	✓	✓	△	✓	✓
S_6	✓	✓	✓	✓	✓	△	△	✓	✓
S_7	✓	✓	✓	✓	✓	✓	✓	✓	✓
S_8	✓	✓	✓	✓	✓	✓	✓	✓	✓
S_9	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note. ✓ criterion met; △ partially met; ✕ not reported.

Source: own data summary.

5. Discussion

5.1. ICER below the cost-effectiveness threshold

One of the key findings of this review is that, in the majority of the analyzed economic evaluations, the incremental cost-effectiveness ratios (ICERs) for SGLT2 inhibitor therapy remained below commonly accepted willingness-to-pay thresholds, suggesting that these interventions provide substantial health benefits relative to their costs.

These findings have important implications not only from a health economics perspective but also for clinical guideline development and reimbursement policies. In recent years, SGLT2 inhibitors have been incorporated into international guidelines for the management of heart failure as a key component of pharmacological therapy. The implementation of reimbursement policies for this class of drugs may significantly increase their real-world utilization, as treatment costs often represent a major barrier for patients. Fusco et al. (2023) and Gourzoulidis et al. (2017) have demonstrated that reduced out-of-pocket costs and drug reimbursement are associated with improved medication adherence, which in turn leads to better treatment effectiveness and clinical outcomes.

Importantly, the cost-effectiveness of SGLT2 inhibitors extends beyond the individual patient perspective and is also relevant at the level of public health care systems. The results of economic evaluations suggest that funding these therapies within reimbursement frameworks may be economically justified due to reductions in both direct and indirect costs. Clinical studies have shown that the use of SGLT2 inhibitors is associated with a lower risk of hospitalization for heart failure (Zannad et al., 2020) as well as shorter hospital stays (Singh et al., 2024), leading to a reduction in direct medical costs. At the same time, improvements in patient prognosis, increased survival (McMurray et al., 2019), and enhanced quality of life (Kosiborod et al., 2020) may contribute to lower indirect costs, such as productivity loss and disability-related expenditures.

It is also important to note that SGLT2 inhibitors represent a relatively recent class of therapeutic agents. As market competition increases and generic formulations become available, further reductions in drug prices can be expected. Lower pharmacotherapy costs are likely to improve cost-effectiveness outcomes even further, thereby enhancing the economic attractiveness of these therapies from a health system perspective.

This creates opportunities for price negotiations with manufacturers, the implementation of reimbursement agreements, and improved patient access to treatment. This is particularly relevant for patients with heart failure across the full spectrum of ejection fraction, as SGLT2 inhibitors are among the few therapies shown to be effective in both reduced and preserved ejection fraction, whereas many other pharmacological treatments are indicated primarily for HFrEF.

5.2. Regional differences in ICER values

A clear difference in ICER values between analyses conducted in the United States and Asian health care systems was observed in the reviewed studies. In general, economic evaluations from the United States reported substantially higher ICER values, whereas analyses conducted in Asian countries such as China, Korea, India, and Thailand tended to demonstrate considerably lower cost-effectiveness ratios. These differences are likely driven by several structural factors related to drug pricing, health system organization, and economic conditions across regions.

Differences in pharmaceutical pricing policies are therefore likely to be one of the key drivers of the variability in ICER values observed between countries. Higher drug prices increase the incremental costs associated with a given intervention, which directly influences the ICER calculated in economic evaluations. Consequently, even when clinical effectiveness remains comparable across settings, variations in drug pricing structures and reimbursement systems may substantially affect the estimated cost-effectiveness of the same therapy.

Drug prices in the United States are generally higher than in many other countries (Danzon, Chao, 2000), partly due to differences in pharmaceutical pricing policies. Unlike many health systems that implement centralized price negotiations or government price controls, the U.S. system allows manufacturers relatively greater flexibility in setting initial drug prices (Kang et al., 2020). As a result, pharmaceutical prices in the United States are often substantially higher than in other OECD countries, where pricing is frequently regulated through health technology assessment frameworks and national reimbursement negotiations.

A substantial proportion of early-stage biomedical research is conducted in the United States and is frequently supported by federal research funding programs, particularly through the National Institutes of Health (NIH) (Galkina Cleary et al., 2018). Previous analyses have shown that publicly funded research contributed to the scientific foundations of many newly approved drugs, highlighting the important role of government-funded biomedical research in pharmaceutical innovation. The high costs associated with drug discovery, development, and clinical testing may therefore be partly reflected in the final prices of innovative therapies.

Another important factor contributing to regional differences in ICER values is the overall cost of health care services. International comparisons indicate that the United States has substantially higher health care expenditures than most other countries, partly driven by higher prices of medical services and significantly higher salaries of health care professionals (Papanicolas et al., 2018). In contrast, several Asian health care systems operate with lower labor costs, different reimbursement models, and more centralized health insurance structures, which may reduce the overall cost of treatment (Gauld et al., 2006).

Finally, differences in ICER values may also be influenced by variation in willingness-to-pay (WTP) thresholds across countries. WTP thresholds used in health technology assessment are often linked to macroeconomic indicators such as gross domestic product (GDP) per capita,

national health care expenditure, the financial capacity of health systems (Woods et al., 2016) and individual patients. Countries with higher GDP and greater health care spending, such as the United States, typically adopt higher willingness-to-pay thresholds for cost-effectiveness. For example, the United States allocates approximately 17–18% of its GDP to health care, which is the highest among OECD countries and nearly twice the OECD average (OECD, 2023). Consequently, higher ICER thresholds are often considered acceptable in economic evaluations conducted within high-income health systems.

Together, these factors illustrate how regional economic conditions and health system structures play a critical role in determining the observed variability in ICER estimates, highlighting the importance of interpreting pharmacoeconomic results within the context of the specific health care system in which the analysis was conducted.

6. Conclusions

The present review summarized economic evaluations assessing the cost-effectiveness of SGLT2 inhibitors in patients with heart failure and in individuals with type 2 diabetes with increased cardiovascular risk. Overall, the analyzed studies demonstrated a favorable cost-effectiveness profile of SGLT2 inhibitor therapy, with most reported incremental cost-effectiveness ratios (ICER) remaining below commonly accepted willingness-to-pay thresholds, particularly the reference threshold of 100,000 USD per quality-adjusted life year (QALY).

The results also revealed substantial regional differences in ICER estimates. Economic evaluations conducted in the United States generally reported higher ICER values compared with analyses from Asian health care systems. These variations appear to be influenced by differences in pharmaceutical pricing policies, health care system structures, overall treatment costs, and national willingness-to-pay thresholds.

Despite these differences, the available evidence consistently indicates that SGLT2 inhibitors provide clinically meaningful benefits and represent a cost-effective therapeutic strategy in the management of heart failure across multiple health care systems. The findings support the inclusion of these agents in contemporary clinical guidelines and suggest that improving access to SGLT2 inhibitor therapy may be justified not only from a clinical perspective but also from a health-economic standpoint.

Further economic evaluations conducted in diverse health care settings are warranted to better understand the long-term economic impact of these therapies, particularly as drug prices evolve and generic formulations become available, which may further improve the cost-effectiveness of SGLT2 inhibitor treatment. Resources management must take into account employees' perceptions of distributive. procedural. interpersonal and informational justice.

which refer to decisions taken by companies towards employees and results that come from these decisions. because this perception influences the behaviour and attitudes in a workplace. and these behaviours and attitudes directly affect companies' performance. In the economic practice. a better understanding of human behaviour in the context of professional work is very important.

Several limitations should be acknowledged. First, the number of included studies was relatively small and limited to a few health care systems, primarily the United States and selected Asian countries. Second, the studies differed in modeling approaches, analytical perspectives, time horizons, and input parameters, which may limit the direct comparability of ICER estimates. Additionally, some analyses did not report complete economic outcomes, particularly incremental costs or QALY values. Finally, the literature search was conducted in a single database, which may introduce potential publication bias.

References

1. Bhatt, A.S., Vaduganathan, M., Claggett, B.L., Kulac, I.J., Anand, I.S., Desai, A.S., Fang, J.C., Hernandez, A.F., Jhund, P.S., Kosiborod, M.N., Sabatine, M.S., Shah, S.J., Vardeny, O., McMurray, J.J.V., Solomon, S.D., Gaziano, T.A. (2024). Cost Effectiveness of Dapagliflozin for Heart Failure Across the Spectrum of Ejection Fraction: An Economic Evaluation Based on Pooled, Individual Participant Data From the DELIVER and DAPA-HF Trials. *Journal of the American Heart Association, Vol. 13, Iss. 5, No. e032279*, doi: 10.1161/JAHA.123.032279
2. Danzon, P.M., Chao, L.W. (2000). Cross-national price differences for pharmaceuticals: how large, and why. *Journal of Health Economics, Vol. 19, Iss. 2*, pp. 159-195, doi: 10.1016/S0167-6296(99)00039-9
3. Deerochanawong, C., Vareesangthip, K., Piyayotai, D., Thongsuk, D., Pojchaijongdee, N., Permsuwan, U. (2021). Cost-Utility Analysis of Dapagliflozin as an Add-On to Standard Treatment for Patients with Type 2 Diabetes and High Risk of Cardiovascular Disease in Thailand. *Diabetes Therapy, Vol. 12, Iss. 7*, pp. 1947-1963, doi: 10.1007/s13300-021-01088-w
4. Drummond, M.F., Sculpher, M.J., Claxton, K., Stoddart, G.L., Torrance, G.W. (2015). *Methods for the Economic Evaluation of Health Care Programmes*. Oxford: Oxford University Press.
5. Fusco, N., Sils, B., Graff, J.S., Kistler, K., Ruiz, K. (2023). Cost-sharing and adherence, clinical outcomes, health care utilization, and costs: A systematic literature review. *Journal of Managed Care & Specialty Pharmacy, Vol. 29, Iss. 1*, pp. 4-16, doi: 10.18553/jmcp.2022.21270

6. Galkina Cleary, E., Beierlein, J.M., Khanuja, N.S., McNamee, L.M., Ledley, F.D. (2018). Contribution of NIH funding to new drug approvals 2010–2016. *Proceedings of the National Academy of Sciences of the United States of America, Vol. 115, Iss. 10*, pp. 2329-2334, doi: 10.1073/pnas.1715368115
7. Gauld, R., Ikegami, N., Barr, M.D., Chiang, T.L., Gould, D., Kwon, S. (2006). Advanced Asia's health systems in comparison. *Health Policy, Vol. 79, Iss. 2-3*, pp. 325-336, doi: 10.1016/j.healthpol.2006.01.009
8. Gourzoulidis, G., Kourlaba, G., Stafylas, P., Giamouzis, G., Parissis, J., Maniadakis, N. (2017). Association between copayment, medication adherence and outcomes in the management of patients with diabetes and heart failure. *Health Policy, Vol. 121, Iss. 4*, pp. 363-377, doi: 10.1016/j.healthpol.2017.02.008
9. Grosse, S.D. (2008). Assessing cost-effectiveness in healthcare: history of the $50,000 per QALY threshold. *Expert Review of Pharmacoeconomics & Outcomes Research, Vol. 8, Iss. 2*, pp. 165-178, doi: 10.1586/14737167.8.2.165
10. Heidenreich, P.A., Bozkurt, B., Aguilar, D., Allen, L.A., Byun, J.-J., Colvin, M.M., Deswal, A., Drazner, M.H., Dunlay, S.M., Evers, L.R., Fang, J.C., Fedson, S.E., Fonarow, G.C., Hayek, S.S., Hernandez, A.F., Khazanie, P., Kittleson, M.M., Lee, C.S., Link, M.S., Milano, C.A., Nnacheta, L.C., Sandhu, A.T., Stevenson, L.W., Vardeny, O., Vest, A.R., Yancy, C.W. (2022). 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure: Executive Summary. *Journal of Cardiac Failure, Vol. 28, Iss. 5*, pp. 810-830, doi: 10.1016/j.cardfail.2022.02.009
11. Huang, Y., Zhou, H., Fang, C., Ma, L., Zhang, Y., Rong, W., Liu, X., Ye, H. (2024). Cost-Effectiveness of New Quadruple Therapy Compared With Standard Treatment for Patients With Heart Failure in China. *Journal of Cardiovascular Pharmacology, Vol. 83, Iss. 1*, pp. 86-92, doi: 10.1097/FJC.0000000000001476
12. Husereau, D., Drummond, M., Augustovski, F., de Bekker-Grob, E., Briggs, A.H., Carswell, C. (2022). Consolidated Health Economic Evaluation Reporting Standards 2022 (CHEERS 2022) statement: updated reporting guidance for health economic evaluations. *BMJ, Vol. 376, No. e067975*, doi: 10.1136/bmj-2021-067975
13. Kang, S.Y., Bai, G., DiStefano, M.J., Socal, M.P., Yehia, F., Anderson, G.F. (2020). Comparative Approaches to Drug Pricing. *Annual Review of Public Health, Vol. 41*, pp. 499-512, doi: 10.1146/annurev-publhealth-040119-094305
14. Kim, E.S., Park, S.K., Youn, J.C., Lee, H.S., Lee, H.Y., Cho, H.J., Choi, J.O., Jeon, E.S., Lee, S.E., Kim, M.S., Kim, J.J., Hwang, K.K., Cho, M.C., Chae, S.C., Kang, S.M., Park, J.J., Choi, D.J., Yoo, B.S., Cho, J.Y., Kim, K.H., Oh, B.H., Greenberg, B., Baek, S.H. (2024). Real-World Eligibility and Cost-Effectiveness Analysis of Empagliflozin for Heart Failure in Korea. *Journal of Korean Medical Science, Vol. 39, Iss. 1, No. e8*, doi: 10.3346/jkms.2024.39.e8

15. Kosiborod, M.N., Jhund, P.S., Docherty, K.F., Diez, M., Petrie, M.C., Verma, S., Nicolau, J.C., Merkely, B., Kitakaze, M., DeMets, D.L., Inzucchi, S.E., Køber, L., Martinez, F.A., Ponikowski, P., Sabatine, M.S., Solomon, S.D., Bengtsson, O., Lindholm, D., Niklasson, A., Sjöstrand, M., Langkilde, A.M., McMurray, J.J.V. (2020). Effects of Dapagliflozin on Symptoms, Function, and Quality of Life in Patients With Heart Failure and Reduced Ejection Fraction: Results From the DAPA-HF Trial. *Circulation, Vol. 141, Iss. 2*, pp. 90-99, doi: 10.1161/CIRCULATIONAHA.119.044138
16. Liao, C.T., Yang, C.T., Kuo, F.H., Lee, M.C., Chang, W.T., Tang, H.J., Hua, Y.M., Chang, H.Y., Chen, Z.C., Strong, C., Ou, H.T., Toh, H.S. (2021). Cost-Effectiveness Evaluation of Add-on Empagliflozin in Patients With Heart Failure and a Reduced Ejection Fraction From the Healthcare System's Perspective in the Asia-Pacific Region. *Frontiers in Cardiovascular Medicine, Vol. 8, No. 750381*, doi: 10.3389/fcvm.2021.750381
17. McMurray, J.J.V., Solomon, S.D., Inzucchi, S.E., Køber, L., Kosiborod, M.N., Martinez, F.A., Ponikowski, P., Sabatine, M.S., Anand, I.S., Bělohlávek, J., Böhm, M., Chiang, C.E., Chopra, V.K., de Boer, R.A., Desai, A.S., Diez, M., Drozdz, J., Dukát, A., Ge, J., Howlett, J.G., Katova, T., Kitakaze, M., Ljungman, C.E.A., Merkely, B., Nicolau, J.C., O'Meara, E., Petrie, M.C., Vinh, P.N., Schou, M., Tereshchenko, S., Verma, S., Held, C., DeMets, D.L., Docherty, K.F., Jhund, P.S., Bengtsson, O., Sjöstrand, M., Langkilde, A.M. (2019). Dapagliflozin in Patients with Heart Failure and Reduced Ejection Fraction. *New England Journal of Medicine, Vol. 381, Iss. 21*, pp. 1995-2008, doi: 10.1056/NEJMoa1911303
18. Nechi, R.N., Rane, A., Karaye, R.M., Ndikumukiza, C., Alsahali, S., Jatau, A.I., Zoni, C.R., Alanzi, A., Karaye, I.M., Yunusa, I. (2023). Cost-Effectiveness of Dapagliflozin vs Empagliflozin for Treating Heart Failure With Reduced Ejection Fraction in the United States. *Clinical Therapeutics, Vol. 45, Iss. 7*, pp. 627-632, doi: 10.1016/j.clinthera. 2023.05.002
19. OECD (2023). *Health at a Glance 2023: OECD Indicators*. Paris: OECD Publishing. doi: 10.1787/7a7afb35-en
20. Papanicolas, I., Woskie, L.R., Jha, A.K. (2018). Health Care Spending in the United States and Other High-Income Countries. *JAMA, Vol. 319, Iss. 10*, pp. 1024-1039, doi: 10.1001/jama.2018.1150
21. Ponikowski, P., Voors, A.A., Anker, S.D., Bueno, H., Cleland, J.G.F., Coats, A.J.S., Falk, V., González-Juanatey, J.R., Harjola, V.P., Jankowska, E.A., Jessup, M., Linde, C., Nihoyannopoulos, P., Parissis, J.T., Pieske, B., Riley, J.P., Rosano, G.M.C., Ruilope, L.M., Ruschitzka, F., Rutten, F.H., van der Meer, P. (2016). 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. *European Heart Journal, Vol. 37, Iss. 27*, pp. 2129-2200, doi: 10.1093/eurheartj/ehw128
22. Roger, V.L. (2021). Epidemiology of Heart Failure: A Contemporary Perspective. *Circulation Research, Vol. 128, Iss. 10*, pp. 1421-1434, doi: 10.1161/CIRCRESAHA.121.318172

23. Sasidharan, A., Kumar, S.S., Suchitralakshmi, G., Rajsekar, K., Bagepally, B.S. (2025). Cost-utility analysis of add-on SGLT2 inhibitors for heart failure with reduced ejection fraction in India. *Health Policy and Technology, Vol. 14, Iss. 6*, doi: 10.1016/j.hlpt.2025.101077
24. Savarese, G., Lund, L.H. (2017). Global Public Health Burden of Heart Failure. *Cardiac Failure Review, Vol. 3, Iss. 1*, pp. 7-11, doi: 10.15420/cfr.2016:25:2
25. Schwarzer, R., Rochau, U., Saverno, K., Jahn, B., Bornschein, B., Muehlberger, N., Flatscher-Thoeni, M., Schnell-Inderst, P., Sroczynski, G., Lackner, M., Schall, I., Hebborn, A., Pugner, K., Fehervary, A., Brixner, D., Siebert, U. (2015). Systematic overview of cost-effectiveness thresholds in ten countries across four continents. *Journal of Comparative Effectiveness Research, Vol. 4, Iss. 5*, pp. 485-504, doi: 10.2217/cer.15.38
26. Shiroiwa, T., Sung, Y.K., Fukuda, T., Lang, H.C., Bae, S.C., Tsutani, K. (2010). International survey on willingness-to-pay (WTP) for one additional QALY gained: what is the threshold of cost effectiveness. *Health Economics, Vol. 19, Iss. 4*, pp. 422-437, doi: 10.1002/hec.1481
27. Singh, L.G., Ntelis, S., Siddiqui, T., Seliger, S.L., Sorkin, J.D., Spanakis, E.K. (2024). Association of Continued Use of SGLT2 Inhibitors From the Ambulatory to Inpatient Setting With Hospital Outcomes in Patients With Diabetes: A Nationwide Cohort Study. *Diabetes Care, Vol. 47, Iss. 6*, pp. 933-940, doi: 10.2337/dc23-1129
28. Verma, S., McMurray, J.J.V. (2018). SGLT2 inhibitors and mechanisms of cardiovascular benefit: a state-of-the-art review. *Diabetologia, Vol. 61, Iss. 10*, pp. 2108-2117, doi: 10.1007/s00125-018-4670-7
29. Woods, B., Revill, P., Sculpher, M., Claxton, K. (2016). Country-Level Cost-Effectiveness Thresholds: Initial Estimates and the Need for Further Research. *Value in Health, Vol. 19, Iss. 8*, pp. 929-935, doi: 10.1016/j.jval.2016.02.017
30. Yan, B.W., Spahillari, A., Pandya, A. (2023). Cost-Effectiveness of Quadruple Therapy in Management of Heart Failure With Reduced Ejection Fraction in the United States. *Circulation: Cardiovascular Quality and Outcomes, Vol. 16, Iss. 6*, doi: 10.1161/CIRCOUTCOMES.122.009793
31. Zannad, F., Ferreira, J.P., Pocock, S.J., Anker, S.D., Butler, J., Filippatos, G., Brueckmann, M., Ofstad, A.P., Pfarr, E., Jamal, W., Packer, M. (2020). SGLT2 inhibitors in patients with heart failure with reduced ejection fraction: a meta-analysis of the EMPEROR-Reduced and DAPA-HF trials. *The Lancet, Vol. 396, Iss. 10254*, pp. 819-829, doi: 10.1016/S0140-6736(20)31824-9

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