POLITECHNIKA ŚLĄSKA **ZESZYTY NAUKOWE**

SILESIAN UNIVERSITY OF TECHNOLOGY SCIENTIFIC PAPERS

ORGANIZACJA I ZARZĄDZANIE
Zeszyt Naukowy nr 255

ORGANIZATION AND MANAGEMENT
Scientific Paper no. 255

Zarządzanie zasobami ludzkimi

Human resource management

Pod redakcją
Bożeny SKOTNICKIEJ-ZASADZIEŃ
Marty MŁOKOSIEWICZ
Radosława WOLNIAKA

Edited by
Bożena SKOTNICKA-ZASADZIEŃ
Marta MŁOKOSIEWICZ
Radosław WOLNIAK

GLIWICE 2026

Kolegium redakcyjne

REDAKTOR NACZELNY – Dr hab. inż. Małgorzata KRÓL, prof. PŚ
REDAKTOR DZIAŁU – Prof. dr hab. inż. Radosław WOLNIAK

Wydano za zgodą
Rektora Politechniki Śląskiej

ISSN 1641-3466
ISSN 2720-751X

© Copyright by
Wydawnictwo Politechniki Śląskiej
Gliwice 2026

WYDAWNICTWO POLITECHNIKI ŚLĄSKIEJ
ul. Akademicka 5, 44-100 Gliwice
tel. (32) 237-13-81, faks (32) 237-15-02
www.wydawnictwopolitechniki.pl

Sprzedaż i Marketing
tel. (32) 237-18-48
wydawnictwo_mark@polsl.pl

Nakł. 30 Ark. wyd. 33 Ark. druk. 32,5 Papier offset 70x100, 80 g
Zam. 85/26

CONTENTS

Foreword 7

1. **Aleksandra CZARNECKA** – Work-life balance aspects in remote work conditions of Generation Z 9
2. **Bogusława DOBROWOLSKA, Jadwiga KACZMARSKA-KRAWCZAK, Ilona PENC-PIETRZAK, Ewa STROIŃSKA** – Structural capital as a source of synergy between innovation and operational efficiency of higher education institutions 21
3. **Ewa FRĄCKIEWICZ, Ewa RĘBACZ-MARON, Rafał CZYŻYCKI, Elżbieta PIEŃKOWSKA** – Wellbeing of the workforce of the future: findings from an emprical study of Generation Z students 33
4. **Iwona JANIAK-REJNO, Agnieszka ŻARCZYŃSKA-DOBIESZ** – Key competencies of a leader in managing employees in the era of remote work 45
5. **Wojciech JARECKI, Michał A. MICHALSKI, Dorota GIZICKA, Krzysztof SZWARC, András PARI, Réka SZASZ, Árpád József MESZAROS, Tünde FURESZ** – Parenthood as a management challenge in organizations: evidence from Poland and Hungary 61
6. **Paweł KOZAKIEWICZ, Małgorzata TOKARZ** – Self-perception of traits attributed to the baby boomers, Generation X, Y, and Z: a cohort-based approach 75
7. **Artur KRUKOWSKI, Anna NOWAK** – The significance of bioenergy production in European Union member states in the context of achieving sustainable development goals 87
8. **Agnieszka KWARCIŃSKA** – CSR practices and employee loyalty to the employer – a review of the subject literature 99
9. **Agnieszka KWARCIŃSKA** – The relationship between CSR practices and employee loyalty to their employer – findings from our own research 111
10. **Karol MAŁECKI, Robert SZYDŁO** – Mapping gamification threats according to Generation Z – pilot study 123
11. **Justyna MAŁYSIAK** – Professionalization and development of communities of practice providing historical reenactment services 139
12. **Joanna M. MOCZYDŁOWSKA** – Cronyism in the perception of future managers – students of management studies 151
13. **Katarzyna OLEJNICZAK-SZUSTER, Agata KIELESIŃSKA** – Evolution of women's competencies in business 163
14. **Agata PIETROŃ-PYSZCZEK, Robert GOLEJ, Gabriela GAŁAGUZ** – Elements of marketing communication and communication channels concerning sustainable packaging in the household appliances industry 175
15. **Katarzyna PLEBAŃCZYK** – Audience relationship management as a competency challenge for cultural sector staff 189

16. **Tomasz ROSIAK, Agnieszka POSTUŁA, Piotr PAWLAK** – Tensions between leader interests and organizational logic: executive motivation and compensation 205
17. **Ireneusz RYNDUCH** – Sustainable leadership in the context of challenges facing the Polish IT sector..... 217
18. **Viktor SHEVCHUK, Joanna ŻYRA** – Higher education effects on the regional unemployment rate in Poland..... 229
19. **Daria SMARŻEWSKA, Magdalena ZAŁĘSKA** – Future competencies of students in the context of labor market expectations..... 241
20. **Aneta SOKÓŁ** – Creative identity – how gender shapes life orientations in a creative organisation 257
21. **Katarzyna STANKIEWICZ** – From marginalisation to employment: strengthening human capital of migrant neets 269
22. **Marzena STASZKIEWICZ, Katarzyna KLIMKIEWICZ** – Preferred and avoided leadership styles of HRBPs: evidence from the werk inventory 283
23. **Maciej SZAFRAŃSKI** – From dynamic capabilities towards adaptability competence..... 295
24. **Anna TOMASZUK, Anna WASILUK** – The level of inclusiveness in Polish universities compared to selected European countries – a comparative analysis 309
25. **Fryderyk WACHOWIAK** – Assessment of competency profiles in the employee selection process using the Thurston and TOPSIS methods. A case study 323
26. **Arkadiusz WIERZBIC, Dorota DUDEK-GODEAU, Krystian OLEK, Katarzyna PIÓRKOWSKA, Witold SZUMOWSKI** – Education and training standards in CCC certification: a comparative analysis of OECI and EUnetCCC 333
27. **Anna WITEK-CRABB, Niki DERLUKIEWICZ, Sylwia WRONA** – Co-creating higher education with stakeholders: a case of micro-credentials development at Wroclaw University of Economics and Business 345
28. **Agnieszka Julia WITKOWSKA** – Emotional emptiness in a leader's work: is boredom a specific form of burnout among managers? 359
29. **Gabriela WRONOWSKA** – The impact of student employment on higher education dropout. Selected issues..... 375
30. **Kamil WRÓBEL** – A method for selecting CAx tools for ergonomic design during the establishment of a design practice..... 389
31. **Katarzyna ZADROS** – The silver generation in a company – an asset or a burden?.. 403
32. **Wiesława ZAŁOGA** – The impact of leadership on building trust in a crisis situation..... 415
33. **Kamil ZAWADZKI** – The impact of AI on work in the creative and cultural industries 427
34. **Halina ZBOROŃ** – The work culture of Generation Z and the issue of work ethics .. 439
35. **Edyta ZDUŃSKA-LESEUX** – Institutional mechanisms for correcting market failures in the European Accessibility Act..... 449

36. **Sławomir ZIÓŁKOWSKI, Michał BROŻYNA** – Non-formal education as a tool for adaptation in a tranforming labor market. Competition or support for formal education? 461
37. **Patrycja ZWIECH** – Professional engagement of working students in the context of quite quitting 473
38. **Patrycja ZWIECH** – Quiet quitting as a multilevel adaptive withdrawal process: an integrated conceptual model 483
39. **Joanna ŻUKOWSKA, Agata WOŹNIAK-PŁAZA** – HR business partner' perception of employee aspects of sustainable development 505

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 39 papers.

The papers presented in the number concentrate on many topics connected with organization and management. There are in the number papers about: human resource management; managerial competences; production management; CSR; gamification; relationship management; motivation; leadership; public management; ergonomic; impact of AI on management and sustainable development.

Bożena Skotnicka-Zasadzień
Marta Młokosiewicz
Radosław Wolniak

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

WORK-LIFE BALANCE ASPECTS IN REMOTE WORK CONDITIONS OF GENERATION Z

Aleksandra CZARNECKA

Częstochowa University of Technology; aleksandra.czarnecka@pcz.pl, ORCID: 0000-0003-1477-9468

Purpose: The aim of this study is to identify the indicators that have the greatest impact on the work-life balance experienced by remote employees from Generation Z.
Design/methodology/approach: This paper presents a segment of the research results concerning respondents' opinions on the impact of remote work on work-life balance.
Findings: The presented results indicate that the most significant factor influencing the sense of WLB is the comfort that remote work provides, likely due to the ability to organize one's workspace and workflow while avoiding direct supervision and managerial pressure Respondents highlight the convenience that remote work brings in reconciling professional and private life, although some point out that this form of work disrupts their day-night rhythm. Interestingly, unlike findings from other studies, the sense of isolation associated with remote work was not emphasized by respondents and showed virtually no effect on perceived WLB (-0.07).
Research limitations/implications The research findings can be used by managers in organizations, among other things, in relation to: changing the management model, supporting occupational health and personalizing benefits. It would be interesting to conduct comparative studies and gather insights from representatives of other generations in this area.
Originality/value: A key contribution of this research lies in its focus on the opinions of Generation Z employees working remotely.
Keywords: work-life balance, remote working, gen-Z
Category of the paper: Research paper

1. Introduction

The contemporary reality, characterized by pervasive digitalization and the transformation of traditional work models into remote or hybrid ones, compels employees to maintain a balance between professional and personal life. Employees must find ways to preserve a healthy equilibrium between work and private life and prevent burnout while working remotely. Employee well-being is key to productivity. Those who achieve a balance between work and personal life derive greater job satisfaction and demonstrate higher engagement in their duties,

which in turn fosters loyalty to the organization and reduces employee turnover. This contributes to enhancing the employer's image and reputation in the labour market.

Expectations toward employers are increasing — not only salary and employee benefits are important, but also, and perhaps above all, good work organization and a flexible employment system. The concept of work-life balance (WLB) should become a key element of HR strategy, and solutions such as remote work, flexible working hours, and adjustable work schedules can serve as pillars of a modern approach to employment — especially when demographic changes are taken into account. These changes often influence the overall age structure of both current and future employees. The observed generational shift is a natural part of the life cycle, including professional life. Younger employees are entering the labour market, among them representatives of Generation Z. For this group, work is not only a source of income but also a means of personal development. Notably, they display a strong tendency to seek balance between professional and private life.

The aim of this study is to identify the indicators that have the greatest impact on the work-life balance experienced by remote employees from Generation Z.

2. Theoretical background

The concept of work-life balance (WLB) is based on the approach that professional and personal life complement each other and operate in synergy (they are mutually reinforcing), although they can also be perceived as competing domains (Crompton, Lyonette, 2006, pp. 379-393; Beauregard, Henry, 2009, pp. 9-22). WLB can also be defined as the balance between professional and private (non-professional) life and refers to the relationship between paid work and other human activities. It usually denotes a certain harmony or equilibrium between the spheres of work and life (personal or family) (Chang, McDonald, Burton, 2010, pp. 2381-2413). Discussions surrounding WLB concern the degree to which an individual has control over when, where, and how much time they devote to tasks in both professional and personal domains. It is, therefore, an optimal proportion between time spent on work and time allocated to non-professional life. It should be emphasized, however, that this optimum varies across individuals. Every working person, regardless of age or gender, faces the challenge of reconciling work with personal life. An analysis of this issue allows for the observation of characteristic attitudes among representatives of different generations toward this problem There are numerous factors that influence how individuals from a given generation approach issues related to work-life balance (WLB). These include social, cultural, and economic changes, technological advancements, as well as life experiences characteristic of many people within that generation. A particularly important factor is an individual's attitude toward work and the position that work, family, and leisure occupy within their personal hierarchy of values.

Work-life balance holds particular importance for members of Generation Z — the youngest generation currently entering the labour market, comprising individuals born between 1995 and 2012. They have ambitious plans for the future, display an entrepreneurial spirit, and enjoy using the Internet as a source of knowledge. They are open, direct, and have a strong need for peer interaction. At the same time, they are often perceived as a generation that spends relatively little time in the "real" world. As they enter the workforce, Generation Z individuals prioritize career development and financial stability, while also valuing flexibility and attention to their everyday needs. They possess a strong desire to change the world. This generation is characterized by its natural familiarity with modern technologies and the tendency to automate tasks. Their personality traits and skills make them well-suited for remote work (Jankowska, 2021, pp. 88-99; Tomaszuk, Wasiluk, 2023, pp. 83-93).

Members of Generation Z, who highly value independence, tend to start their first paid jobs earlier than representatives of previous generations — often during high school or shortly after graduation. Although these are usually part-time or temporary jobs, they play a crucial role in shaping young people's expectations about their future careers In their professional lives, they are guided by the same values that they follow in their personal lives, striving to build their careers quickly. Having grown up in an era characterized by easy access to knowledge and information, they possess competencies that are highly valued in today's labour market. Their distinguishing traits include quick decision-making, a lack of fear of taking risks, and, at the same time, a sense of uncertainty about their professional future (Ławińska, Korombel, 2023, pp. 17-18).

Remote work is a well-recognized phenomenon in both academic discourse and business practice, with its roots tracing back to the 1970s — specifically to the first oil crisis, which brought about drastic fuel price increases and heightened awareness of environmental threats caused by excessive emissions These events prompted American physicist J. Nilles in 1973 to conduct the first experimental project in the field of telecommuting. This new, flexible form of work was later popularized by A. Toffler (1980) in his book The Third Wave and by futurist F. Kinsman in The Telecommuters (Szluz, 2013). Remote work, performed outside the employer's premises — typically from the employee's home — using various means of electronic communication and often within irregular time frames, emerged as a result of increased flexibility in employment regarding both workplace and working hours (Florczak, 2015, pp. 24-26).

For many years, remote work was not widely adopted in traditional employment due to practical difficulties in its implementation. Even the legal regulation of telework as a form of remote work did not lead to its widespread use. The breakthrough came during the COVID-19 pandemic, when the need for isolation made remote work a necessity, allowing employees to continue performing their professional duties. This shift in perception transformed remote work from an exceptional arrangement into a viable and often preferred form of employment even after the end of the public health emergency. The development of modern technologies has

significantly facilitated the use of remote work — work performed independently of a specific location or fixed hours — which has, in turn, had a major impact on maintaining balance between professional and private life. However, this form of work has two contrasting sides. On the one hand, remote work offers greater flexibility in managing working hours and adapting them to personal activities and responsibilities. On the other hand, it often leads to disruptions in the balance between work and private life (Ludera-Ruszel, 2021, pp. 511-521).

A comprehensive definition of remote work is provided by E. Bąk (2006), who describes it as any intellectual work performed outside the standard workplace, the results of which are transmitted to the employer using information and telecommunication technologies.

The benefits of remote work include, above all, enhanced technical competencies among employees, fewer conflicts, reduced stress levels, greater creativity, increased autonomy, and improved concentration. However, remote work also has its drawbacks, and employees may experience negative effects such as weakened team integration, disrupted work-life balance, feelings of isolation, diminishing identification with the company, potential decreases in efficiency, limited promotion opportunities, reduced access to traditional training and organizational resources, as well as stress related to technical issues. (Penc-Pietrzak, 2023, pp. 41-65).

3. Methods

This study employed the technique of structural equation modelling (SEM) (Januszewski, 2011, pp. 213-245). Structural modelling allows for the creation of models that include latent (unobservable) variables (Lowry, Gaskin, 2014). The primary purpose of using this technique in data analysis is to determine the likelihood that the observed data structure arises by chance or is explained by the causal relationships proposed in the tested theory. The starting point for applying structural modelling should always be a theory that assumes specific relationships between the studied variables (Kacprzak, 2018). Structural modelling enables the evaluation of both the research instrument used (the measurement model) and the theory being tested (the structural model). For the purposes of verifying the theoretical model, SPSS AMOS was used.

The research findings presented in this study are part of a quantitative survey titled “Managerial Aspects of Remote Work Management”, conducted among young people from Generation Z who work remotely. The survey was carried out in December 2022. This paper presents a segment of the research results concerning respondents’ opinions on the impact of remote work on work-life balance. Among the questions addressed in the study was the following: How does remote work influence Generation Z employees’ perception of balance between professional and personal life?

The study focused on young people from Generation Z whose remote work experience spanned at least the year 2022. The classification which is most popular in literature defines Generation Z as persons born after 1995, although some researchers may include those born in 1990 in this group, whereas in other approaches the group only includes the people who were born in 2000 or later (Dreyer, Stojanová, 2022; Skýpalová et al., 2023; Urick et al., 2017).

It was conducted using quantitative research methods, specifically through a survey technique. Due to the lack of statistical data on the number of people aged 15-34 in Poland engaged in remote work, the study concentrated on young, professionally active individuals representing this age group. Based on data from the Statistical Yearbook of Labor 2021, the population of people working in Poland within this age range was estimated at 4802 (in thousands) individuals. The structure of the studied population by gender and age is presented in Table 1.

Table 1.
Structure of respondents by age and gender

age categories	**women population indicators**	**sample size women**	**men population indicators**	**sample size men**	**population in general (in thousands)**	**study sample size**
15-24	357 38,93%	28	560 61,07	45	917 19,09%	73
25-29	760 43,16%	61	1000 56,84	80	1761 36,67%	141
30-34	928 43,69%	74	1196 56,30	96	2124 44,23%	170
Study sample size	2045 42,59%	163	2756 57,39%	221	4802 100%	384

Source: own study.

For the estimated population, and under the following statistical assumptions — fraction size: 0.5; confidence level: 95%; maximum error: 5% — the required sample size was determined to be 384 individuals. The survey was conducted by the specialized market research agency Fieldstat sp. z o.o. The study employed two survey techniques: a Computer-Assisted Telephone Interview (CATI) for 50% of respondents and a Computer-Assisted Web Interview (CAWI) for the remaining 50%. Contact was made with 2,783 individuals working remotely. Some declined to participate, while others did not qualify due to the study criteria (e.g., lack of remote work experience in 2022) or because the sample quotas for age or gender had already been filled. The criterion of having remote work experience in 2022 was applied to exclude employees whose remote work was solely due to the COVID-19 pandemic (the definition of remote work includes voluntary choice of work format, whereas during the pandemic, it was often a necessity rather than a choice). Including opinions of respondents compelled to work remotely due to external circumstances could have led to inaccurate conclusions regarding their attitudes and beliefs. Ultimately, 387 correctly completed surveys were obtained (slightly exceeding the planned sample size does not disrupt the intended structure of the study group).

The research instrument was a standardized questionnaire consisting of 57 closed-ended statements and 8 questions regarding the respondents' socio-demographic characteristics. Responses were measured using a Likert scale (from 1 to 5), which allows for the assessment of the relative intensity of different answers (Babbie, 2004, p. 192). This format enables reliable and rapid analysis of the collected data and facilitates data processing (Churchill, 2002, p. 309). The questionnaire is an original tool, developed by members of the research team — staff of the Department of Applied Sociology and Human Resource Management at the Faculty of Management, Częstochowa University of Technology.

4. Results

Respondents were asked to express their opinions on nine statements concerning perceived work-life balance in the context of remote work.

The responses indicate a generally positive attitude toward the topic under study (Table 2). The highest levels of agreement were observed for statements suggesting that remote work "promotes stress-free work", "provides greater freedom/independence at work", and "makes the employee feel comfortable", with mean scores of 3.80, 3.76, and 3.73, respectively, on a five-point Likert scale.

Table 2.
Means and standard deviations

Statements **Remote work:**	**Mean**	**Std. deviation**
W1. Allows balancing work and private life	3,423773	1,051154
W2. Enables flexible time management	3,444444	1,047518
W3. Disrupts day-night rhythm	2,767442	1,239536
W4. Helps protect boundaries between work and private life	3,480620	1,122780
W5. Facilitates support from supervisors	3,080103	1,043754
W6. Leads to feelings of isolation	3,266150	1,216879
W7. Provides greater freedom/independence at work	3,764858	0,994287
W8. Promotes stress-free work	3,801034	1,040227
W9. Makes the employee feel comfortable	3,739018	1,023861

Source: own study.

The first step in the analysis process was to assess the adequacy of the proposed set of indicators. The reliability of the questionnaire, measured using Cronbach's alpha, was 0.7238. The Cronbach's alpha values for individual indicators are presented in Table 3.

Table 3.
Cronbach's Alpha values for individual indicator

Statements Remote work:	**Mean = 30.7674, St. dev. = 5.47464, Valid N: 387 Cronbach's alpha: 0.723803 Standardized Alpha: 0.752729 Average inter-item correlation: 0.296640**				
	Mean if deleted	**Variance if deleted**	**St. dev. if deleted**	**Corrected Item Total Correlation**	**Alpha if deleted**
W1.	27,34367	22,49430	4,742815	0,632445	0,657208
W2.	27,32300	22,12048	4,703241	0,678741	0,648607
W3.	28,00000	31,44703	5,607765	-0,222216	0,811111
W4.	27,28682	23,79629	4,878144	0,442466	0,691238
W5.	27,68734	24,29242	4,928734	0,439416	0,692428
W6.	27,50129	28,26550	5,316531	0,011744	0,771525
W7.	27,00258	22,66924	4,761223	0,659800	0,655107
W8.	26,96641	22,37355	4,730069	0,655417	0,653422
W9.	27,02842	22,46173	4,739380	0,658963	0,653629

Source: own study.

Cronbach's alpha is a measure of the internal consistency of a set of questions or statements. This coefficient allows us to assess whether the survey items are consistent and measure the same underlying construct. The value of Cronbach's alpha ranges from 0 to 1, with a level above 0.7 generally considered acceptable. This statistic indicates how well the set of variables measures a single, unidimensional latent aspect of the phenomenon. Analysis of Cronbach's alpha in this study suggests that statements W3 and W6 weaken the internal consistency of the measured factor.

The value of the Kaiser-Meyer-Olkin (KMO) measure, which assesses the adequacy of the proposed set of observed variables, is 0.832. The KMO values for individual variables are presented in Table 4.

Table 4.
K-M-O criterion - general and for individual variables

General KMO	**Statements**								
	W1.	**W2.**	**W3.**	**W4.**	**W5.**	**W6.**	**W7.**	**W8.**	**W9.**
0,832	0,832	0,837	0,709	0,821	0,853	0,421	0,894	0,862	0,854

Source: own study.

The KMO measure, also known as the measure of sampling adequacy, evaluates whether the partial correlations among the analysed variables are small. Its value ranges from 0 to 1, with higher values indicating stronger relationships among variables. A commonly accepted minimum threshold for adequacy is 0.5 or 0.6. (Mazur, Rószkiewicz, Strzyżewska, 2008, pp. 49-55) In the analysed set of statements, the KMO indicators are very high overall. However, similar to the Cronbach's alpha analysis, statements W3 and W6 show a weakening effect on the remaining variables.

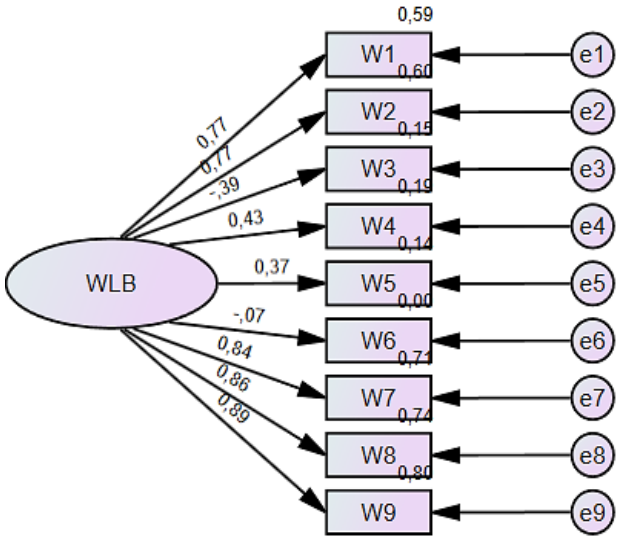


Figure 1. Standardized regression weights.

Source: own study.

Analysing the above model (Figure 1), where WLB (work-life balance) is the latent variable, it can be observed that the largest proportion of the variance in WLB is explained by statements W9, W8, and W7. Specifically: W9 – "Remote work makes the employee feel comfortable" (r = 0.89, α = 0.80), W8 – "Remote work promotes stress-free work" (r = 0.86, α = 0.74), W7 – "Remote work provides greater freedom/independence at work" (r = 0.84, α = 0.71). Additionally, statements W1 – "Remote work allows balancing work and private life" (r = 0.77, α = 0.59) and W2 – "Remote work enables flexible time management" (r = 0.77, α = 0.60) also have a strong influence on the latent variable WLB. All of the above variables show a highly significant effect ($p < 0.001$). "Remote working allows for flexible time management" (r = 0.77, α = 0.60). In contrast, W6 – "Remote work leads to feelings of isolation" not only has a negative effect but is also statistically non-significant (r = -0.07, α = 0.00, p = 0.195).

5. Discussion

Respondents' statements indicate a generally positive perception of remote work in the context of work-life balance. For the younger generation, the most important aspects are that remote work promotes stress-free work, provides greater freedom and independence, and makes employees feel comfortable. These factors also have the strongest impact on overall perceptions of WLB. These observations are consistent with the findings of A. Istiana Hidayat (2024, pp. 28-37), which show that young people emphasize independence, innovation, and strong preferences for flexible forms of work. They value autonomy and the ability to work from any location. This approach highlights their commitment to maintaining a balance between

professional and personal life as well as pursuing personal fulfilment. It appears that Generation Z will fundamentally shape the future of work through their entrepreneurial mindset and evolving attitudes toward traditional career paths.

According to research conducted by Enpulse in 2025, work flexibility is not a key factor in choosing an employer, but it definitely determines employee engagement. The option of remote work or flexible work hours is a valuable benefit for Generation Z employees, although it does not replace the fundamental expectations of salary and employment stability (Pietkiewicz, Szklarski, 2025).

The second group of variables highlights that remote work allows for flexible time management, which in turn enhances the perceived work-life balance. Notably, respondents partially acknowledged that remote work can lead to feelings of isolation; however, this factor has practically no impact on overall perceptions of WLB. According to research by J.J. Kołodziej and M. Jaworek (2024, pp. 9-22), hybrid work, by offering more flexible working hours compared to on-site work while maintaining direct contact with colleagues, satisfies both the need for autonomy and the maintenance of fulfilling interpersonal relationships. This approach aligns significantly better with the currently promoted concept of work-life balance than traditional on-site work.

Furthermore, respondents disagreed with the statement that remote work disrupts the day-night rhythm, and this perception has a statistically significant effect on experienced work-life balance. In other words, the stronger their disagreement with this statement, the more positive their overall perception of WLB. Interestingly, respondents also acknowledged that remote work helps protect boundaries between work and private life; however, this factor has less impact on overall WLB than the variable indicating that remote work allows balancing personal life with professional duties. The statement that remote work facilitates support from supervisors was perceived most neutrally and had only a small, though statistically significant, effect on WLB. These observations are also supported by research presented in the article by E. Bielińska-Dusza and M. Hamerska (2023, pp. 22-37), which indicates that younger individuals tend to prefer remote work and evaluate it positively in terms of time management and task efficiency.

6. Summary

Maintaining a proper balance between professional and personal life is crucial for health, satisfaction, and work engagement. Employers should support employees in achieving work-life balance (WLB), as this brings benefits not only to the employees themselves but also to the organization, through increased productivity and loyalty. The study's findings indicate that, for Generation Z employees, the very form of remote work can significantly contribute to the

perception of work-life balance. The analysed group primarily included young individuals, likely without family obligations, for whom remote work appears attractive and convenient. Notably, this form of work is perceived as stress-free and comfortable. The results are confirmed by research conducted by consulting companies, according to which Generation Z employees prioritize attractive pay, employer recognition, but value the ability to maintain a work-life balance. Organizations that adapt their strategies to their needs will have the potential to attract and retain young talents, as well as build long-lasting and engaged teams. Meeting these expectations, however, requires implementing changes in the areas of salary and motivation, organizational culture, interpersonal communication, work organization, including work formats, professional development and training strategies. It would be interesting to conduct comparative studies and gather insights from representatives of other generations in this area.

References

1. Babbie, E. (2004). *Badania społeczne w praktyce*. Warszawa: PWN.
2. Bąk, E. (2006). *Elastyczne formy zatrudnienia*. Warszawa: C.H. Beck.
3. Beauregard, T.A., Henry, L.C. (2009). Making the link between work-life balance practices and organizational performance. *Human Resource Management Review, 19(1),* 9-22, https://doi.org/10.1016/j.hrmr.2008.09.001
4. Bielińska-Dusza, E., Hamerska M. (2023). Praca zdalna na tle różnic międzypokoleniowych. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, Vol. 67*(5), 22-37, https://doi.org/10.15611/pn.2023.5.03
5. Chang, A., McDonald, P., Burton, P. (2010). Methodological choices in work-life balance research 1987 to 2006: A critical review. *The International Journal of Human Resource Management, 21*(13), 2381-2413, https://doi.org/10.1080/09585192.2010.516592
6. Churchill, G.A. (2002). *Badania marketingowe [Marketing studies]*. Warszawa: PWN.
7. Crompton, R., Lyonette, C. (2006). Work-life 'balance' in Europe. *Acta Sociologica, 49*(4), 379-393, https://doi.org/10.1177/0001699306071680
8. Dreyer, C., Stojanová, H. (2022). How entrepreneurial is German Generation Z vs. Generation Y? *A Literature Review, 217,* 155-164, https://doi.org/10.1016/j.procs. 2022.12.211
9. Florczak, I. (2015). Zatrudnienie elastyczne – uwagi ogólne. In: A. Bielinski, A. Giedrewicz-Niewińska, M. Szabłowska-Juckiewicz (Eds.), *Elastyczne formy zatrudnienia i organizacji czasu pracy*. Warszawa: Difin.

10. Istiana Hidayat, A. (2024). The Future of Employment: How Generation Z is Reshaping Entrepreneurship through Education? *Journal of Multidimensional Education, 1*(1), 28-37, https://doi.org/10.70063/eduspectrum.v1i1.28
11. Jankowska, M. (2021). Urodzeni na przełomie wieków. Zarządzanie organizacjami z uwzględnieniem specyfiki pokolenia Z. *Management and Quality [Zarządzanie i jakość], 3*(4), 86-97.
12. Januszewski, A. (2011). Modele równań strukturalnych w metodologii badań psychologicznych. Problematyka przyczynowości w modelach strukturalnych i dopuszczalność modeli. In: O. Gorbaniuk, B. Kostrubiec-Wojtachnio, D. Musiał, M. Wiechetek, A. Błachnio, A. Przepiórka (Eds.), *Studia z Psychologii w KUL*, *tom 17*. Lublin: KUL.
13. Kacprzak, A. (2018). Modelowanie strukturalne w analizie zachowań konsumentów: porównanie metod opartych na analizie kowariancji (CB-SEM) i częściowych najmniejszych kwadratów (PLS-SEM). *Handel Wewnętrzny, 6*(377), 247-261.
14. Kołodziej, J.J., Jaworek, M. (2024). Praca zdalna i jej subiektywny wpływ na dobrostan pracownika. *HUMANITAS Zarządzanie, 25*(2), 9-22, https://doi.org/10.5604/01.3001.0054.6941
15. Lowry, P.B., Gaskin, J. (2014). Partial least squares (PLS) structural equation modeling (SEM) for building and testing behavioral causal theory: When to choose it and how to use it. *IEEE Transactions on Professional Communication, 57*(2), 123-146, https://doi.org/10.1109/TPC.2014.2312452
16. Ludera-Ruszel, A. (2021). Równowaga między życiem zawodowym i prywatnym pracownika świadczącego pracę zdalnie – stan polskich regulacji Kodeksu Pracy. *Roczniki Administracji i Prawa, Tom: specjalny I, XXI*, 511-521, https://doi.org/10.5604/01.3001.0015.6193
17. Mazur, J., Rószkiewicz, M., Strzyżewska, M. (2008). *Orientacja na wiedzę a wyniki ekonomiczne przedsiębiorstwa. Wyniki badań średnich przedsiębiorstw funkcjonujących w Polsce*. Warszawa: Szkoła Główna Handlowa w Warszawie – Oficyna Wydawnicza.
18. Penc-Pietrzak, I. (2023). Specyfika pracy zdalnej i jej wpływ na pracownika. *Journal of Management Challenges, 1*(2), 41-65, https://doi.org/10.34658/jmc.2023.1.2.41-65
19. Pietkiewicz, M., Szklarski, T. (2025). *Raport „Work War Z”*. Retrieved from: https://www.enpulse.eu/raport-work-war-z, 10.02.2026.
20. Piotrowicz, K. (2023). Praca zdalna i hybrydowa po pandemii COVID-19. Wyniki badania oczekiwań pracowników i menedżerów wobec nowego modelu pracy na przykładzie wybranego przedsiębiorstwa. *Edukacja Ekonomistów i Menedżerów, 67*(1), 71-86, https://doi.org/10.33119/EEIM.2023.67.5
21. Skýpalová, R., Stojanová, H., Troger, H., Caha, Z. (2023). Human Resource Management across Generations within the Context of World of Work 4.0. *Emerging Science Journal, 7(3),* 843-853, https://doi.org/10.28991/ESJ-2023-07-03-013

22. Szluz, B. (2013). Telepraca – nowoczesna elastyczna forma zatrudnienia i organizacji pracy. Szansa czy zagrożenie? *Modern Management Review, XVIII, 20*(4), 253-265, https://doi.org/10.7862/rz.2013.mmr.59
23. Toffler, A. (1980). *The Third Wave*. New York: William Morrow.
24. Tomaszuk, A., Wasiluk, A. (2023). Pokolenie Z – perspektywa zaufania do przełożonych i współpracowników. *Przegląd Organizacji, 2*(997), 83-93, https://doi.org/10.33141/po.2023.02.09
25. Urick, M.J., Hollensbe, E.C., Fairhurst, G.T. (2017). Differences in Understanding Generation in the Workforce. *Journal of Intergenerational Relationships, 15*(3), 221-240, https://doi.org/10.1080/15350770.2017.1329583

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

STRUCTURAL CAPITAL AS A SOURCE OF SYNERGY BETWEEN INNOVATION AND OPERATIONAL EFFICIENCY OF HIGHER EDUCATION INSTITUTIONS

Bogusława DOBROWOLSKA[1], Jadwiga KACZMARSKA-KRAWCZAK[2], Ilona PENC-PIETRZAK[3], Ewa STROIŃSKA[4*]

[1] University of Lodz; boguslawa.dobrowolska@uni.lodz.pl, ORCID: 0000-0003-3497-6223
[2] Military University of Technology; jadwiga.kaczmarska-krawczak@wat.edu.pl, ORCID: 0000-0002-0471-0873
[3] Lodz University of Technology; ilona.penc-pietrzak@p.lodz.pl, ORCID: 0000-0002-5024-5503
[4] Lodz University of Technology; ewa.stroinska@p.lodz.pl, ORCID: 0000-0002-5378-8060
* Correspondence author

Purpose: The study aims to identify the role of structural capital as a factor fostering synergy between innovativeness and operational efficiency of higher education institutions.
Design/methodology/approach: The research combines a literature review with empirical analysis based on a questionnaire survey conducted among academic staff. The study uses statistical methods, including chi-square tests and contingency analysis, to verify the relationship between structural capital management and institutional performance.
Findings: The results indicate that well-developed structural capital significantly supports both innovativeness and operational efficiency in universities. In particular, access to research infrastructure, interdisciplinary collaboration, and cooperation with the external environment enhance the implementation of innovative projects. At the same time, the study shows that monitoring structural capital alone does not directly increase innovativeness.
Research limitations/implications: The research is based on a relatively small sample, which limits the generalizability of the findings. Future studies should include a larger and more diverse group of institutions.
Practical implications: The findings suggest that universities should invest in research infrastructure, collaboration mechanisms, and knowledge transfer systems to strengthen innovation and efficiency.
Social implications: Strengthening structural capital contributes to improving universities' role in knowledge creation, innovation diffusion, and socio-economic development.
Originality/value: The article highlights structural capital as a key determinant linking innovativeness and operational efficiency in higher education institutions.
Keywords: structural capital, intellectual capital, innovativeness, operational efficiency, higher education institution.
Category of the paper: Research paper.

1. Introduction

Turbulent and complex transformations occurring in the socio-economic environment, the increasing importance of the knowledge-based economy, and rising stakeholder expectations require higher education institutions to redefine their operating models and systematically improve the quality of their activities.

The purpose of this article is to identify the role of structural capital as a factor fostering synergy between innovativeness and operational efficiency in higher education institutions. The article verifies hypotheses according to which effective structural capital management positively influences universities' ability to generate and implement innovations and contributes to improving their operational performance. Structural capital - comprising procedures, information systems, organizational culture, and infrastructural resources - constitutes a significant component of a university's intellectual capital.

2. Intellectual Capital in the Literature: Theoretical Aspects

Intellectual capital is a concept widely defined in the scientific literature, resulting in diverse definitions and theoretical approaches. This diversity stems from its dynamic, complex, and intangible structure (Michalczuk, Fiedorczuk, 2017). Intellectual capital may be understood as an organization's capability to leverage knowledge in strategic areas of activity (Kianto et al., 2014; Asiaei et al., 2022; Nguyen, Doan, 2020). It includes employee competencies, processes, technologies, stakeholder knowledge, and patents, among other elements.

In recent years, increasing attention has been paid to the significant role of intangible resources as determinants of organizational success and competitive advantage (Kweh, Chan, Ting, 2015; Bayraktaroglu, Calisir, Baskak, 2019). Intellectual capital encompasses everything that constitutes employees' knowledge and determines competitive advantage, particularly information, experience, and intellectual property, as well as components of human capital such as abilities, competencies, and motivation (Karpińska-Karwowska, Zarzeczna-Baran, 2013). Knowledge is perceived on par with other elements of intellectual capital - such as communication, intuition, collective competencies, customer relationships, corporate reputation, and brand value - which contribute to transforming new ideas into products and services (Figiel, Kozłowski, Rutkowska, 2018). Many authors view intellectual capital as intangible resources that lead to increased market value and improved financial performance (Su, 2014; Kianto et al., 2014; Yaseen et al., 2023), constituting one of the key elements of effective work that generates economic value for the organization (Hamadamin, Atan, 2019).

The literature also emphasizes the need to develop methods for measuring intellectual capital (Bellucci et al., 2021; Rachmawati, Novatiani, Octavia, 2024) and to standardize these methods, thereby facilitating the linkage between intangible assets and organizational outcomes (Martinez-Garcia, Horrach-Rosselló, Mulet-Forteza, 2023). Organizational value is the result of interactions among the components of intellectual capital, and the weakness of any single element limits the organization's ability to transform knowledge into value.

3. Structural Capital as a Key Element of Intellectual Capital in the Development of Higher Education Institutions

In defining the components of intellectual capital, structural capital should be mentioned alongside human capital. Structural capital represents codified and systematized knowledge reflected in intellectual property, databases, management processes, organizational culture, and technical infrastructure. Such infrastructure should support the development of human capital (Edvinsson, Malone, 2001).

A consensus has emerged regarding the classification of intellectual capital components into three categories (Ujwary-Gil, 2009). Bontis's (2012) classification includes human, structural, and relational capital. Similarly, Lev (Lev, Gu, 2004) describes structural capital, highlighting its impact on growth and economic value. Intellectual capital requires structural capital - that is, processes and practices that transform tangible and intangible assets into organizational resources and competitive advantage.

The value of structural capital influences the value of an organization's intellectual capital, thereby creating a tool that supports the achievement of the desired developmental state. Structural capital is a process of discovering, sharing, and stabilizing knowledge within an organization. Knowledge cannot be managed directly; rather, culture can be managed to encourage knowledge sharing. Managing culture is not easy, particularly in relation to tacit knowledge, which cannot be codified or stored. Consequently, organizations should develop attributes that enable knowledge development and sharing.

Structural capital should continuously adapt to new environmental conditions and encompasses know-how, the application of new technologies, and changes in work organization. It contributes to achieving lower costs, offering innovative products and services, and establishing relationships with stakeholders. From a process perspective, structural capital includes activities that create new value through interactions among people, information, and knowledge (Popper, 2002).

4. The Role of Structural Capital in Shaping Innovativeness and Operational Efficiency in Higher Education Institutions

One of the key challenges facing Polish higher education is the pace of environmental change. Universities in Poland face increasingly frequent strategic challenges, making it difficult to appropriately modify structural capital. These challenges include the need to strengthen cooperation with business, monitor graduates' career paths, implement e-learning, and internationalize education and research. Another important challenge is the search for market-based sources of university funding. Academic institutions must adapt their activities while playing a key role in sustaining progress, making their capacity to respond to environmental changes - both reactively and proactively - essential (Chankseliani, McCowan, 2021).

Developing structural capital in higher education institutions requires innovativeness and operational efficiency to adapt to the dynamic pace of socio-economic change and to play a proactive role in guiding transformations necessary for future development. Universities act as key agents of societal change, shaping a climate of innovativeness that contributes to long-term solutions (Rodríguez-Castro, Aparicio, 2021; Trevisan, Leal Filho, Pedrozo, 2024).

Numerous studies emphasize the need to strengthen universities' innovation potential (Lo, Tian, 2020); however, the concept remains ambiguously defined, leaving a critical gap in understanding what it means for an organization to possess the capacity for innovation and which elements constitute this process (Andrijauskiene, Dumciuviene, Vasauskaite, 2021; Krücken, 2021). These challenges require the reconfiguration of structures shaped by structural capital (Vanlommel, van den Boom-Muilenburg, 2024). Successful innovation is often hindered by a lack of integration among different elements of the university's organizational system (Mumford, Hunter, 2005). Innovativeness in academic organizations is grounded in the ability to generate and apply new ideas, technologies, and processes (Cai, Ma, Chen, 2020). Cultivating critical thinking, creativity, resilience, and an entrepreneurial mindset is essential through the provision of an environment supportive of innovation (Rorije, Vanlommel, 2026). Creating a climate of innovativeness is indispensable for universities to maintain their role as drivers of innovation. Soparnot (2011) identifies three dimensions of innovation capability: context, processes and strategies, and the learning dimension. The development of innovativeness also depends on academic staff (Datnow, 2020), while core, support, and managerial processes, together with organizational culture, strengthen the sharing of new ideas within universities (Lee, 2023).

In summary, structural capital is one of the components of intellectual capital that can be considered a significant factor in shaping innovativeness and operational efficiency in higher education institutions. It appears to function as a lever influencing both collective and individual learning within academic organizations, as well as human capital - the knowledge, skills, and experience of education professionals.

In this study, elements such as the availability of research infrastructure, systems monitoring the development of intellectual capital, collaboration between researchers from different disciplines, and activities promoting academic entrepreneurship and technology transfer are treated as manifestations of universities' structural capital. These factors may influence both innovativeness and operational efficiency.

5. Characteristics of the Research Sample

The study on intellectual capital was conducted among academic teachers from selected higher education institutions.

The empirical research was based on anonymous data obtained through a questionnaire survey. A total of 49 respondents participated in the study. The structure of the surveyed institutions included universities, technical universities, and academies: 62% of responses were obtained from university representatives, 20% from technical universities, 11% from academies, and 7% from other types of higher education institutions.

The structure of the analysed sample, in terms of academic positions held by respondents, is moderately similar to that observed in Poland (Table 1).

Table 1.
Structure of Academic Positions in Poland and in the Research Sample as of 2023

Position	Poland	Research Sample
Professor	29%	19%
Assistant Professor	44%	65%
Assistant	15%	2%
Other	11%	11%

Source: Authors' own elaboration based on data from Statistics Poland (GUS) www.stat.gov.pl.

To verify the similarity of the sample structure to the population across several key variables, a randomness test was conducted. The series test (also known as the Stevens series test or the Wald–Wolfowitz runs test) was used to determine whether the experimental results met the assumption of sample randomness. The results confirmed the randomness of the sample for several key variables, thereby justifying the use of statistical inference methods.

6. Characteristics of the Research Sample

This study attempts to assess the relationship between the effectiveness of structural capital management and the level of innovativeness and operational efficiency of universities. The questionnaire survey evaluated the level of structural capital in Polish universities by

assessing the availability of research infrastructure, systems supporting knowledge and technology transfer, and the formulation of internal and external institutional policies. Innovativeness and operational efficiency were assessed through research and educational projects, technology transfer, and university–business relations.

Structural capital is an important element of efficient university functioning; therefore, institutions undertake initiatives to increase the availability of research infrastructure. The findings indicate that more than half of universities modernize existing infrastructure (55%), invest in new laboratories (41%), implement grant programs for purchasing research equipment (24%), and cooperate with other research institutions (16%), while only one in ten universities makes its research equipment available to external users.

The study also sought to evaluate the impact of structural capital management effectiveness on the level of innovativeness and operational efficiency using contingency analysis. Because the variables examined were discrete, the chi-square test of independence was applied to determine the strength of relationships. The methodology of contingency analysis and the conditions for its application are described in detail in the literature (Howell, 2006; Szymczak, 2010). Statistical analyses were conducted using PS IMAGO software. Factors statistically significantly associated with access to research infrastructure in the context of developing university innovativeness and operational performance are presented in Figure 1 (only statistically significant results are reported).

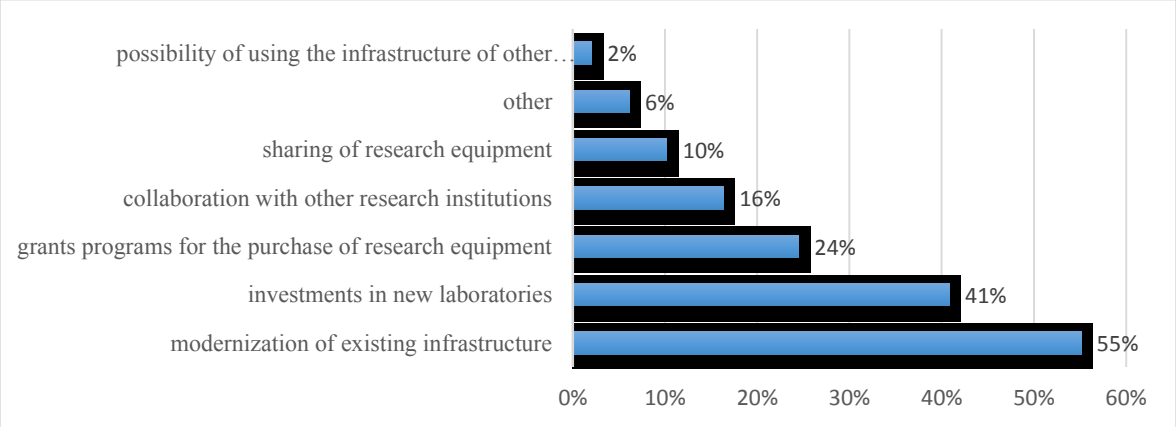


Figure 1. Actions taken by universities to increase the accessibility of research infrastructure.
Source: Author's own elaboration based on the results of questionnaire surveys.

The study also sought to evaluate the impact of structural capital management effectiveness on the level of innovativeness and operational efficiency using contingency analysis. Because the variables examined were discrete, the chi-square test of independence was applied to determine the strength of relationships. The methodology of contingency analysis and the conditions for its application are described in detail in the literature (Howell, 2006; Szymczak, 2010). Statistical analyses were conducted using PS IMAGO software. Factors statistically significantly associated with access to research infrastructure in the context of developing university innovativeness and operational performance are presented in Table 2 (only statistically significant results are reported).

Table 2.
Statistical Significance Between Access to Research Infrastructure at Universities in Poland and Selected Factors

Access to research infrastructure and:	Chi-square/ Fisher statistic	df	Asymptotic/ exact significance (two-sided)
Diversity of innovative research and educational projects	102.8	49	0.001*
Opportunities for interdisciplinary collaboration	8.188	42	0.022*
Monitoring and improvement of teaching quality	7.824°	49	0.001*

° Assumption of the chi-square independence test not met (expected frequencies ≥ 5).
* Statistically significant relationship (α = 0.05).

Source: Authors' own elaboration based on questionnaire results.

The analysis of the relationship between access to research infrastructure and selected factors yielded several conclusions (see Table 1). Better access to infrastructure translates into a greater number and diversity of innovative projects, more tools and spaces for interdisciplinary collaboration, and support for teaching and monitoring the educational process.

The assessment of the monitoring process for intellectual capital development indicated that the most effective methods include evaluating research outcomes (49%), bibliometric indicators (35%), analysis of international collaboration (22%), and academic staff satisfaction surveys (18%) (Figure 2).

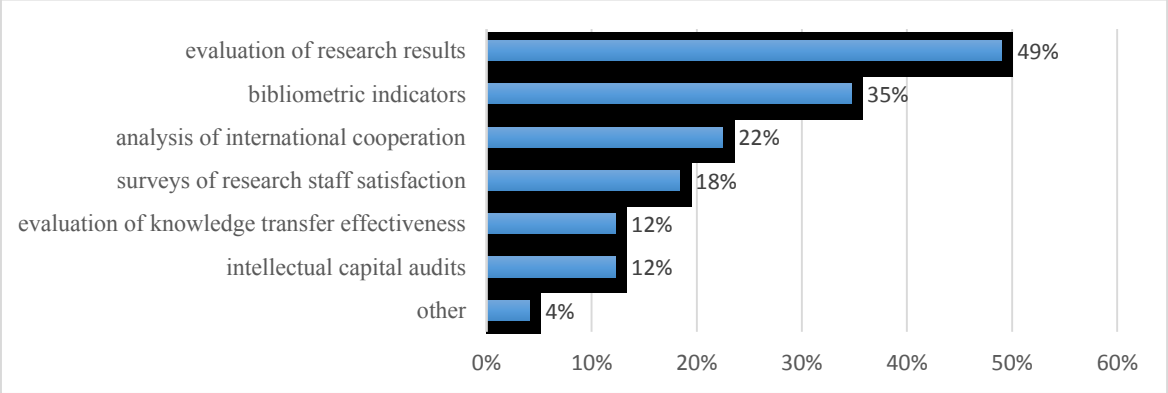


Figure 2. Methods of assessing and monitoring progress in building intellectual capital.

Source: Author's own elaboration based on the results of questionnaire surveys.

The study also demonstrated that monitoring progress in the development of intellectual capital is not a factor driving the growth of innovative projects at universities ($\chi^2 = 56.71$; df = 49; p = 0.209). Moreover, such monitoring is not associated with more effective promotion of academic achievements ($\chi^2 = 53.30$; df = 49; p = 0.312) or with investment decisions undertaken by universities, such as the development of laboratories and specialized facilities ($\chi^2 = 53.52$; df = 49; p = 0.305).

The analysis of interdisciplinary collaboration as an outcome of resource management also produced noteworthy insights. Polish researchers indicated that joint research projects (57%), interdisciplinary research grants (39%), and interdisciplinary seminars and conferences (22%) are the most accessible tools available at universities in Poland for facilitating collaboration among scholars from different disciplines (Figure 3).

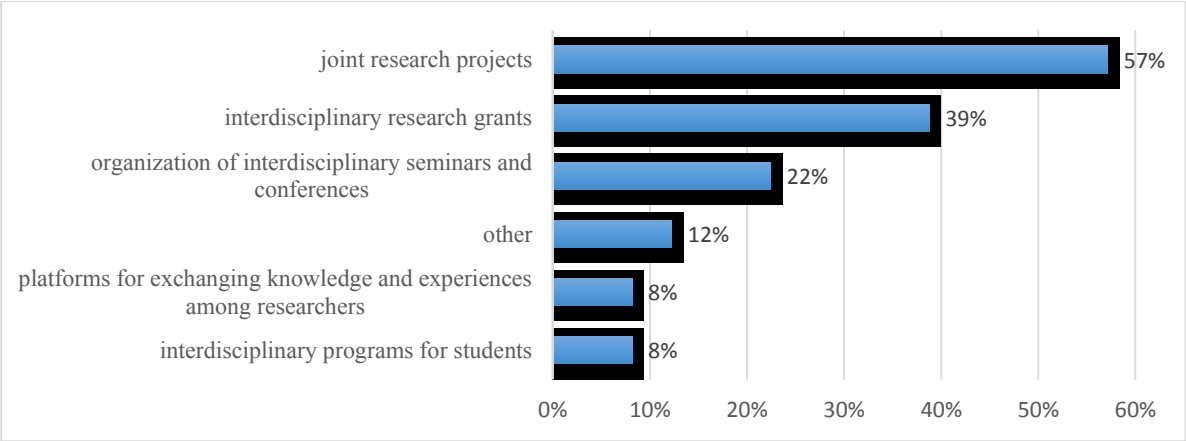


Figure 3. Collaboration between researchers from different disciplines at universities.

Source: Author's own elaboration based on the results of questionnaire surveys.

The factors that are statistically significantly associated with opportunities for collaboration among scholars from different disciplines at universities in Poland are presented in Table 3 (only statistically significant results are reported in this study). The findings indicate that interdisciplinary collaboration generates a greater number of novel projects and contributes to the implementation of innovative teaching methods.

Table 3.

Statistical Significance Between Opportunities for Interdisciplinary Collaboration at Universities in Poland and Selected Factors

Interdisciplinary collaboration opportunities and:	Chi-square/ Fisher statistic	df	Asymptotic/ exact significance (two-sided)
Innovative research or educational projects implemented at the university	63.92°	42	0.016*
Opportunities to implement innovative teaching methods	31.92	18	0.022*

° Assumption of the chi-square independence test not met (expected frequencies ≥ 5).

* Statistically significant relationship ($\alpha = 0.05$).

Source: Authors' own elaboration based on questionnaire results.

The study revealed a statistically significant relationship between opportunities for collaboration among scholars from different disciplines and the benefits universities derive from conducting interdisciplinary research ($\chi^2 = 48.97$; $df = 24$; $p = 0.002$). It can therefore be inferred that greater opportunities for interdisciplinary collaboration may lead to enhanced research outcomes and implementation benefits.

The promotion of academic entrepreneurship and technology transfer in Poland is primarily carried out through (Figure 4): fostering entrepreneurship among students and academic staff (41% of responses), organizing science fairs (31%), establishing business incubators (22%), providing support in the development of business plans (14%), implementing startup acceleration programs (12%), and participating in startup financing initiatives (8%).

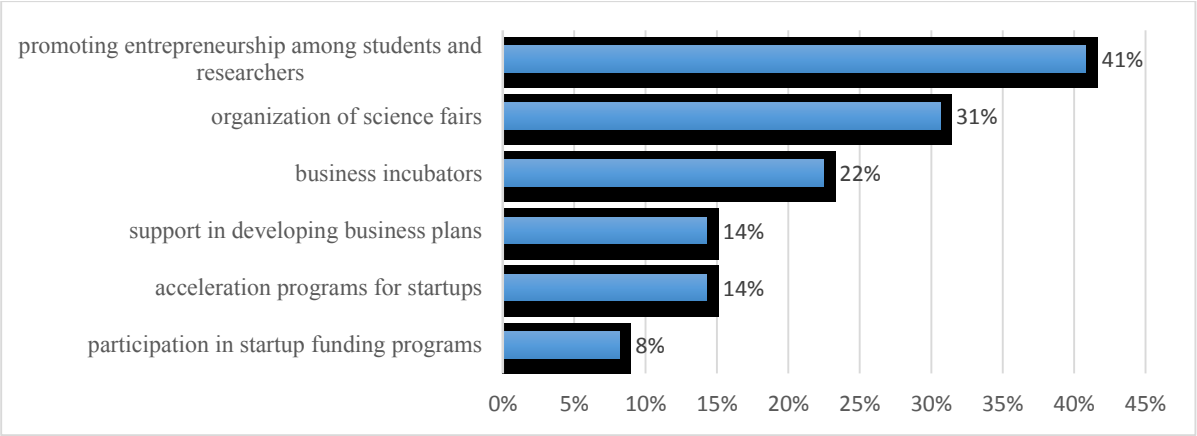


Figure 4. Actions taken by universities to promote academic entrepreneurship and technology transfer. Source: Author's own elaboration based on the results of questionnaire surveys.

The study identified a statistically significant relationship between activities aimed at promoting academic entrepreneurship and technology transfer in Poland and the challenges associated with transferring knowledge and technology from the academic environment to the business sector ($\chi^2 = 59.75$; df = 42; p = 0.037). This supports the conclusion that stronger structural support corresponds to fewer barriers to knowledge transfer.

In order to enhance innovativeness and operational efficiency, universities implement a variety of research and educational projects. The results of the questionnaire survey indicate that in Poland, more than half of innovative research projects are conducted in cooperation with industry (51% of responses). Interdisciplinary projects and innovative teaching methods account for 28% and 20% of responses, respectively. The findings also demonstrate that the promotion of academic entrepreneurship and technology transfer in Poland is statistically significantly associated with the number of innovative projects undertaken by universities ($\chi^2 = 74.816$; df = 49; p = 0.010), supporting the assertion that an active transfer policy results in a greater number of implemented innovative solutions. Moreover, the implementation of innovative research or educational projects is statistically significantly correlated with the actions undertaken by universities to increase researchers' access to research infrastructure ($\chi^2 = 102.84$; df = 49; p = 0.001). It may therefore be concluded that a university's structural capital, by ensuring access to resources, facilitates the initiation and execution of innovative projects.

7. Conclusion

The presented findings indicate that structural capital constitutes a significant determinant of university innovativeness and operational efficiency. Of particular importance is well-developed research infrastructure, which enhances access to resources, supports the

implementation of diverse innovative initiatives, and creates conditions for interdisciplinary collaboration between higher education institutions and the socio-economic environment. Robust structural support benefits not only research activity but also the teaching process and the monitoring of educational quality.

At the same time, monitoring activities related to the development of structural capital do not directly translate into the innovative performance of higher education institutions or into more effective promotion of scientific achievements. This suggests that tangible resources and organizational solutions are of primary importance, rather than control and evaluation systems alone.

Structural capital is also reflected in mechanisms supporting collaboration - such as joint research projects, grants, and interdisciplinary seminars - which generate new ideas, foster the implementation of innovative teaching methods, and facilitate knowledge transfer. Additionally, linkages with the socio-economic environment, including cooperation with industry and activities related to technology transfer and academic entrepreneurship, reinforce the innovation effect.

The results confirm that well-developed structural capital - comprising infrastructure, organizational procedures, collaboration tools, and institutional support - reduces barriers to the creation and implementation of innovation and constitutes one of the foundations for the development of an innovative university. At the same time, the findings indicate that elements such as research infrastructure, interdisciplinary collaboration, and activities supporting academic entrepreneurship foster the implementation of innovative projects and enhance universities' operational efficiency.

References

1. Andrijauskiene, M., Dumciuviene, D., Vasauskaite, J. (2021). Redeveloping the national innovative capacity framework: European Union perspective. *Economies*, *9*(4). https://doi.org/10.3390/economies9040201
2. Asiaei, K., Jusoh, R., Barani, O., Asiaei, A. (2022). How does green intellectual capital boost performance? The mediating role of environmental performance measurement systems. *Business Strategy and the Environment*, *31*(4). https://doi.org/10.1002/bse.2971
3. Bayraktaroglu, A.E., Calisir, F., Baskak, M. (2019). Intellectual capital and firm performance: an extended VAIC model. *Journal of Intellectual Capital*, *20*(3). https://doi.org/10.1108/JIC-12-2017-0184
4. Bellucci, M., Marzi, G., Orlando, B., Ciampi, F. (2021). Journal of Intellectual Capital: a review of emerging themes and future trends. *Journal of Intellectual Capital*, *22*(4), https://doi.org/10.1108/JIC-10-2019-0239

5. Bontis, N. (2012). *National Intellectual Capital Index: The Benchmarking of Arab Countries*. Hamilton: McMaster University.
6. Cai, Y., Ma, J., Chen, Q. (2020). Higher education in innovation ecosystems. *Sustainability*, *12*(11), https://doi.org/10.3390/su12114376
7. Chankseliani, M., McCowan, T. (2021). Higher education and the sustainable development goals. *Higher Education*, *81*(1). https://doi.org/10.1007/s10734-020-00652-w
8. Datnow, A. (2020). The role of teachers in educational reform: A 20-year perspective. *Journal of Educational Change*, *21*(6). https://doi.org/10.1007/s10833-020-09372-5
9. Edvinsson, L., Malone, M.S. (2001). *Kapitał intelektualny*. Warszawa: PWN.
10. Figiel, Sz., Kozłowski, W., Rutkowska, A. (2018). *Kapitał intelektualny administracji rządowej w świetle potrzeb szkoleniowych*. Olsztyn: PTE.
11. Gu, F., Lev, B. (2004). The information content of royalty income. *Accounting Horizons*, *18*(1). https://doi.org/10.2308/acch.2004.18.1.1
12. Hamadamin, H.H., Atan, T. (2019). The impact of strategic human resource management practices on competitive advantage sustainability: the mediation of human capital development and employee commitment. *Sustainability*, *11*(20). https://doi.org/10.3390/su11205782
13. Howell, D. (2006). *Statistical Methods for Psychology*. Pacific Grove: Thomson Learning.
14. Karpińska-Karwowska, M., Zarzeczna-Baran, M. (2013). Zarządzanie wiedzą w służbie zdrowia na przykładzie grupy zawodowej pielęgniarek i położnych. *Zeszyty Naukowe Uniwersytetu Przyrodniczo-Humanistycznego w Siedlcach*, *97*.
15. Kianto, A., Ritala, P., Spender, J.C., Vanhala, M. (2014). The interaction of intellectual capital assets and knowledge management practices in organizational value creation. *Journal of Intellectual Capital*, *15*(3). https://doi.org/10.1108/JIC-05-2014-0059
16. Krücken, G. (2021). Multiple competitions in higher education: A conceptual approach. *Innovation*, *23*(2). https://doi.org/10.1080/14479338.2019.1684652
17. Kweh, Q.L., Chan, Y.Ch., Kiong Ting, I.W. (2015). Intellectual capital efficiency and its determinants. *Kajian Malaysia*, *33*(suppl. 1).
18. Lee, R.A. (2023). The impact of organizational culture on creativity and innovation among employees of selected higher educational institutions (HEIs). *United International Journal of Research and Technology*, *4*.
19. Lo, M.F., Tian, F. (2020). Enhancing competitive advantage in Hong Kong higher education: Linking knowledge sharing, absorptive capacity and innovation capability. *Higher Education Quarterly*, *74*(4). https://doi.org/10.1111/hequ.12244
20. Martinez-Garcia, A., Horrach-Rosselló, P., Mulet-Forteza, C. (2023). Mapping the intellectual and conceptual structure of research on CoDa in the 'Social Sciences' scientific domain: A bibliometric overview. *Journal of Geochemical Exploration*, *252*. https://doi.org/10.1016/j.gexplo.2023.107273

21. Michalczuk, G., Fiedorczuk, J. (2017). Analysis of conceptualization and taxonomy of division of national intellectual capital (NIC). *Entrepreneurship and Management*, *18(1)*.
22. Mumford, M.D., Hunter, S.T. (2005). Innovation in organizations: A multi-level perspective on creativity. *Research in Multi-Level Issues*, *4*, https://doi.org/10.1016/S1475-9144(05)04001-4
23. Nguyen, A.H., Doan, D.T. (2020). The impact of intellectual capital on firm value: Empirical evidence from Vietnam. *International Journal of Financial Research*, *11*(4). https://doi.org/10.5430/ijfr.v11n4p74
24. Popper, K.R. (2002). *Wiedza obiektywna. Ewolucyjna teoria epistemologiczna*. Warszawa: PWN.
25. Rachmawati, R., Novatiani, R.A., Octavia, E. (2024). Emerging trends in intellectual capital research: A decade review. *Jurnal Ilmu Manajemen dan Bisnis*, *15*(1). https://doi.org/10.17509/jimb.v15i1.68375
26. Rodríguez-Castro, D.Y., Aparicio, J. (2021). Introducing a functional framework for integrating the empirical evidence about higher education institutions' functions and capabilities: A literature review. *Journal of Entrepreneurship, Management and Innovation*, *17*(1). https://doi.org/10.7341/20211718
27. Rorije, H.M., Vanlommel, K. (2026). How can we develop teachers' innovative capacity to drive complex educational change? A scoping review. *Journal of Educational Change*, https://doi.org/10.1007/s10833-026-09544-9.
28. Soparnot, R. (2011). The concept of organizational change capacity. *Journal of Organizational Change Management*, *24*(5). https://doi.org/10.1108/09534811111158903
29. Su, H.Y. (2014). Business ethics and the development of intellectual capital. *Journal of Business Ethics*, *119*(1). https://doi.org/10.1007/s10551-013-1623-4
30. Szymczak, W. (2010). *Podstawy statystyki dla psychologów*. Warszawa: Difin.
31. Trevisan, L.V., Leal Filho, W., Pedrozo, E.Á. (2024). Transformative organisational learning for sustainability in higher education: A literature review and an international multi-case study. *Journal of Cleaner Production*, *447*. https://doi.org/10.1016/j.jclepro.2024.141634
32. Ujwary-Gil, A. (2009). *Kapitał intelektualny a wartość rynkowa przedsiębiorstwa*. Warszawa: C.H. Beck.
33. Vanlommel, K., van den Boom-Muilenburg, S.N. (2024). How can we understand and stimulate evidence-informed educational change? A scoping review from a systems perspective. *Journal of Educational Change*, *25*. https://doi.org/10.1007/s10833-024-09506-z
34. Yaseen, S.G., El Qirem, I., Nussair, M., Sa'd, H. (2023). Intellectual capital components and entrepreneurial orientation: the mediating role of absorptive capacity. *Business Process Management Journal*, *29*(7). https://doi.org/10.1108/BPMJ-03-2023-0194

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

WELLBEING OF THE WORKFORCE OF THE FUTURE: FINDINGS FROM AN EMPRICAL STUDY OF GENERATION Z STUDENTS

Ewa FRĄCKIEWICZ[1], Ewa RĘBACZ-MARON[2]*, Rafał CZYŻYCKI[3], Elżbieta PIEŃKOWSKA[4]

[1] West Pomeranian University of Technology in Szczecin, Faculty of Economics; Department of Management and Marketing; Szczecin; ewa.frackiewicz@zut.edu.pl, ORCID: 0000-0001-9009-9435
[2] University of Szczecin, Institute of Biology, Department of Ecology and Anthropology; Szczecin; ewa.rebacz-maron@usz.edu.pl, ORCID: 0000-0002-3675-2541
[3] University of Szczecin, Institute of Spatial Management and Socio-Economic Geography, Szczecin; rafal.czyzycki@usz.edu.pl, ORCID: 0000-0003-4828-1887
[4] University of Szczecin, Institute of Psychology, Szczecin; elzbieta.pienkowska@usz.edu.pl, ORCID: 0000-0002-8884-523X
* Correspondence author

Purpose: To assess the factors influencing the physical, psychological and social wellbeing of Generation Z as future workers.
Design/methodology/approach: The research material for this study comprised students at the University of Szczecin (N = 185). The data gathered from the questionnaire and anthropometric data were grouped into four categories: demographic and socioeconomic characteristics, employment and educational activity, lifestyle and somatic indicators, and psychological and social wellbeing. The selection of variables included in the analysis was determined by the authors.
Findings: The research suggests that the wellbeing of Generation Z is shaped more by subjective perceptions of their circumstances and self than by objective measures. Three groups of such factors were identified: self-rated health status, loneliness in a general sense, intimate and social belonging, and life satisfaction. The variables recurring across these groups – physical activity, time spent online, and self-rated financial status – emerge as significant factors in shaping the wellbeing of young workers.
Research limitations/implications: A clear predominance of women in the sample. Most of the students surveyed were women (72%), as more women study these subjects. Women were more interested in anthropological research. We surveyed only volunteers. A small research sample (N = 185) of students, all from the University of Szczecin (Poland).
Originality/value: Wellbeing of prospective young workers representing Generation Z. The paper is for psychologists, sociologists, labor market analysts, public health analysts.
Keywords: Generation Z, wellbeing, young worker.
Category of the paper: research paper.

1. Introduction

Wellbeing is a broad state of physical and mental health that is defined not only by the absence of illness, but also by a sense of satisfaction with one's work, self-esteem, as well as the ability to cope with stress. Such a state fosters a positive attitude towards paid employment. A person who has self-esteem and is satisfied with their work is more likely to take steps to develop personally and nurture relationships. Affirmation and kindness from others boost self-esteem and increase motivation to develop skills (Burt, Atkinson, 2012).

Collaboration with others helps build friendships in both private and professional life, which provide support, as well as foster genuine interactions within the team. A balance between work and personal life is extremely important and to a large extent prevents loss of motivation. Positive wellbeing is a protective factor, and scientific evidence shows that mental health significantly impacts physical health. Adopting healthier behaviours can improve immune function and reduce stress-related physiological responses (Chida, Steptoe, 2008; Demakakos et al., 2010; Frempong et al., 2026).

Employee wellbeing is important because it enhances productivity, engagement and creativity among staff, while at the same time reducing stress, sick days and staff turnover. Workers who are in good psychological and physical condition tend to be more loyal, collaborate effectively and achieve objectives more successfully, which translates into building the competitive advantage and financial success of the organisation. Investing in wellbeing is an investment in human capital, supporting work-life balance, health and development, which is now a modern business imperative.

Today's young employees represent Generation Z. Young adults immersed in digital technologies are valued in the labour market due to their proficiency in using modern devices. This article examines the wellbeing of young adults who are still in education but have already decided on their field of study. The aim of this empirical study was to identify factors influencing the physical, psychological and social wellbeing of Generation Z as future employees. The analysis was based on data obtained from a questionnaire and anthropometric measurements, which were used to construct somatic indicators. The set of variables was determined by the authors in line with the study objectives. We established a research hypothesis: The factors influencing the physical, psychological and social wellbeing of Generation Z as future workers are subjective.

2. Materials and methods

The research material for this study comprised empirical data collected from students of economics, biology, and psychology at the University of Szczecin (N = 185). The study was conducted in late 2025 / early 2026 in Szczecin, Poland. Table 1 presents the characteristics of the respondents by gender and calendar age. A convenience sampling method was used. Data collection involved respondents completing a questionnaire, followed by non-invasive anthropometric measurements taken by the authors. The anthropometric measurements included: body weight [kg], body height (*basis vertex*) (B-v) [cm], and waist circumference [cm]. Body measurements were taken in accordance with the principles of established anthropometry (Martin, Saller, 1958). Participation in the study was voluntary and anonymous. All respondents gave their verbal consent to participate in the study.

Table 1.
Characteristics of the study participants by gender and calendar age

Specification	Number and percentage	x (±SD)	Min-Max
Male	N = 51 (27.57%)	21.60 (±1.78)	18.76–26.50
Female	N = 134 (72.43%)	20.85 (±2.08)	17.34–28.13
Total	N = 185 (100.00%)	21.05 (±2.03)	17.34–28.13

Source: own research.

The research material comprises 17 variables relating to four main thematic domains: (1) demographic and socioeconomic characteristics, (2) employment and educational activity, (3) lifestyle and somatic indicators, and (4) psychological and social wellbeing. The final domain was analysed using the Revised UCLA (R-UCLA) loneliness scale (Kwiatkowska et al., 2017). This design of the research instrument provides for a multidimensional assessment of the wellbeing of young adults, in line with the assumptions outlined in the introduction.

Descriptive statistics were used for data analysis. Calculations were performed using the statistical software Statistica 13.3. The chi-square (χ^2) test of independence was used to examine the relationships between nominal and ordinal variables, and Spearman's rank correlation coefficient (ρ) was calculated for ordinal variables. The level of statistical significance was set at $\alpha = 0.05$.

3. Results

Demographic and socioeconomic characteristics of the respondents

Gender

Women were clearly overrepresented in the study sample, accounting for 72.43% of respondents, while men constituted 27.57%. This should be taken into account when interpreting the results.

Monthly disposable income

The analysis of monthly disposable income indicates that 40.00% of respondents have up to PLN 1000 at their disposal, 27.57% fall within the PLN 1001-2000 range, while 32.43% reported an income above PLN 2000. The income structure varies by gender. The most frequently reported income among women was up to PLN 1000 (46.27%), whereas the most common income among men was above PLN 2000 (45.10%). This suggests that men in the surveyed group are in a relatively more favourable financial situation.

Self-rated financial status

The subjective assessment of financial status was evenly split between 'good' (40.00%) and 'average' (40.00%). A 'very good' rating was reported by 13.51% of respondents, while negative ratings ('bad' or 'very bad') totalled 6.49%. Women were more likely than men to rate their situation as good (42.54% compared to 33.33%), whereas men were more likely to select the 'average' rating.

Employment and educational activity

Gainful employment and career plans

Half of the respondents (50.27%) reported being in paid employment alongside their studies, while the remaining 49.73% were not employed. Clear gender differences were observed: 62.75% of men combined their studies with work, compared to 45.52% of women. The majority of respondents (64.32%) indicated that they had a plan for developing their careers over the next five years, while 35.68% reported having no specific plans. No significant differences between men and women were found in this regard. The vast majority of students (93.51%) had not participated in the ERASMUS programme, suggesting limited international mobility within the population studied.

Lifestyle and physical health indicators

Time spent online

Regarding digital behaviour, the most common response was spending 4–6 hours online per day (61.62%). A smaller proportion of respondents (23.24%) reported using the internet for 1-3 hours daily, while 14.59% spent 7 hours or more online. Men were more likely than women to report using the internet for more than 7 hours a day.

Frequency of exercise per week

The respondents' levels of exercise varied. The largest group (40.00%) reported exercising 2–3 times per week. A further 27.03% exercised once a week, 22.70% did not engage in any exercise, and 10.27% exercised four times per week or more. Clear gender differences were observed. Men were significantly more likely to report high levels of exercise: 27.45% exercises four times a week or more, compared to just 3.73% of women.

BMI

BMI analysis indicated that 61.62% of respondents fell within the normal range. Overweight was observed in 21.62% of respondents, underweight in 11.89%, and obesity in 4.86%. Overweight (31.37%) and obesity (7.84%) were more prevalent among men, whereas underweight (14.18%) was more common among women.

Waist circumference

An assessment of waist circumference confirms a generally favorable somatic profile in the majority of the sample, with 78.92% of respondents falling within the normal range. Excess waist circumference was more common in men (37.25%) than in women (14.93%). Excess waist circumference was defined as a value exceeding half of the individual's height (Ashwell, Gibson, 2014). The guideline *'Keep your waist circumference to less than half your height'* was applied to both sexes.

Psychological and social wellbeing

Self-rated health status

In terms of self-rated health, 44.86% of respondents described their health as good, 30.27% as average, and 17.30% as very good. Negative ratings (poor or very poor) were reported by 7.57% of respondents. Men were more likely than women to report very good health.

Life satisfaction

Life satisfaction levels were relatively high, with 36.22% of respondents reporting moderately high satisfaction, 28.11% high satisfaction, and 8.65% very high satisfaction. Low levels of satisfaction (low or very low) were observed in 8.65% of the sample.

Sense of loneliness

Regarding general loneliness, the predominant level was moderate (64.32%), while 35.14% of respondents reported a moderately high level. Women were slightly more likely than men to report higher levels of loneliness. In terms of social loneliness, 59.46% of respondents were characterised by a very low level, and a further 28.11% by a low level, indicating relatively good social integration within the study group. Collective loneliness (lack of belonging) was also predominantly low or very low (76.21% combined).

The structure of the study sample indicates:

1. A clear predominance of women in the sample.
2. Economic variation among respondents, with men exhibiting a relatively better financial status.

3. Moderate levels of employment activity among students, with higher engagement in paid employment among men.
4. Relatively favourable indicators of physical health, alongside a higher prevalence of overweight among men.
5. A moderately high level of life satisfaction, accompanied by a fairly widespread moderate level of loneliness.

The collected data enable further analyses of the relationships between socioeconomic situation, lifestyle, physical health, as well as the psychological and social wellbeing of young adults.

Analysis of statistical relationships between variables

The aim of this stage of the study was to establish whether statistically significant relationships exist between selected variables describing the respondents' demographic and socioeconomic situation, lifestyle, physical health, and psychological and social wellbeing. The chi-square (χ^2) test of independence was used to examine relationships between nominal and ordinal variables. The level of statistical significance was set at $\alpha = 0.05$.

Demographic and socioeconomic factors vs. psychological and social wellbeing in students

In the analysis of the relationships between gender and indicators of psychological and social wellbeing, no associations were found apart from with regard to social loneliness ($p = 0.0273$) (Table 2). This suggests that gender affects the level of perceived social loneliness but not the other aspects of wellbeing analysed.

Table 2.
Relationships between demographic and socioeconomic factors vs. psychological and social wellbeing

Demographic and socioeconomic variables	Psychological and social variables	Test statistic (χ^2)	P	Correlation
Gender	Self-rated health	4.87	0.1902	no
	Life satisfaction	1.23	0.9116	no
	General loneliness	3.52	0.4803	no
	Intimate loneliness	3.01	0.5381	no
	Lack of belonging	1.78	0.7755	no
	Social loneliness	**9.21**	**0.0273**	**yes**
Income level	Self-rated health	7.28	0.3006	no
	Life satisfaction	7.71	0.6570	no
	General loneliness	9.82	0.2033	no
	Intimate loneliness	9.54	0.2175	no
	Lack of belonging	8.47	0.2889	no
	Social loneliness	8.91	0.2626	no
Self-rated financial status	**Self-rated health**	**12.67**	**0.0455**	**yes**
	Life satisfaction	**15.84**	**0.0117**	**yes**
	General loneliness	3.45	0.7537	no
	Intimate loneliness	4.89	0.5810	no
	Lack of belonging	7.12	0.3316	no
	Social loneliness	3.68	0.7266	no

Source: own research.

The findings also indicate that, within the study group, monthly disposable income was not significantly associated with levels of psychological and social wellbeing. However, in contrast to this objective indicator, self-rated financial status showed significant correlations with selected measures of wellbeing. Specifically, a significant association was found between self-rated financial status and self-rated health ($p = 0.0455$) as well as life satisfaction ($p = 0.0117$). No significant association was observed between self-rated financial status and any of the four dimensions of loneliness.

Employment and educational activity vs. psychological and social wellbeing in students

No significant correlations were found for most of the analysed factors describing the respondents' employment and educational activity (Table 3). Gainful employment was only associated with the sense of intimate loneliness ($p = 0.0281$).

Table 3.
Relationships between employment and educational activity vs. psychological and social wellbeing

Employment and education variables	Psychological and social variables	Test statistic (χ^2)	p	Correlation
Paid employment	Self-rated health	2.14	0.6669	no
	Life satisfaction	4.62	0.3974	no
	General loneliness	6.83	0.1442	no
	Intimate loneliness	**9.12**	**0.0281**	**yes**
	Lack of belonging	6.01	0.1895	no
	Social loneliness	4.58	0.4012	no
Career plans	Self-rated health	3.78	0.4328	no
	Life satisfaction	**10.61**	**0.0166**	**yes**
	General loneliness	0.52	0.9181	no
	Intimate loneliness	0.74	0.8513	no
	Lack of belonging	1.19	0.7548	no
	Social loneliness	0.21	0.9891	no
Erasmus	Self-rated health status	4.60	0.3320	no
	Life satisfaction	1.68	0.7850	no
	General loneliness	2.14	0.7147	no
	Intimate loneliness	0.61	0.9097	no
	Lack of belonging	**9.18**	**0.0276**	**yes**
	Social loneliness	2.08	0.7232	no

Source: own research.

In contrast, having a career plan was strongly associated with life satisfaction ($p = 0.0166$). Although relatively few respondents had participated in the Erasmus programme, a significant association was found between taking part in an international student exchange and experiencing social loneliness ($p = 0.0276$).

Lifestyle and somatic factors vs. psychological and social wellbeing in students

Given that one defining characteristic of Generation Z is their immersion in new technologies, the relationships between time spent online and participants' psychological and social wellbeing were of particular interest (Table 4). Significant correlations were found between time spent online and self-rated health ($p = 0.0290$) and life satisfaction ($p = 0.0318$). However, no similarly strong correlations were observed between time spent online and any of the four dimensions of loneliness.

Table 4.
Relationships between lifestyle and somatic factors vs. psychological and social wellbeing

Lifestyle and somatic variables	Psychological and social variables	Test statistic (χ^2)	p	Correlation
Time spent online [hours/day]	**Self-rated health**	**9.34**	**0.0290**	**yes**
	Life satisfaction	**9.01**	**0.0318**	**yes**
	General loneliness	4.87	0.3089	no
	Intimate loneliness	3.12	0.5644	no
	Lack of belonging	3.28	0.5435	no
	Social loneliness	5.02	0.2994	no
Exercise [number of times per week]	**Self-rated health**	**18.72**	**<0.001**	**yes**
	Life satisfaction	6.32	0.2402	no
	General loneliness	**10.54**	**0.0124**	**yes**
	Intimate loneliness	8.21	0.0937	no
	Lack of belonging	1.89	0.7639	no
	Social loneliness	1.45	0.8516	no
BMI [kg/m^2]	Self-rated health status	13.34	0.3434	no
	Life satisfaction	15.70	0.4022	no
	General loneliness	1.19	0.9773	no
	Intimate loneliness	15.34	0.4275	no
	Lack of belonging	9.59	0.6523	no
	Social loneliness	16.21	0.0627	no
Waist circumference [cm]	Self-rated health	0.57	0.9659	no
	Life satisfaction	2.11	0.8336	no
	General loneliness	0.48	0.7857	no
	Intimate loneliness	4.82	0.4381	no
	Lack of belonging	2.34	0.6734	no
	Social loneliness	0.94	0.8168	no

Source: own research

Significant associations were found between the frequency of exercise and both self-rated health ($p < 0.001$) and general loneliness ($p = 0.0124$). However, no associations were observed between somatic indicators, i.e. BMI and waist circumference, and psychological and social wellbeing.

4. Discussion

Throughout human history, the nature of work has undergone profound change. Activities such as gathering, hunting and farming required different sets of tasks in order for societies to survive and develop. The rise of urban life necessitated greater specialisation in daily activities and led to the emergence of established professions, fostering stronger social interactions. More recently, the information technology revolution has reshaped forms of employment within less than a generation. However, changes in attitudes and behaviours tend to occur more slowly than advances in technology (Litchfield et al., 2016). Transformations in the labour market – related to employer requirements, employee skills, staffing constraints and many other employment-related factors – have become a source of stress. Such pressures do not foster a positive working environment. Consequently, wellbeing has emerged as an important and

economically beneficial goal for both employees and employers. A sense of professional fulfilment, satisfaction in one's private life, and good physical and mental health constitute key components of an employee wellbeing, influencing emotions, overall quality of life, the ability to cope with difficulties, and personal development.

Patterns of individual wellbeing are not universal. Studying populations and comparing them against a uniform standard remains difficult, even though the experience of wellbeing is related to respondents' calendar age. Wellbeing is inherently subjective and, as a determinant of physical health, may be adversely affected by life stress, lifestyle-related diseases and chronic conditions (Steptoe et al., 2015). Therefore, members of Generation Z – now young adults – may assess their wellbeing differently from their parents or grandparents. The set of characteristics included in this analysis was selected by the authors based on their scientific relevance and feasibility of collection within a student population.

Our findings identified three groups of factors significant for the wellbeing of Generation Z: self-rated health (self-rated financial status, time spent online and exercise), loneliness (gender, gainful employment, participation in the Erasmus programme and exercise), life satisfaction (self-rated financial status, career plans and time spent online). The recurrence of certain variables suggests that they may be more influential than other characteristics. Positive subjective wellbeing constitutes a protective factor for health. Numerous studies indicate that happy people tend to succeed in many areas of life, including marriage, friendships, income, work performance and health. Lyubomirsky et al. (2005) propose a conceptual model to explain these findings, arguing that the relationship between happiness and success is bidirectional: not only does success contribute to happiness, but positive emotions also facilitate success. Furthermore, evidence suggests that positive emotions – one of the core components of wellbeing – may underlie many desirable traits, resources and life outcomes associated with happiness (Lyubomirsky et al., 2005) and an active life (Liffiton et al., 2012).

A comprehensive meta-analysis conducted by Chida & Steptoe (2008) suggests that higher levels of positive wellbeing predict a longer life expectancy in healthy populations and improved survival rates among those with existing illnesses. The analysis showed that both positive affective states (e.g. emotional wellbeing, positive mood, joy, happiness, vigour, energy) and positive character traits (e.g. life satisfaction, hopefulness, optimism, sense of humour) were associated with reduced mortality in studies of healthy populations. Moreover, positive psychological wellbeing was found to be significantly associated with reduced cardiovascular mortality in studies of healthy individuals, as well as with improved survival among patients with kidney failure and HIV (Chida, Steptoe, 2008).

Social and emotional skills, as well as specific attitudinal patterns, are shaped during upbringing and through socialisation within a given community. Within these environments, individuals learn both attitudes and strategies for emotional regulation (Layard et al., 2014; Bernard, Stephanou, 2018). Positive developmental patterns acquired during childhood and

adolescence form the foundation of young adults' behaviour in the workplace. In the context of demographic changes and the resulting challenge of successfully managing age-diverse work groups, it is becoming increasingly important to effectively harness employees' strengths and capabilities. Promoting the wellbeing of all employees can enhance team cohesion and, consequently, contribute to the organisation's overall success.

5. Conclusions

The results of the analyses indicate that self-rated financial status is significantly associated with both self-rated health and life satisfaction, whereas objective income levels show no significant correlation with psychological and social wellbeing. This suggests that the key factor within the studied population is the individual's perception of their financial situation rather than their actual income level. Consequently, the wellbeing of young adults appears to be more closely tied to a sense of economic security than to objective income levels. The employment status of the university students studied – whether or not they engage in paid work – does not show significant correlations with life satisfaction or with most dimensions of psychological wellbeing. The few significant correlations observed appear to be isolated (e.g. intimate loneliness). This suggests that merely combining work and study does not have a clear positive or negative effect on wellbeing. In contrast, the significant association between having a career plan and life satisfaction indicates that a future-oriented mindset and a sense of life direction may serve as protective factors for psychological wellbeing. The greatest number of statistically significant relationships was observed among variables describing lifestyle, particularly exercise and time spent online. Exercise was significantly associated with self-rated health and general loneliness, while time spent online was linked to self-rated health and life satisfaction. In contrast, objective somatic indicators, such as BMI and waist circumference, showed no significant correlations with psychological or social wellbeing. These findings suggest that daily behaviours and subjective perceptions play a more important role in determining wellbeing than objective physical or economic status.

Acknowledgements

The authors would like to thank all the Students who agreed to take part in this questionnaire and anthropometric survey. We also thank the Lecturers who facilitated the study. Without your support and involvement, this research would not have been possible.

Funding

This research is co-financed by the Minister of Science under the "Regional Excellence Initiative" Programme for 2024–2027 (RID/SP/0045/2024/01).

References

1. Ashwell, M., Gibson, S. (2014). A proposal for a primary screening tool: 'Keep your waist circumference to less than half your height'. *BMC Medicine, 12(1), 207*. http://www.biomedcentral.com/1741-7015/12/207
2. Bernard, M.E., Stephanou, A. (2018). Ecological levels of social and emotional wellbeing of young people. *Child Indicators Research, 11(2)*, 661-679. DOI 10.1007/s12187-017-9466-7
3. Burt, E.L., Atkinson, J. (2012). The relationship between quilting and wellbeing. *Journal of Public Health, Vol. 34, Iss. 1*, pp. 54-59. https://doi.org/10.1093/pubmed/fdr041
4. Chida, Y., Steptoe, A. (2008). Positive psychological well-being and mortality: a quantitative review of prospective observational studies. *Biopsychosocial Science and Medicine, 70,* 741-56. DOI: 10.1097/PSY.0b013e31818105ba
5. Demakakos, P., Pierce, M.B., Hardy, R. (2010). Depressive symptoms and risk of type 2 diabetes in a national sample of middle-aged and older adults: the English longitudinal study of aging. *Diabetes Care, 33(4),* 792-797. https://doi.org/10.2337/dc09-1663
6. Frempong, G.A., Goni, G., Lorenzo-Tejedor, M., De la Cámara C., Lázaro J., Mangialavori Rasia, E., ... & Bernal, M.L. (2026). Uncovering the metabolic impact of acute psychological stress in young adults. *Scientific Reports, 16, 1567*. https://doi.org/10.1038/s41598-025-29572-4
7. Kwiatkowska, M.M., Rogoza, R., Kwiatkowska, K. (2017). Analysis of the psychometric properties of the Revised UCLA Loneliness Scale in a Polish adolescent sample. *Current Issues in Personality Psychology, 6(2)*, 164-170. doi.org/10.5114/cipp.2017.69681
8. Layard, R., Clark, A.E., Cornaglia, F., Powdthavee, N., Vernoit, J. (2014). What predicts a successful life? A life-course model of well-being. *The Economic Journal, 124(580),* F720-F738. https://doi.org/10.1111/ecoj.12170
9. Liffiton, J.A., Horton, S., Baker, J., Weir, P.L. (2012). Successful aging: How does physical activity influence engagement with life? *European Review of Aging and Physical Activity, 9(2),* 103-108. DOI 10.1007/s11556-012-0098-0

10. Litchfield, P., Cooper, C., Hancock, C., Watt, P. (2016). Work and Wellbeing in the 21st Century. *International Journal of Environmental Research and Public Health, 13(11),* 1065. https://doi.org/10.3390/ijerph13111065
11. Lyubomirsky, S., King, L., Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin, 131(6),* 803. DOI: 10.1037/0033-2909.131.6.803
12. Martin, R., Saller, K. (1958). *Lehrbuch der Anthropologie in Systematischer Darstellung.* Stuttgart: Gustav Fischer Verlag.
13. Steptoe, A., Deaton, A., Stone, A.A. (2015). Subjective wellbeing, health, and ageing. *Lancet, 385,* 640-48 http://dx.doi.org/10.1016/ S0140-6736(13)61489-0

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

KEY COMPETENCIES OF A LEADER IN MANAGING EMPLOYEES IN THE ERA OF REMOTE WORK

Iwona JANIAK-REJNO[1], Agnieszka ŻARCZYŃSKA-DOBIESZ[2*]

[1] Uniwersytet Ekonomiczny we Wrocławiu; iwona.janiak-rejno@ue.wroc.pl, ORCID: 0000-0001-8064- 8170
[2] Uniwersytet Ekonomiczny we Wrocławiu; agnieszka.zarczynska-dobiesz@ue.wroc.pl,
ORCID: 0000-0003-0437-9428
* Correspondence author

Purpose: This article aims to identify and explore the key competencies of a leader in managing employees in a remote working model.
Design/methodology: The research was conducted in Q1 2024 on a sample of 636 professionally active respondents, diverse in generation and with experience in remote working. The spatial scope of the study covered the Lower Silesia area. The aim and formulated research questions implied the selection of the research methodology. For this article, a diagnostic survey was used, including the CAWI survey technique. The research tool was a survey questionnaire based on two measurement scales: ordinal and nominal (binary and categorical). Descriptive statistics methods (mean, median, and standard deviation) were used in the statistical study, and tests were performed: Kruskal-Wallis, U Mann-Whitney, Dunn-Bonferroni.
Findings: Based on the analysis, three main groups of leader competencies were identified, which the respondents considered crucial in managing employees in a remote working environment. Competencies related to clear communication, efficient work organization, responsibility, decision-making, and the ability to use modern technology were rated highest. Equally important were competencies related to emotional support, motivating employees, and caring for their psychological well-being.
Practical implications: The article's authors would like to provide practical recommendations for HR managers who want to effectively manage people working remotely in a turbulent work environment. Due to the limitations of the research sample, it is essential to underline that generalizing the research results must be done with caution.
Originality/value: The article extends existing research on e-leadership by identifying competencies crucial for managing multigenerational and gender-diverse teams remotely.
Keywords: leader, competencies, remote working, generations.
Category of the paper: research paper.

1. Introduction

Today's labour market is undergoing dynamic transformations linked to increasing digitalization and demographic changes. One of the most visible trends of recent years is the spread of the remote working model. Although it offers new organizational opportunities, remote working has significantly changed how professional duties are performed and the relationship between employees and supervisors. Remote working, therefore, compounds the challenges of building relationships and mutual trust. An additional factor determining the quality of management is the demographic diversity of employees, particularly in terms of their generational affiliation. Representatives of four generations differ in terms of their values, working styles, and preferences for communication methods. In this context, the role of the leader becomes crucial - not only as a coordinator of tasks but, above all, as an integrator and facilitator of cooperation. It therefore seems necessary to identify the key competencies of the leader as a person responsible not only for the team's performance but also for 'remotely' building the organizational culture, integrating employees, and developing interpersonal and digital competencies.

This article aims to identify and explore the key competencies of a leader in managing employees operating in a remote working model.

2. Literature review

Today's organizations operate in a typically BANI (Brittle, Anxious, Non-linear, Incomprehensible) world. Effectively managing distributed, remote, or hybrid teams in this turbulent environment is increasingly challenging. The dynamic growth of these working models, especially after the COVID-19 pandemic, has redefined traditional perceptions of leaders, their roles, and the competencies required.

Already a dozen years ago, Wang and Haggerty (2009) highlighted the need for specific competencies to enable effective remote work. They highlighted the importance of self-efficacy, social skills in a virtual environment, and technological competence. Authors Lönnblad and Vartiainen (2012) divided the competencies required for remote working into three categories: team competencies, personal competencies (relating to employees and leaders), and specific competencies of leaders. Sawatzky, R.I. and Sawatzky, N.J. (2022) extended this classification to include communication, self-direction, self-motivation, self-discipline, critical thinking, initiative, flexibility, empathy, and trustworthiness. In contrast, Newman and Ford (2020) and Turesky et al. (2020) further emphasized the need for leaders to promote the culture of trust, shared responsibility, and transparency required in a remote working environment. Given the above, as Kiljunen (2021) notes, relying too heavily on

hierarchical structures can lead to communication isolation and weaken collaboration in a team, especially in a distributed team. Therefore, leaders should aim to increase employee autonomy by promoting supportive leadership (Sjöblom et al., 2022). Thus, a leader who has been operating mainly in a virtual environment for several years must not only be technologically competent but, above all, develop the skills to manage relationships, build trust at a distance, sustain the motivation of the team, and support its development under conditions of limited face-to-face contact (Sawatzky, R.I., Sawatzky, N.J., 2022).

Current reports also provide interesting data in this aspect. As the Gallup report (2025) highlights, the key needs of people working remotely include trust, empathy, stability, and hope. Leaders, as people who play an important role in the day-to-day functioning of employees, right after the family, should actively respond to these needs. Indeed, their presence in employee relationships correlates strongly with employee well-being. According to a World Economic Forum (WEF, 2025) report, leaders' most desirable competencies are mental toughness, flexibility, agility, social influence, creativity, and readiness to learn. Soft competencies, including managing change and adapting to uncertainty, are critical in this area. The above results are also confirmed by the GFKM report 'Year of the Leader 2025', indicating the particular importance of decisiveness, courage, the ability to motivate a team, taking care of mental health (own and employees), and building trust as the foundations of modern leadership.

Nowadays, multigenerational teams, made up of representatives of generations BB, X, Y, and Z, are an additional challenge for leaders (Kocot et al., 2021). Studies of the literature on the subject indicate the existence of many intergenerational differences that can significantly affect the meaning of work and related expectations characteristic of representatives of each generation (Chomątowska et al., 2025; Jeruszka, Wolan-Nowakowska, 2020; Nieżurawska-Zając, 2020; Smolbik-Jęczmień, Żarczyńska-Dobiesz, 2017; Samsel, 2022; Suchecka, 2023; Taylor, 2018; Waszkiewicz, 2022; Żarczyńska-Dobiesz et al., 2024). According to the article's authors, each generation has different experiences, needs, and cognitive patterns.

As Makowski (2023) highlights, understanding generational differences and their impact on working styles and expectations of leaders is crucial for effective leadership. Leaders should demonstrate flexibility, adaptability, and the ability to create an inclusive and collaborative environment between generations. A team leader should understand that each generation, shaped by different historical and technological experiences, manifests different values, communication styles, and work expectations (Newman, Ford, 2020). Managing remote multi-generational teams requires integrating different working styles, maintaining team cohesion, and sustaining team engagement. Active listening, empathy, openness to development, and searching for compromises are key here (Podgórska, 2022; Flaszewska, Szymańska, 2024; Nwoko, Yazdani, 2024). As a result, the expectations of leaders managing distributed teams also vary by generation. Previous research shows that younger generations (Y and Z) value leaders who are open to new technologies and have a flexible approach to work (Oleksa-

Marewska, Tokar, 2022). In contrast, older employees (generations BB and X) emphasize stability and formal structures (Juchnowicz, Kinowska, 2022).

3. Methods

The authors of this article set themselves the objective of identifying and exploring the key competencies of a leader in managing employees operating in a remote working model. In the context of such a goal, the following research questions were formulated:

1. Which competencies of a leader managing employees working in a remote working environment are most important, and which are relatively less important?
2. What differences exist in assessing the desired competencies of a leader managing remote employees, taking into account the criterion of generational affiliation?
3. What differences exist in assessing the desirable competencies of a leader managing remote employees, considering the gender criterion?

The research was conducted in Q1 2024 on a sample of 636 professionally active respondents with experience in remote working. The structure of the respondents varies (Table 1).

Table 1.
Statistics of sociodemographic variables of the studied population

Criterion		n	%
Year of birth	1957-1964	6	0.9
	1965-1980	81	12.7
	1981-1994	99	15.6
	After 1995	450	70.8
Gender	Female	444	69.8
	Male	189	29.7
	Other	3	0.5
Sector	Trade	90	14.2
	Production	78	12.3
	Services	300	47.2
	Other	168	26.4
Organization size	Micro	420	66.0
	Small	69	10.8
	Medium	147	23.1
	Large	0	0.0
Work experience	Less than 1 year	84	13.2
	1-2 years	192	30.2
	3-5 years	186	29.2
	6-10 years	33	5.2
	11-20 years	69	10.8
	Over 20 years	72	11.3

Source: original work based on conducted research.

The study group is dominated by people born after 1995 (generation Z; 70.8%), while the smallest group comprises those born between 1957 and 1964 (generation BB; 0.9%). Most respondents are women (69.8%), most people work in the service sector (47.2%), 66.0% are employed in micro-enterprises. The spatial scope of the survey covered the Lower Silesian area. The aim and formulated research questions implied the selection of research methods. A diagnostic survey was used, including the CAWI survey technique. The research tool was a survey questionnaire based on ordinal and nominal (binary and categorical) scales. The statistical design used descriptive statistics methods (mean, median, and standard deviation), and tests were performed: Kruskal-Wallis, U Mann-Whitney, Dunn, and Bonferroni. The above-mentioned statistical analysis was used for the age variable of the respondents and their belonging to four generations of workers: BB, X, Y, and Z[1]. On the other hand, the U-test Mann-Whitney was applied to the respondents' gender variable.

4. Results

The key question posed to respondents was, 'In your opinion, is there a personality of a remote leader managing a distributed team?'. More than 4/5 of the respondents answered this question in the affirmative (84.0%). On average, one in ten (11.3%) do not know whether such a personality exists, with only 4.7% of respondents denying it. The respondents were asked about more than 30 competencies predisposing a leader to work remotely to rate them on a scale from 1 to 5 (Table 2). The results were analysed using descriptive statistics (mean-M, median-Me, standard deviation-SD). Analysing table 2 in the assessment of the study population, it can be generally concluded that the most important competencies predisposing a leader to work remotely are: clear and effective communication, work organization, priority management, decision-making and problem-solving skills, providing support to employees, and taking care of their mental health and work-life balance.

[1] Due to the unrepresentative size of the BB group and the 'other' gender, the decision was made to exclude them from further analysis.

Table 2.
Assessment of competencies that predispose a leader to work remotely

Competence	M	Me	SD
Planning and organising remote working	4.45	5.00	0.88
Clear and lucid communication of objectives and expectations of	4.63	5.00	0.75
Management of priorities	4.38	5.00	0.87
A clear time frame of availability for employees	4.24	5.00	0.94
Balance between the leader's time flexibility and setting rigid time frames	3.93	4.00	0.99
Recognising the needs and expectations of remote workers	4.16	4.00	0.91
Ability to delegate tasks	4.29	5.00	0.95
Knowing how to motivate remote workers	4.31	5.00	0.98
Providing support to employees	4.33	5.00	0.85
Communicating clearly	4.45	5.00	0.83
Ability to actively listen to employees	4.31	5.00	0.91
Conducting meetings effectively	4.24	4.00	0.93
Providing ongoing feedback	4.32	5.00	0.89
Empathy	3.78	4.00	1.04
Managerial courage	3.99	4.00	0.99
Assertiveness	3.92	4.00	0.99
Efficiency	4.12	4.00	0.92
Punctuality	3.86	4.00	1.07
Responsibility	4.36	5.00	0.84
Patience	4.01	4.00	0.99
Industriousness	4.09	4.00	0.95
Openness to change	4.15	4.00	0.90
Maintaining the discipline of remote workers	4.13	4.00	0.98
Monitoring of work results	4.17	4.00	0.90
Ability to adapt to new technologies	4.38	5.00	0.84
Building relationships and strengthening bonds despite social distance	4.14	4.00	0.99
Efficient decision-making in crisis	4.36	5.00	0.87
Dealing effectively with conflicts at a distance	4.32	5.00	0.89
Readiness for continuous improvement	4.01	4.00	0.96
Recognising the need to look after the mental health of remote workers	4.24	4.00	0.90
Taking care of work-life balance	4.31	5.00	0.91

Source: original work based on conducted research (scale 1-5, where 1-competence is definitely not important, 2-rather not important, 3-difficult to say, 4-rather important, and 5-definitely important).

The next stage of the analysis was to look at the examined competencies from the perspective of the opinions of each generation and gender criterion. The study used descriptive statistics variables (respectively: M - mean, Me - median; SD - standard deviation), the Kruskal-Wallis test with a post-hoc paired test, and the U Mann-Whitney test (Table 3).

Table 3.

Statistics of the Kruskal-Wallis test and differences of respondents in terms of generational affiliation, and the U Mann-Whitney test and differences in terms of gender

Competence	Generation									Kruskal – Wallis test		Gender						U Mann-Whitney test	
	1965 – 1980 (n=81)			1981 -1994 (n=99)			After 1995 (n=450)					Woman (n=444)			Man (n=189)				
	M	Md	SD	M	Md	SD	M	Md	SD	H	p	M	Md	SD	M	Md	SD	Z	p
Planning and organizing remote working	4.33	5.00	1.11	4.42	5.00	0.94	4.48	5.00	0.83	0.183	0.913	4.53	5.00	0.77	4.27	5.00	1.10	-1.420	0.156
Clear and lucid communication of objectives and expectations of employees	4.37	5.00	1.01	4.70	5.00	0.77	4.66	5.00	0.69	3.702	0.157	4.78	5.00	0.57	4.29	5.00	0.99	-4.487	0.000
Management of priorities	4.26	5.00	1.10	4.45	5.00	0.87	4.39	5.00	0.83	0.502	0.778	4.52	5.00	0.70	4.05	4.00	1.11	-3.078	0.002
A clear time frame of availability for employees	4.19	5.00	1.14	4.24	4.00	0.83	4.25	5.00	0.93	0.134	0.935	4.35	5.00	0.83	3.95	4.00	1.13	-2.240	0.025
Balance between the leader's time flexibility and setting rigid time frames	3.67	4.00	0.92	3.94	4.00	0.97	3.97	4.00	1.01	3.512	0.173	4.05	4.00	0.90	3.65	4.00	1.12	-2.502	0.012
Recognizing the needs and expectations of remote workers	3.89	4.00	1.01	4.15	4.00	0.94	4.21	4.00	0.89	2.848	0.241	4.32	4.50	0.84	3.79	4.00	0.97	-3.950	0.000
Ability to delegate tasks	3.85	4.00	1.17	4.39	5.00	0.86	4.35	5.00	0.91	6.138	0.046	4.41	5.00	0.83	4.03	4.00	1.14	-2.276	0.023
Knowing how to motivate remote workers	4.00	4.00	1.11	4.42	5.00	1.06	4.33	5.00	0.94	4.522	0.104	4.43	5.00	0.84	4.02	4.00	1.21	-2.105	0.035
Providing support to employees	4.22	4.00	0.93	4.30	4.00	0.85	4.35	5.00	0.84	0.703	0.704	4.44	5.00	0.75	4.08	4.00	1.02	-2.525	0.012
Communicating clearly	4.11	4.00	0.97	4.52	5.00	0.83	4.49	5.00	0.80	6.396	0.041	4.61	5.00	0.67	4.06	4.00	1.05	-4.082	0.000
Ability to actively listen to employees	4.19	4.00	1.00	4.36	5.00	0.93	4.31	5.00	0.90	0.713	0.700	4.47	5.00	0.77	3.92	4.00	1.10	-3.704	0.000
Conducting meetings effectively	4.26	5.00	1.02	4.30	4.00	0.85	4.22	4.00	0.94	0.205	0.903	4.41	5.00	0.78	3.84	4.00	1.14	-3.526	0.000
Providing ongoing feedback	3.89	4.00	1.01	4.15	4.00	0.94	4.43	5.00	0.83	11.185	0.004	4.48	5.00	0.77	3.92	4.00	1.02	-4.183	0.000
Empathy	3.48	4.00	1.09	3.97	4.00	1.07	3.79	4.00	1.03	3.552	0.169	3.93	4.00	0.99	3.43	4.00	1.09	-3.211	0.001
Managerial courage	3.81	4.00	1.18	4.09	4.00	1.04	3.99	4.00	0.94	1.052	0.591	4.11	4.00	0.94	3.67	4.00	1.05	-3.107	0.002
Assertiveness	3.63	4.00	1.04	4.06	4.00	0.93	3.93	4.00	0.99	3.333	0.189	4.02	4.00	0.92	3.65	4.00	1.09	-2.346	0.019
Efficiency	3.59	4.00	1.19	4.27	4.00	0.91	4.17	4.00	0.85	7.588	0.023	4.24	4.00	0.86	3.84	4.00	1.02	-2.859	0.004
Punctuality	3.93	4.00	1.11	3.88	4.00	0.93	3.83	4.00	1.10	0.269	0.874	3.94	4.00	1.01	3.68	4.00	1.19	-1.337	0.181
Responsibility	4.07	4.00	1.17	4.48	5.00	0.76	4.38	5.00	0.78	2.066	0.356	4.43	5.00	0.80	4.21	4.00	0.92	-1.773	0.076
Patience	3.48	4.00	1.22	4.21	4.00	0.78	4.07	4.00	0.95	7.339	0.025	4.11	4.00	0.93	3.79	4.00	1.08	-2.038	0.042
Industriousness	3.63	4.00	1.28	4.09	4.00	0.91	4.17	4.00	0.87	4.617	0.099	4.22	4.00	0.88	3.79	4.00	1.05	-2.940	0.003
Openness to change	3.89	4.00	1.12	4.12	4.00	0.89	4.21	4.00	0.85	1.878	0.391	4.22	4.00	0.81	3.97	4.00	1.08	-1.294	0.196
Maintaining discipline of remote workers	3.96	4.00	1.09	3.97	4.00	1.16	4.19	4.00	0.92	1.438	0.487	4.22	4.00	0.88	3.92	4.00	1.17	-1.473	0.141
Monitoring of work results	3.93	4.00	1.04	4.12	4.00	0.82	4.21	4.00	0.89	2.456	0.293	4.30	4.00	0.80	3.86	4.00	1.06	-2.843	0.004
Ability to adapt to new technologies	3.85	4.00	0.95	4.52	5.00	0.67	4.45	5.00	0.82	14.460	0.001	4.50	5.00	0.76	4.10	4.00	0.95	-3.329	0.001
Building relationships and strengthening bonds despite social distance	4.11	4.00	0.93	4.27	4.00	0.91	4.12	4.00	1.02	0.678	0.712	4.28	5.00	0.90	3.83	4.00	1.11	-3.058	0.002
Efficient decision-making in crisis situations	4.00	4.00	1.07	4.42	5.00	0.71	4.41	5.00	0.85	4.900	0.086	4.49	5.00	0.77	4.08	4.00	1.02	-2.896	0.004
Dealing effectively with conflicts at a distance	4.07	4.00	0.96	4.42	5.00	0.83	4.33	5.00	0.89	3.256	0.196	4.45	5.00	0.81	4.00	4.00	1.00	-3.484	0.000
Readiness for continuous improvement	3.56	4.00	0.89	3.97	4.00	1.02	4.10	4.00	0.94	9.277	0.010	4.11	4.00	0.88	3.81	4.00	1.09	-1.729	0.084
Recognizing the need to look after the mental health of remote workers	3.93	4.00	0.96	4.21	4.00	0.93	4.30	5.00	0.89	4.911	0.086	4.39	5.00	0.83	3.89	4.00	0.99	-3.789	0.000
Taking care of work-life balance	4.11	4.00	0.97	4.21	4.00	1.02	4.36	5.00	0.88	2.601	0.272	4.43	5.00	0.78	4.03	4.00	1.12	-2.344	0.019

Source: original work based on conducted research.

Analysing table 3, it can be concluded that, generally, the oldest participants in the study, i.e. X, consistently rated the key competencies related to managing employees while working remotely lower, especially in terms of new technologies, delegating tasks and communicating information. Younger groups, especially representatives of Generation Z, indicated a much higher need for the remote leader to have the above competencies. This may be due to the peculiarities of this generation and their high openness to modern technologies and related flexible forms of work. In addition, analysis of the results using the U Mann-Whitney test showed statistically significant differences in the assessment of leader competencies between women and men. The largest of these were in communication, monitoring and organizing work, and employee support. Women also pay more attention to psychological and social aspects, such as empathy, mental health care, relationship building and conflict management.

5. Discussion

Earlier research by the authors confirmed that although all generations have adapted well to remote work, respondents believe this work model requires slightly different competencies in employees than in stationary work (Żarczyńska-Dobiesz et al., 2024). However, referring to the authors' current research, it is stated that employees and leaders need appropriate competencies in changing working conditions that will allow them to be successful leaders during remote work. Given the above, answering the first research question, the results obtained identified three levels of importance.

Three competency areas were identified as the most important. Although they differ in their specifics, they were rated as almost equally important for a managerial leader in a remote working environment. The first area is communication and organizational competence, such as clear and transparent communication of goals and expectations for employees (M = 4.63), planning and organizing remote working (M = 4.45), communicating day-to-day information (M = 4.45) and the ability to manage priorities (M = 4.38). Such high scores underline the importance of clear and effective communication in the reality of remote working, where the lack of physical contact increases the risk of misunderstandings and disorganization. These findings are in line with the findings of other authors (Sinclair et al., 2021; Kiljunen et al., 2021; Nwoko, Yazdani, 2024), who believe that leaders should have advanced communication skills while using technology to bridge the physical distance and keep team members engaged. Using a variety of communication modalities and channels, such as video conferencing, virtual check-ins, instant messaging and online platforms, can ensure effective communication and build a sense of connectedness and staying on track among team members. Remote leaders managing a dispersed and diverse workforce should invest in developing communication to foster interaction among them (Kiljunen et al., 2021; Nwoko, Yazdani,

2024). The ability to adapt communication styles to the preferences of different generations is also key. Younger people prefer instant messaging and digital platforms, while older people still value 'face-to-face' contact and use traditional channels such as email and phone calls (Sinclair et al., 2021). A second important area is competencies related to job monitoring and accountability. These include adapting to new technologies (M = 4.38), agile crisis decision-making and leader accountability (M = 4.36), dealing effectively with conflict and providing ongoing feedback (M = 4.32). Accordingly, the modern leader should organize and monitor the team's work, make quick decisions, effectively resolve conflicts, and efficiently use new technologies, which are the foundation of effective remote working. Similar conclusions were proposed by Kiljunen et al., who state that remote leaders should invest in developing e-leadership competencies, especially the ability to use technology to communicate effectively and monitor work performance (2021). On the other hand, the third area of most important competencies concerns motivating and supporting employees in a broad sense. These include, respectively, motivating remote workers (M = 4.31), supporting them (M = 4.33), caring for their work-life balance (M = 4.31), and caring for their mental health (M = 4.24). These results are no surprise to the authors, as they remain consistent with previous assumptions and observations. One of the weaknesses of remote working, often highlighted by employees, is the lack of work-life balance. Moreover, leaders have to deal with the problem of employee isolation and psychological well-being (Sjöblom et al., 2022). As highlighted by other authors, remote work, while offering flexibility, has also blurred the lines between work and personal life, intensifying the need for leaders to support employees in achieving a healthy work-life balance (Iqbal et al., 2020). In addition, when caring for the productivity and well-being of employees, the leader needs to understand the specific work dynamics of different generations (Hassan, 2021).

The second level of importance is formed by flexibility and social relations competencies. These include monitoring work performance (M = 4.17), openness to change (M = 4.15), building relationships and strengthening bonds despite the distance (M = 4.14), and maintaining discipline (M = 4.13).

In contrast, competencies such as managerial courage (M = 3.99), assertiveness (M = 3.92), punctuality (M = 3.86), and empathy (M = 3.78) were rated relatively lowest, but still high (respectively third level of importance; $M < 4.0$). The empathy score that the researchers received was somewhat surprising. In the context of contemporary leadership models, such as servant leadership or leadership with compassion, empathy is considered a core competence. However, there are several possible reasons for this outcome. Firstly, it is more difficult for employees to perceive empathetic behaviour in a remote working environment, as communication lacks many non-verbal signals. Secondly, respondents may not have had experience with empathetic leaders. Additionally, remote work is often emphasised on organizational, technological and communication competencies, which are more 'visible' in day-to-day collaboration. Finally, generational differences and the resulting perception of this

competence confuse it with indulgence or excessive emotionality. However, according to Sinclair et al., leaders, in addition to being technologically literate, should demonstrate the ability to actively listen, empathise and give constructive feedback (2021).

According to the second research question, analysis of the Kruskal-Wallis test results showed statistically significant differences between age groups for several key competencies of leaders. The significance values indicate the need for post hoc Dunn tests to determine which groups have significant differences. For the competence of delegating tasks ($p = 0.046$), representatives of Generation X scored the lowest mean score ($M = 3.85$), while younger representatives of Y and Z rated this competence higher ($M = 4.39$; $M = 4.35$). Thus, the Dunn test indicates significant differences between the oldest and the two younger groups ($p < 0.05$). Another competence was the clear communication of current information, which differed significantly between generations ($p = 0.041$). The lowest rating was again found among those from generation X ($M = 4.11$), while Y and Z rated this competence higher ($M = 4.52$; $M = 4.49$). Again, Dunn's test showed significant differences between the oldest group and the two younger groups ($p < 0.05$). When it came to providing ongoing feedback ($p = 0.004$), the oldest generation rated it lowest ($M = 3.89$), and the youngest generation rated it highest ($M = 4.43$). The results of the Dunn test indicate significant differences between X and Z ($p < 0.01$). When analysing the following competency tested, resourcefulness ($p = 0.023$) was rated higher by the younger generations, Y and Z ($M = 4.27$; $M = 4.17$), compared to X ($M = 3.59$). Thus, Dunn's test showed significant differences between X and Y, Z ($p < 0.05$). Analogous results were provided by the analysis of patience ($p = 0.025$). The oldest rated it lowest ($M = 3.48$) and the younger (Y and Z) higher ($M = 4.21$ and $M = 4.07$). Dunn's test again indicated a statistically significant difference. Given the above, the most significant difference was competence, such as adapting to new technologies ($p = 0.001$). The oldest participants rated it lowest ($M = 3.85$), while younger participants rated it significantly higher ($M = 4.52$; $M = 4.45$). Dunn's test indicated significant differences between X and Y, Z ($p < 0.01$).

The last competence where the difference between the generations studied was statistically significant was the leader's continuous willingness to improve ($p = 0.010$). The lowest mean score occurred in X ($M = 3.56$) and the highest in Z ($M = 4.10$). Dunn's test confirmed a significant difference between the oldest and youngest group ($p < 0.05$). The results may indicate that representatives of Generation X, unlike the younger groups (Y and Z), do not perceive an equally strong need for continuous improvement by remote leaders. According to the authors, X's indications may be due to their greater professional experience vis-à-vis younger ones and their trust in their developed leadership patterns, fatigue and scepticism towards the ‘developmental fashion’ very popular among younger employees. This is because generations Y and Z have been brought up in a culture of ongoing feedback and a constant need to upskill and reskill their competencies.

Responding to the final research question concerning gender differences in assessing desired leader competencies, the collected results were analysed and interpreted using the U Mann-Whitney test. Significant differences in the assessment of leader competencies ($p < 0.05$) apply to as many as 25 competencies out of 31 reviewed (table 3). It is worth noting that in all of the following cases, women rated the competencies in question as more important than men.

Given the above, it is worth emphasising that the observation of such numerous and statistically significant differences in the assessment of leader competencies between women and men confirms the validity of the formulated research question. The most significant differences in assessing leader competencies concerned five of them. The first is conducting meetings and gatherings effectively (difference of 0.57) (woman - W (M = 4.41), man - M (M = 3.84). However, this result did not surprise the article's authors, given women's negative experiences participating in remote meetings during the pandemic. As the authors' previous research showed, women working remotely felt tired of combining work with family and domestic responsibilities, taking on the role of their children's teachers, available to all 'twenty-four-seven'. They care more about others and not enough about themselves (Żarczyńska-Dobiesz et al., 2023). For women, it is important to organize the meeting meaningfully, with an orderly structure and a concrete flow.

The other four differences are: giving ongoing feedback 0.56 (W:4.48, M:3.92), clear communication: 0.55 (W:4.61; M:4.06), etc., active listening skills 0.55 (W:4.47; M:3.92), recognizing the needs and expectations of remote workers 0.53 (W:4.32; M:3.79). As emphasized by the women, they care about the quality of interaction in remote working, and they expect the leader to care about the climate, clarity, and ongoing contact with employees. The analysis carried out showed no statistically significant differences ($p < 0.05$) in terms of gender, and ($p > 0.05$) concerned only six competencies: planning and organizing remote work, punctuality, responsibility, openness to change, maintaining the discipline of remote workers, and readiness for continuous improvement.

6. Summary

The analysis identified three primary levels of leader competencies, which the respondents considered key in managing employees in a remote working environment. The highest-rated competencies were communication, organizing, monitoring, responsibility, and using modern technology. The leader's emotional support, motivation, and psychological well-being competencies were also important. Considering the generational affiliation criterion, it was noted that representatives of Generation X consistently gave lower importance ratings to several competencies compared to younger generations. These were particularly true for: delegating

tasks, communicating information, resourcefulness, patience, and adapting to new technologies. The results suggest that both younger generations have higher expectations of the competencies of a remote leader than the representatives of Generation X. Furthermore, the analysis revealed gender differences in the assessment of leader competencies. Women were significantly more likely than men to rate competencies above all related to communication, including the organization of meetings, support, caring for relationships and the mental health of employees, and empathy. However, this may be evidence of a different understanding of the role and tasks of a leader in remote working by women and men. The women expect a more holistic approach by the leader, taking care of such important well-being. The lack of such an approach results in professional burnout, lack of meaning, and social isolation, a real risk for a remote leader.

In summary, the research results indicate that an effective leader in a remote working environment can manage in an 'asynchronous world'. On the one hand, he or she skilfully organizes and coordinates the team's activities. On the other hand, he or she provides emotional support to employees, flexibly combining operational efficiency with concern for their well-being. It is worth emphasizing that, in reality, it is no longer sufficient for such a leader to be familiar with digital tools. Competences such as empathy, the ability to actively listen, and an individual approach to employees are becoming crucial.

The authors intend to continue their research in the indicated topics, focusing on empathy and the leader's emotional intelligence in the remote management of a multigenerational team. Further studies are also planned on trust-building mechanisms in teams operating in a remote working environment.

Due to the limitations of the research sample, it is essential to underline that generalizing the research results must be done with caution.

References

1. Chomątowska, B., Janiak-Rejno, I., Smolbik-Jęczmień, A., Żarczyńska-Dobiesz, A. (Eds.) (2025). *Człowiek w środowisku pracy. Przyszłość jest teraz*. Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu. Retrieved from: https://doi.org/10.15611/2025.05.4, 20.12.2025.
2. Flaszewska, S., Szymańska, K. (2024). Multigenerational teams from the perspective of knowledge management based on the example of a selected public university. *Krakow Review of Economics and Management*, *1(1003),* pp. 51-63. Retrieved from: https://doi.org/10.15678/KREM.2024.1003.0103, 15.11.2025.
3. Gallup (2025). *Global leadership report: What followers want?* World Governments Summit. Retrieved from: https://www.worldgovernmentsummit.org, 18.11.2025.

4. Gdańska Fundacja Kształcenia Menedżerów (2025). *Rok lidera 2025: Przywództwo, odporność i kluczowe kompetencje w obliczu wyzwań 2025*. Gdańsk: GFKM.
5. Hassan, A. (2021). The antecedents and challenges of innovation in sustainable development projects: Systematic review. *Environmental Management and Sustainable Development*, *10(1),* pp. 76-91. Retrieved from: https://doi.org/10.5296/emsd.v10i1.18329, 08.11.2025.
6. Iqbal, T. (2020). Understanding the perception of women entrepreneurs and their adoption of social media: Strategies and challenges in the Kingdom of Saudi Arabia. *Journal of Entrepreneurship Education, 23(5),* p. 623.
7. Jeruszka, U., Wolan-Nowakowska, M. (2020). *Zarządzanie różnorodnością w organizacji*. Warszawa: Difin.
8. Juchnowicz, M., Kinowska, H. (2022). Komponenty dobrostanu pracowników w warunkach pracy hybrydowej. In: J. Tabor-Błażewicz, H. Rachoń (Eds.), *Wyzwania kierowania ludźmi w systemie hybrydowej organizacji pracy* (pp. 33-45). Warszawa: SGH Oficyna Wydawnicza.
9. Kiljunen, M., Laukka, E., Koskela, T. K., Kanste, O.I. (2021). Remote leadership in health care: A scoping review. *Leadership in Health Services, 35(1),* 98-115. Retrieved from: https://doi.org/10.1108/lhs-06-2021-0059, 10.10.2025.
10. Kocot, D., Maciaszczyk, M., Kocot, M., Kwasek, A., Depta, A. (2021). Multidimensional aspects affecting the level of employee satisfaction with remote work. *European Research Studies Journal, 24(3B)*, pp. 576-591.
11. Lönnblad, J., Vartiainen, M. (2012). *Future competences – Competences for new ways of working.* Turcu: University of Turku, Brahea Center for Training and Development.
12. Makowski, A. (2023). Remote leadership and work engagement: Critical review and future directions. *European Journal of Business and Management Research, 8(4),* pp. 1-7. Retrieved from: https://doi.org/10.24018/ejbmr.2023.8.4.1835, 21.11.2025.
13. Newman, S.A., Ford, R.C. (2021). Five steps to leading your team in the virtual COVID-19 workplace. *Organizational Dynamics, 50(1), 100802*. Retrieved from: https://doi.org/10.1016/j.orgdyn.2020.100802, 20.11.2025.
14. Nieżurawska-Zając, J. (2020). *Motywowanie pracowników zróżnicowanych pokoleniowo*. Warszawa: CeDeWu.
15. Nwoko, C., Yazdani, K. (2024). Self-leadership in a remote work environment: Emerging trends and implications for occupational well-being. *Journal of Business and Management Studies, 6(1)*, pp. 35-45. Retrieved from: https://doi.org/10.32996/jbms, 19.11.2025.
16. Oleksa-Marewska, K., Tokar, J. (2023). Organizational culture and job satisfaction of employees working remotely: A cross-cultural analysis. *Scientific Papers of Silesian University of Technology. Organization and Management Series, 182*, pp. 347-360. Retrieved from: https://doi.org/10.29119/1641-3466.2023.182.20, 19.10.2025.

17. Podgórska, M. (2022). Challenges and perspectives in innovative projects focused on sustainable Industry 4.0: A case study on Polish project teams. *Sustainability*, *14(9), 5334.* Retrieved from: https://doi.org/10.3390/su14095334, 17.10.2025.
18. Samsel, A. (2022). Generation Zalpha facing emotional investments. *Scientific Papers of Silesian University of Technology. Organization and Management Series, 166*, pp. 671-682.
19. Sawatzky, R.I., Sawatzky, N.J. (2022). *Competencies for success in remote and hybrid working contexts.* Retrieved from: https://www.researchgate.net/publication/360790410, 08.10.2025.
20. Sinclair, M.A., Stephens, K., Whiteman, K., Swanson-Biearman, B., Clark, J. (2021). Managing and motivating the remote employee using the transformational leadership model. *Nurse Leader*, *19(3)*, pp. 294-299. Retrieved from: https://doi.org/10.1016/j.mnl.2020.11.003, 19.09.2025.
21. Sjöblom, K., Juutinen, S., Mäkikangas, A. (2022). The importance of self-leadership strategies and psychological safety for well-being in the context of enforced remote work. *Journal of Leadership and Organizational Studies, 13(1), 14*. Retrieved from: https://www.mdpi.com/2078-1547/13/1/14, 10.10.2025.
22. Smolbik-Jęczmień, A., Żarczyńska-Dobiesz, A. (2017). Zróżnicowane podejście do rozwoju zawodowego wśród przedstawicieli pokoleń koegzystujących na rynku pracy. *Zarządzanie Zasobami Ludzkimi, 3-4*, pp. 169-184.
23. Suchecka, J. (2023). *Pokolenie zmiany. Młodzi o sobie i świecie, który nadejdzie*. Warszawa: Grupa Wydawnicza Foksal.
24. Taylor, M. K. (2018). Xennials: A microgeneration in the workplace. *Industrial and Commercial Training, 50(3),* pp. 136-147. Retrieved from: https://doi.org/10.1108/ICT-07-2017-0053, 19.10.2025.
25. Turesky, E.F., Smith, C.D., Turesky, T.K. (2020). A call to action for virtual team leaders: Practitioner perspectives on trust, conflict and the need for organizational support. *Organization Management Journal*, *17(4-5)*, pp. 185-206. Retrieved from: https://doi.org/10.1108/OMJ-09-2019-0798, 19.10.2025.
26. Wang, Y., Haggerty, N. (2009). Knowledge transfer in virtual settings: The role of individual virtual competency. *Information Systems Journal*, *19(6),* pp. 571-593. Retrieved from: https://doi.org/10.1111/j.1365-2575.2008.00318, 10.08.2019.
27. Waszkiewicz, A. (2022). Praca zdalna po pandemii COVID-19 – preferencje pokoleń BB, X, Y, Z. *E-mentor, 5(97)*, pp. 36-52.
28. World Economic Forum (2025). *The future of jobs report 2025*. Insight report January 2025. Retrieved from: https://www.weforum.org/reports/the-future-of-jobs-report-2025, 10.12.2025.

29. Żarczyńska-Dobiesz, A., Janiak-Rejno, I. (2024). Different generations facing the remote work mode: A research exploration of essential competencies. *Zeszyty Naukowe Politechniki Śląskiej. Organizacja i Zarządzanie, 199*, pp. 681-694.
30. Żarczyńska-Dobiesz, A., Janiak-Rejno, I., Chomątowska, B. (2023). Gen Xers in uncertain time of working remotely: An employee's perspective. *Organizacja i Kierowanie, 3(194),* pp. 151-170.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

PARENTHOOD AS A MANAGEMENT CHALLENGE IN ORGANIZATIONS: EVIDENCE FROM POLAND AND HUNGARY

Wojciech JARECKI[1]*, Michał A. MICHALSKI[2], Dorota GIZICKA[3], Krzysztof SZWARC[4], András PARI[5], Réka SZASZ[6], Árpád József MESZAROS[7], Tünde FURESZ[8]

[1] University of Szczecin; wojciech.jarecki@usz.edu.pl, ORCID: 0000-0002-4463-7607
[2] Adam Mickiewicz University Poznań; michal.michalski@amu.edu.pl, ORCID: 0000-0002-9854-0069
[3] Catholic University of Lublin; dorana@kul.pl, ORCID: 0000-0001-5838-9862
[4] Poznań University of Economics and Business; krzysztof.szwarc@ue.poznan.pl, ORCID: 0000-0002-2983-9673
[5] Pázmány Péter Catholic University, Maria Kopp Institute for Demography and Families (KINCS), Collegium Professorum Hungarorum (CPH); pari.andras@btk.ppke.hu, ORCID: 0000-0002-3098-9863
[6] Maria Kopp Institute for Demography and Families (KINCS), szasz.reka@koppmariaintezet.hu, ORCID: 0009-0005-8693-0747
[7] Maria Kopp Institute for Demography and Families (KINCS); meszaros.arpad@koppmariaintezet.hu, ORCID: 0009-0004-7410-5873
[8] Ludovika University of Public Service, Maria Kopp Institute for Demography and Families (KINCS); Collegium Professorum Hungarorum (CPH), furesz.tunde@koppmariaintezet.hu, ORCID: 0009-0004-7982-1502
* Correspondence author

Purpose: The aim of the article is to justify the need to support the functioning of families in organizations and to identify possible instruments for supporting parents in enterprises.
Design/methodology/approach: The study draws on an analysis of the relevant literature, comparison, abstraction, synthesis, induction, deduction and inference. Empirical research was conducted in Polish enterprises, and the results of studies carried out among Hungarian organizations were also used.
Findings: The research shows that there are numerous instruments for supporting parents that have a positive impact on combining effective work with the functioning of families with children. These solutions differ across countries. It may be assumed that organizational involvement in supporting parents affects the reconciliation of professional work and family life.
Research limitations/implications: The research findings used for Hungary are qualitative in nature and should be extended to include a quantitative dimension. The research conducted in Poland requires further specification. The overall research should also be supplemented with an analysis of results from other countries.
Practical implications: The article indicates the possibility of selecting parent-support instruments for use in various types of organizations.
Originality/value: Previous studies have primarily focused on the relationship between professional life and private life. This article takes a further step by addressing support for private life within professional life, with mutual benefits for both employees and organizations.

Keywords: family-supportive management tools, demography, professional work and family life.
Category of the paper: Research paper.

1. Introduction

The environment in which enterprises operate is undergoing dynamic changes related to the development of artificial intelligence, technology, automation, law, the labour market transformation (Pocztowski, 2018). One of the most significant contemporary challenges is demographic change, especially population ageing and persistently low fertility. Declining fertility not only reduces future labour supply but may also weaken long-term economic growth and increase labour costs for enterprises. Consequently, demographic processes increasingly affect organizational functioning and management strategies.

The functioning of families is closely connected with labour-market sustainability. Parents play a fundamental role in the development of children's competences, health and social skills, which later shape the quality of future employees (Pári, 2024). In this sense, family life and organizational functioning are interconnected. Stable employment conditions and supportive workplace environments may also influence willingness to have children (Gizicka et al., 2023; Koncz et al., 2025). Despite this, the relationship between demography and management remains relatively underexplored in the literature.

The article therefore seeks to connect the fields of management, family studies and demography. Its first aim is to justify the need for supporting families within organizations, since family stability and parental well-being influence both economic and organizational processes. The second and principal aim is to identify workplace instruments supporting parents and families in enterprises, based on comparative analyses from Poland and Hungary, and to indicate future research directions and managerial challenges.

The choice of Poland and Hungary is justified by the strong social importance of family in both countries (Jarecki, Piasecka, 2024). However, the two countries differ in the extent to which family-supportive solutions have been integrated into labour-market policies. In Hungary, family-supportive measures have become more institutionalized, contributing to increasing employment among women with young children: while in 2010 only one in six women with young children was employed, by 2024 the proportion had risen to one in two (Agócs et al., 2024).

Both countries are simultaneously facing demographic ageing and fertility decline. In Hungary, the shrinking working-age population is linked to low fertility and emigration (Kopyś, 2022). Poland experiences similar challenges, including one of the lowest fertility levels in Europe, with the total fertility rate approaching 1.0 in 2025 (Szczuka, 2022).

These demographic processes increasingly raise questions about the role organizations may play in supporting employees' family functioning and improving work–family reconciliation.

2. Theoretical Framework

The relationship between professional work and family functioning has been widely discussed in the international literature, particularly in the context of work–family balance, organizational support and employee well-being. One of the most frequently applied theoretical approaches is Work–Family Conflict Theory, according to which tensions emerge when professional and family roles become incompatible due to time pressure, emotional strain or behavioural expectations (Greenhaus, Beutell, 1985). In response to these challenges, organizations increasingly apply family-supportive workplace practices intended to reduce conflict between professional and private life.

Another important theoretical perspective is Organizational Support Theory, which suggests that employees develop stronger organizational commitment and higher levels of job satisfaction when they perceive that employers care about their well-being and family responsibilities (Eisenberger et al., 1986). Research also demonstrates that family-supportive organizational cultures may reduce employee turnover and improve productivity, motivation and workplace stability (Allen, 2001; Lee, Hong, 2011).

From a broader socio-economic perspective, Human Capital Theory additionally emphasizes that families play a fundamental role in the development of future labour force competences, including educational achievement, social skills and health-related outcomes. Consequently, family-supportive organizational practices may also indirectly contribute to long-term economic sustainability and labour-market stability.

The present article builds upon these theoretical approaches and interprets family-supportive workplace instruments not merely as social benefits but also as organizational and demographic investments that may influence employee well-being, organizational effectiveness and, indirectly, demographic processes.

3. The Socio-Economic Situation in Poland and Hungary in the Context of Family

Poland and Hungary face similar demographic and socio-economic challenges related to population ageing, low fertility and changing family structures. Despite economic growth and rising living standards, Poland continues to struggle with deficits in human and social capital

as well as declining marriage rates among young people (CBOS, 2024; Gizicka et al., 2023). Hungary is likewise experiencing population ageing associated with low fertility and increasing life expectancy, although fertility remains slightly higher than in Poland, reaching approximately 1.3 in 2025 (HCSO, 2023a).

In both countries, demographic structures are shifting towards older age groups (Szczuka, 2022). Between 2012 and 2023, the proportion of people aged 65 and over increased substantially, particularly in Poland. Hungary's ageing process is linked not only to low fertility but also to significant emigration (Kopyś, 2022; Pári et al., 2024). At the same time, both countries maintain relatively low unemployment rates and stable economic growth (Eurostat, 2026).

Fertility decline remains particularly important from the perspective of labour-market sustainability. In 1990, fertility rates still reflected relatively stable demographic development, reaching 2.06 in Poland and 1.87 in Hungary, but by 2024 these values had declined to approximately 1.1 and 1.3 respectively (Eurostat, 2025). Although both countries have introduced various family-policy measures aimed at reversing these trends, the expected demographic improvements have not yet been fully achieved (Koncz et al., 2025; Szczuka, 2022).

4. The Economy, the Firm and the Family

Demographic change is important not only because of its quantitative effects on labour supply and generational replacement, but also because of the broader role of families in the development of human and social capital. Classical economists such as Say and Marshall emphasized that the family plays a fundamental role in upbringing and skill development, thereby contributing to the formation of future labour force competences (Say, 1960, pp. 128-136; Marshall, 1928, Chapter II). Contemporary authors similarly argue that parents "raise children and reproduce the labour force" (Toffler, Toffler, 2007, p. 250). The family therefore constitutes a key environment for the development of professional and social competences that later benefit enterprises and the economy as a whole (Toffler, Toffler, 2007, pp. 250-251).

As Michalski (2020) notes, the human and social capital represented by employees is strongly connected with the functioning of the family environment from which they originate. This creates a two-way relationship between enterprises and families. On the one hand, employees acquire competences, productivity and social skills within the family; on the other hand, enterprises provide income, professional opportunities and social stability for families. Consequently, organizations indirectly benefit from parental investment in children's development, since these children later become employees and participants in the labour market. These findings have also been confirmed by Hungarian research on family socialization (Pári, 2024).

Research also indicates that family-supportive organizational practices positively affect both employees and enterprises. Family relationships are stronger predictors of happiness and life satisfaction than professional activity alone (Czapiński, 2015, p. 272), which may also influence employee productivity and organizational commitment. Employer involvement in family-supportive measures should therefore be treated as an investment rather than a cost. Such solutions may strengthen workplace stability, employee attachment and labour productivity (Jarecki, Piasecka, 2024, p. 439), while also reducing employee turnover (Marx, Reimann, Diewald, 2021). Lee and Hong (2011) additionally demonstrate that benefits granted to young parents may positively influence organizational competitiveness.

5. Instruments for Supporting Families in Organizations in Poland and Hungary: Research Methodology, Results and Discussion

Research Questions

The article seeks to answer the following research questions: (RQ1) What types of family-supportive workplace instruments are applied in organizations in Poland and Hungary? (RQ2) How do these instruments contribute to the reconciliation of professional and family life? (RQ3) Which organizational practices may strengthen employee well-being, workplace stability and parental functioning?

Results

The issue of organizational instruments supporting employees in their family functioning remains relatively underexplored in the literature, which more often focuses on the reconciliation of professional and private life (Peplińska, Zenfler, 2025; Rehmann, 2025). At the same time, demographic challenges increasingly highlight the importance of workplace support for parents and families.

In recent decades, both Poland and Hungary have introduced various family-policy measures. In Poland, these include the 800+ programme, parental benefits and Family Care Capital (Infor, 2026). In Hungary, policies have focused on strengthening the social status of families and supporting parents through financial incentives, including tax exemptions for mothers introduced from 2026 onward. Approximately 70% of Hungarians support these measures (KINCS, 2026).

Research conducted by Michalski and Szwarc (2023) showed that the most common family-supportive instruments in Polish enterprises include protection against overtime work, additional paternity leave, part-time employment with proportional benefits and remote work opportunities. These findings suggest that organizations increasingly recognize family-supportive measures as important for workplace stability and employee retention.

Hungarian research by Koncz, Fűrész and Nagy (2025) emphasized the relationship between family-friendly workplace practices and organizational sustainability. Previous KINCS research also demonstrated that family-friendly workplace programmes contribute to employee well-being, work–family reconciliation and labour retention (Fail et al., 2015). Solutions applied in Polish and Hungarian organizations are presented in Table 1.

Table 1.
Support for Families in Reconciling Family and Professional Life in Poland and Hungary

Area	Poland	Hungary
Direct and indirect support for employees' children	• Educational courses for children. • Company kindergarten or nursery. • Co-financing of childcare in an external kindergarten. • Scholarship programmes for employees' children. • Organization of family workshops. • Family discount programmes, for example discount cards or discounts on services offered within the enterprise.	• Provision of childcare through company-maintained independent facilities, for example nurseries and kindergartens. • Coverage of childcare costs. • Organization of summer camps. • Designation of rooms for employees' children in which physical activities related to proper posture are organized, training is provided for children on risks associated with the use of social media, and space is made available for tutoring. • Health-promoting activities for children in company rooms. • Educational films for children in company rooms. • Career counselling and paid summer work for older children of employees.
Work organization and working time	• Partial remote work at the employee's request. • Individual working time schedules. • Flexible working time. • Possibility of performing work entirely remotely. • Task-based working time. • Possibility of part-time employment while retaining all benefits available to full-time employees on a proportional basis. • Job sharing, where two people share one position.	• Appointment of a manager responsible for organizational support for young parents at work. • Flexible working hours. • Flexible forms of employment, including remote work, hybrid work and part-time work. • Appointment of an IT specialist to assist remote workers.
Support for young parents	• Availability of "paternity leave" as additional leave that does not reduce the leave entitlement of the other parent, • Possibility of granting additional paid parental or childcare leave to persons not employed under an employment contract. • Employees returning from maternity, parental or childcare leave are additionally protected by internal regulations. • Employees are protected against overtime work or such work requires their explicit consent. • Possibility of granting additional paid leave to care for a child.	• In the event of a child's illness, remote work and 100% remuneration, so that parents do not have to use parental leave. • Periodic remote work for pregnant women as a means of gradual reintegration and for parents, for example during summer holidays, school breaks or when caring for a sick child. • Purchase or loan of remote-work equipment for employees, including office chairs and office equipment. • Creation of stroller storage rooms, rooms with changing tables, family rooms with workstations and study rooms for school-age children.

Cont. table 1.

Promotion and support of families	• Organization of family picnics. • Additional Christmas gifts for employees' children. • Family cinema tickets. • Co-financing of summer camps or camps for employees' children.	• Organization of company events to which entire families are invited. • Planning leave while taking family needs into account. • Strengthening the parental role of men so that they can actively participate in the life and upbringing of the child, including the organization of activities that strengthen father-child relationships, such as guidebooks, conversations with psychologists or educators, and workshops. Company activities go beyond legal requirements and allow fathers to stay at home for many months. The purpose of pro-fatherhood initiatives is also to promote gender equality in the division of childcare responsibilities. Examples include remote work for fathers in the event of a child's illness, workshop cycles for children on what their father does at work, and family sports days.
Professional support for parents	• Possibility of agreeing on a substitute for the employee's position during maternity or childcare leave. • Receiving current information on the functioning of the organization.	• Career planning for women on childcare leave. • Online training and lifelong learning, especially for pregnant women and women after childbirth. • Maintaining contact during childcare leave in order to preserve relationships, including invitations to company events, regular information flow through newsletters and personal contact. • Informing the organization about the implementation of family-friendly measures.
Other	• Co-financing of medical examinations. • Sports events and picnics for entire families.	• Preventive healthcare for the employee and the family. • Financing selected screening tests. • Massages at work. • Interest-free housing loans granted by employers to young spouses. • Providing all parents with an additional Friday or Monday every two months. • Trips and sports events, organization of sports teams, gym passes and swimming pool passes. • Rewarding employees' children who have achieved outstanding results in art, music, sport, science and other fields. • Legal assistance for parents concerning their rights and obligations regarding benefits, leave, healthcare and related matters. The company's legal department is available to employees on specified days and assists them in resolving problematic private and employment-related matters.

Source: Michalski, Szwarc, 2023; Koncz, Fűrész, Nagy, 2025.

The comparative analysis suggests that family-supportive workplace practices are more institutionalized in Hungary than in Poland. Hungarian organizations more frequently apply integrated solutions combining flexible work arrangements, childcare support and programmes strengthening parental roles, while Polish organizations focus mainly on working-time

flexibility and additional employee benefits. These differences may reflect broader family-policy environments and organizational cultures. The Hungarian model places stronger emphasis on integrating family support into workplace culture, whereas the Polish approach is more connected to individual organizational initiatives.

The findings indicate that workplace family support should be interpreted not only as a social-policy issue but also as a strategic organizational investment contributing to labour-market sustainability under demographic ageing and labour shortages (Pári et al., 2024; Gellérné et al., 2025). The results also highlight the growing importance of support for fathers, although studies examining such instruments remain relatively limited. Most previous research has focused primarily on gender equality and the division of family responsibilities. Arnalds et al. (2013) demonstrated that father-supportive measures may positively influence the amount of time fathers devote to family relationships.

The presented analysis may serve as a useful starting point for managers and organizations seeking to introduce more family-friendly workplace practices. At the same time, further comparative and quantitative research is needed to evaluate the effectiveness of these instruments in different institutional and cultural contexts and to examine their long-term organizational and demographic effects.

6. Limitations

A limitation of the analysis conducted is the limited availability of research on demography carried out from a management perspective. Existing studies mainly focus on the relationship between professional work and personal life. Another limitation results from the fact that many family-supportive workplace instruments are qualitative and context-dependent in nature. Their effectiveness may vary significantly depending on organizational culture, economic sector, company size and labour-market conditions. In addition, the study focuses primarily on organizational practices themselves and does not directly measure long-term demographic outcomes such as fertility behaviour or completed family size.

Future research should therefore incorporate larger comparative datasets, quantitative organizational indicators and longitudinal analyses in order to assess more precisely the relationship between family-supportive organizational environments, employee outcomes and demographic processes.

Discussion

The comparative analysis demonstrates that family-supportive workplace practices are becoming increasingly important organizational instruments in response to demographic ageing, labour shortages and changing labour-market conditions in Central and Eastern Europe. The study provides a direct answer to the first research question by identifying a broad range of family-supportive measures applied in organizations in Poland and Hungary, including flexible working arrangements, remote and hybrid work opportunities, childcare-related support, parental assistance and family-oriented organizational programmes. The findings indicate that Hungarian organizations tend to apply more integrated and institutionalized family-supportive models, while Polish organizations more frequently focus on selected flexibility-oriented solutions and additional employee benefits.

The analyses also address the second research question concerning the contribution of these instruments to the reconciliation of professional and family life. The findings suggest that flexible forms of employment, organizational understanding of parental responsibilities and family-supportive workplace cultures may reduce work–family conflict and strengthen employee well-being, workplace stability and organizational commitment. The results are consistent with previous international studies emphasizing that family-supportive organizational environments may improve employee retention and reduce turnover intentions. Consequently, workplace family support should increasingly be interpreted not only as a social-support measure but also as a long-term organizational investment contributing to labour-market sustainability under conditions of demographic decline and population ageing.

7. Conclusion

The analyses presented in this article indicate that demographic challenges increasingly affect not only states and public policies but also organizations and labour markets. Low fertility, population ageing and labour shortages create growing pressure on enterprises to support the reconciliation of professional and family life. The comparison of Polish and Hungarian practices shows that family-supportive workplace instruments range from flexible work arrangements to direct childcare support. These practices may strengthen employee commitment, workplace stability and long-term labour-market sustainability. Further comparative and longitudinal research is needed to evaluate their long-term demographic and organizational effects.

Acknowledgements

Co-financed by the Minister of Science under the "Regional Excellence Initiative" (part of the article prepared by Wojciech Jarecki).

References

1. Agócs, G., Fűrész, T., Kállay-Kisbán, K., Kozák, K., Ludescher, M., Pári, A., … Uhljár, P. (2025). *Changes in the situation of Hungarian families after 2010 in EU comparison.* https://www.koppmariaintezet.hu/books25/EN/2025/Changes%20in%20the%20situation%20of%20Hungarian%20families%20after%202010%20in%20EU%20comparison.pdf
2. Allen, T.D. (2001). Family-supportive work environments: The role of organizational perceptions. *Journal of Vocational Behavior, 58(3),* pp. 414-435. https://doi.org/10.1006/jvbe.2000.1774
3. Arnalds, Á.., Guðný Björk Eydal, Gíslason, I.V. (2013). Equal rights to paid parental leave and caring fathers- the case of Iceland. *Stjórnmál Og Stjórnsýsla, 9(2)*, pp. 323-344.
4. Business Insider (2026). https://businessinsider.com.pl/gospodarka/polscy-emigranci-wracaja-do-kraju-decyduje-glownie-jeden-czynnik/xy9bvth
5. CBOS (2024). *Zaufanie społeczne [Social trust], Report No. 40.*
6. Czapiński, J. (2015). Indywidualna jakość i styl życia. In: J. Czapiński, T. Panek (eds.), *Diagnoza społeczna 2015*. Rada Monitoringu Społecznego.
7. Donati, P., Sullins, P. (2015). *The Conjugal Family: An Irreplaceable Resource for Society*. Watykan: Libreria Editrice Vaticana, pp. 38-39.
8. Eisenberger, R., Huntington, R., Hutchison, S., Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71(3),* pp. 500-507. https://doi.org/10.1037/0021-9010.71.3.500
9. Eurostat (2025). *Total fertility rate*. https://doi.org/10.2908/TPS00199
10. Eurostat (2026). https://ec.europa.eu/eurostat/databrowser/view/UNE_RT_M__custom_7680578/bookmark/table?lang=en&bookmarkId=2feeff57-57c9-4278-a50b-7e2279d699c2&c=1696497606157
11. Fail, Á., Gyarmati, A., Haraszti, A., Lisznyai, B., Papházi, T. (2015). *Családbarát Munkahely pályázatok elemzése (2012-2014).* [Analysis of Family-Friendly Workplace Grant Programs (2012-2014)]. *Kapocs, 14*(1), pp. 61-79.

12. Gellérné, L.É., Mészáros, Á.J., Pári, A. (2025). The effect of crisis on demography and employment in CEE countries. *Fronters in Political Science, 7,* pp. 1-12. http://doi.org/10.3389/fpos.2025.1548621
13. Gellérné, L.É., Mészáros, Á., Fűrész, T. (2024). *Promoting labour market participation of parents with young children across the EU*. Budapest: Kopp Mária Intézet a Népesedésért és a Családokért.
14. Gizicka, D., Michalski, M.A., Szwarc, K. (2023). *Młode Polki, młodzi Polacy i ich plany rodzinne [Young Polish women, young Polish men and their family plans]*. Poznań: Instytut Wiedzy o Rodzinie i Społeczeństwie.
15. Greenhaus, J.H., Beutell, N.J. (1985). Sources of conflict between work and family roles. *Academy of Management Review, 10(1),* pp. 76-88. https://doi.org/10.2307/258214
16. GUS (2025). *Informacja o rozmiarach i kierunkach czasowej emigracji z Polski w latach 2019-2024*. Warszawa.
17. Hungarian Central Statistical Office (2024). 22.1.1.7. *Élveszületések az anya és az újszülött főbb jellemzői szerint [Live births by mother's and born infant's characteristics]*. STADAT Database. https://www.ksh.hu/stadat_files/nep/en/nep0007.html
18. Hungarian Central Statistical Office (HCSO) (2023a). *Népszámlálás 2022 – Előzetes adatok: A népesség és a lakások főbb jellemzői [Census 2022 – Preliminary data: Main characteristics of population and housing]*. https://nepszamlalas2022.ksh.hu/eredmenyek/elozetes-adatok-2/kiadvany/
19. Hungarian Central Statistical Office HCSO (2024a). *Magyarország, 2023 [Hungary, 2023]*. https://www.ksh.hu/docs/hun/xftp/idoszaki/mo/mo_2023.pdf
20. *Infor 2026.* https://www.infor.pl/prawo/dziecko-i-prawo/dziecko-i-finanse/7369886,urodzenie-dziecka-2026-co-przysluguje-rodzicom-swiadczenia-lista.html
21. Jarecki, W., Piasecka, A. (2024). Etyka i wartości z perspektywy nauki i studentów zarządzania. *Perspektywy kultury, nr 47/4*, pp. 427-226. DOI 10.35765/pk.2024.4704.27
22. KINCS (2022). *Magyar állampolgárok visszavándorlása Magyarországra 2010 és 2021 között [Return migration of Hungarian citizens to Hungary between 2010 and 2021]*. https://www.koppmariaintezet.hu/docs/KINCS_Magyar_allampolgarok_visszavandorlasa_Magyarorszagra_2010_es_2021_kozott1.pdf
23. KINCS (2026). *The New Family Tax Reduction Program Has Been Launched.* https://doi.org/10.83154/KINCS.RE.EN.2025.4
24. Koncz, Z., Fűrész, T., Nagy, L. (2025). *A családbarát fenntarthatóság [Family-friendly sustainability]*. Budapest: SZTFH.
25. Kopyś, T. (2022). Upolitycznienie procesów depopulacji i migracji na Węgrzech po 1989 roku [The politicization of depopulation and migration processes in Hungary after 1989]. *Politeja, 19(1[76]),* pp. 79-99. https://doi.org/10.12797/politeja.19.2022.76.05

26. Kossek, E.E., Pichler, S., Bodner, T., Hammer, L.B. (2011). Workplace social support and work–family conflict: A meta-analysis. *Personnel Psychology, 64(2),* pp. 289-313. https://doi.org/10.1111/j.1744-6570.2011.01211.x
27. Łakomy, M. (2024). *Demografia jest przyszłością. Czy Polska ma szansę odwrócić negatywne trendy?* Warszawa: Prześwity.
28. Lee, S., Hong, J. (2011). Does Family-Friendly Policy Matter? Testing Its Impact on Turnover and Performance. *Public Administration Review*, *71(6),* pp. 870-879.
29. Marshall, A. (1928). *Zasady ekonomiki, t. II.* Warszawa: M. Arcta.
30. Marx, C.K., Reimann, M., Diewald, M. (2021). Do Work–Life Measures Really Matter? The Impact of Flexible Working Hours and Home-Based Teleworking in Preventing Voluntary Employee Exits. *Social Sciences, 10(1),* pp. 1-22.
31. Michalski, M.A. (2018). Gospodarka zaczyna się w rodzinie – kondycja rodziny a rozwój społeczno-gospodarczy. *Nierówności Społeczne a Wzrost Gospodarczy, 54(2),* pp. 9-21. DOI: 10.15584/nsawg.2018.2.1
32. Michalski, M.A. (2020). Ekologia źródeł „kapitału ludzkiego" i jego przyszłość wobec kondycji rodziny i materializacji kultury. In: M. Młokosiewicz, K. Włodarczyk (eds.), *Kształtowanie i rozwój kompetencji pracowników – problemy i wyzwania* (pp. 9-18). Akademicka Oficyna Wydawnicza EXIT.
33. Michalski, M.A., Szwarc, K. (2023). Rynek pracy przyjazny rodzinie – praktyki w polskich firmach. In: M. Witkowska (ed.), *Uwarunkowania dzietności.* Materiały z III Kongresu Demograficznego. Warszawa. ISBN 978-83-67087-66-7
34. Pári, A. (2024). Role of the family in the socialisation of children. *European Integration Studies, 20(1*), pp. 139-167. http://doi.org/10.46941/2024.1.6
35. Pári, A., Fűrész, T., Rövid, I. (2024). Population of Europe - from a Hungarian perspective. In: *Demographic Challenges in Central Europe*, pp. 47-79. http://doi.org/10.54237/profnet.2024.tbdecce_2
36. Peplińska, A., Zenfler, M. (2025). Elastyczne modele pracy a work-life balance i dobrostan osobisty pracowników. *Zarządzanie Zasobami Ludzkimi*, *t. 162, nr 2*, pp. 10-32.
37. pl.tradingecnomics.com (2026).
38. Pocztowski, A. (2018). *Zarządzanie zasobami ludzkimi.* Warszawa: PWE.
39. Rehmann, H.U. (2025). Impact of Work-family Conflict on Turnover Intention of Employees Through Organisational Commitment and Professional Identity. *Zeszyty Naukowe. Organizacja i Zarządzanie*, *z. 218*. Politechnika Śląska, pp. 575-595.
40. Say, J.B. (1960). *Traktat o ekonomii politycznej.* Warszawa: PWN, pp. 128-136.
41. Shockley, K.M., Allen, T.D. (2007). When flexibility helps: Another look at the availability of flexible work arrangements and work-family conflict. *Journal of Vocational Behavior*, *71(3),* pp. 479-493. https://doi.org/10.1016/j.jvb.2007.08.006

42. Szczuka, B. (2022). Climate change concerns and the ideal number of children: A comparative analysis of the V4 countries. *Social Inclusion, 10(3)*, pp. 114-124. https://doi.org/10.17645/si.v10i3.5228
43. Toffler, A., Toffler, H. (2007). *Rewolucyjne bogactwo*. Poznań: Kurpisz S.A.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

SELF-PERCEPTION OF TRAITS ATTRIBUTED TO THE BABY BOOMERS, GENERATION X, Y, AND Z: A COHORT-BASED APPROACH

Paweł KOZAKIEWICZ[1], Małgorzata TOKARZ[2]*

[1] Jagiellonian University in Cracow; pawel.kozakiewicz@uj.edu.pl, ORCID: 0009-0003-6154-5338
[2] Jagiellonian University in Cracow; malgorzata.tokarz@doctoral.uj.edu.pl, ORCID: 0009-0003-5497-5647
* Correspondence author

Purpose: This article examines whether traits attributed in the literature to Baby Boomers and Generations X, Y, and Z are reflected in employees' self-perception when generational membership is defined by year of birth. It also tests whether some of these traits may be transgenerational, that is, self-assessed in a similar manner across age cohorts.
Design/methodology/approach: The study was conducted in two stages. First, a literature review was carried out to identify inconsistencies in the definition of age cohorts and to map the traits attributed to individual generations. Second, a quantitative cross-sectional survey was administered using a standardised online questionnaire.
Sample and analysis: The sample comprised 230 respondents. In all statistical tests, the significance threshold was set at $p < 0.05$. Self-perception levels were compared by age using the Kruskal–Wallis ANOVA.
Findings: For most of the analysed traits, no statistically significant differences were observed between generations. Similar levels of self-perception across age cohorts may therefore indicate the transgenerational character of these traits.
Research limitations/implications: The study has several limitations. In the theoretical part, only a limited number of sources were reviewed, and the set of traits was derived from a single publication. This decision was motivated by substantial discrepancies in the literature concerning cohort boundaries, which may affect the reliability of any synthesis of generation-specific traits. In the empirical part, the study relied on self-perception rather than an objective measure of trait importance, and the number of responses varied markedly across cohorts.
Practical implications: The findings suggest that HR practices should not rely on simplified generational assumptions, but rather on a careful analysis of employees' actual traits and competencies regardless of age.
Social implications: The study highlights the need for greater caution when designing actions based solely on generational categories anchored in age cohorts. This may, in turn, encourage a revised understanding of the role of intergenerational and age-diverse teams.
Originality/value: The study's originality lies in its empirical verification of assumptions found in the literature concerning generational distinctiveness.
Keywords: age cohort, Baby Boomers, Generation X, Generation Y, Generation Z, self-perception, generational traits.
Category of the paper: Research paper.

1. Introduction

Intergenerational differences are a recurring topic in management research (Costanza et al., 2023). Although robust evidence for generation-specific differences remains limited, many publications continue to attribute distinctive traits to particular generations (Ravid et al., 2024). Consequently, empirical studies increasingly seek to determine whether these traits are in fact differentiated across groups defined by year of birth. The present article addresses this gap by confronting generational characteristics described in the literature with employees' declared self-perception. Specifically, it examines whether traits attributed to Baby Boomers and Generations X, Y, and Z are self-reported more strongly by members of those cohorts and whether some of these traits are better understood as transgenerational. A further objective is to demonstrate the extent to which different authors assign different birth-year ranges to the same generations.

Based on the literature review, the following main hypothesis was formulated: traits described in the literature as characteristic of particular generations (BB, X, Y, and Z), defined within specific age ranges, are not self-reported as significantly more descriptive by members of those generations than by members of other generations. The supplementary hypothesis states that most traits regarded as characteristic of these generations display similar levels of self-perception across all cohorts, indicating a transgenerational pattern in the self-perception dimension.

The study was also guided by two research questions:

1. Do individuals belonging to a given age group (age cohort) declare a higher level of self-perception of traits identified in the literature as characteristic of that generation compared with representatives of other generations?
2. Are there transgenerational traits, that is, traits that are self-assessed similarly regardless of age cohort?

2. Generational Classification be Age Cohort

Even a cursory review of the literature reveals that age-cohort boundaries are defined inconsistently. The time frames assigned to individual generations vary markedly across authors (Rudolph et al., 2021).

Although a growing body of research questions the empirical validity of generational differences − particularly because age, life stage, and cohort effects are difficult to disentangle − human resource management practice continues to rely on labels such as Baby Boomers and Generations X, Y, and Z (Parry, Urwin, 2021). The Polish literature reviewed for the purposes

of this article also contains numerous inconsistent birth-year ranges assigned to particular generations.

Baby Boomers. The range most frequently adopted in the literature is 1946-1964 (Nowak, 2025; Sidor-Rządkowska, 2018; Woźny, 2013; Krzemińska, 2021; Wojtoszek, 2023). K. Wojtaszczyk (2016) proposes 1946-1969, B. Tulgan (2009) gives 1949–1964, whereas D. Pendergast (2009) and A. Rogozińska-Pawełczuk et al. (2019) define this cohort as spanning 1943-1960.

These differences are also visible in the definition of the age cohort for Generation X. The ranges indicated in the literature differ, often substantially. Generation X most commonly includes individuals born in 1965-1980 (Nowak, 2025; Woźny, 2013; Przybylski, 2023; Wojciechowska et al., 2025) and 1965-1979 (Rogozińska-Pawełczuk et al., 2019; Krzemińska, 2021; Sidor-Rządkowska, 2018; Wojtoszek, 2023). K. Wojtaszczyk (2016) points to the much later period 1970-1979, whereas D. Pendergast (2009) indicates the much earlier 1961-1981, and B. Przybylski (2023) gives 1961-1983. B. Tulgan (2009) also lists 1965-1976.

Establishing an unambiguous birth-year range is also problematic for Generation Y. The literature cites 1980-1994 (Nowak, 2025; Rogozińska-Pawełczuk et al., 2019; Sidor-Rządkowska, 2018), 1981-1996 (Wojtoszek, 2023; Wojciechowska et al., 2025), 1981-1995 (Woźny, 2013), 1980-1989 (Krzemińska, 2021), 1982-2002 (Pendergast, 2009), 1980-1999 (Przybylski, 2023), 1980-2004 (Wojtaszczyk, 2016), and 1977-1990 (Tulgan, 2009).

Generation Z is likewise defined differently in terms of age cohort. D. Nowak states that individuals belonging to Generation Z were born in 1995-2015 (Nowak, 2025). The range 1997--2012 is supported by two authors in the reviewed literature, G. Wojciechowska et al. (2025) and K. Wojtoszek (2023). A different range, 2003-2014, is given by D. Pendergast (2009). The subject literature also reports ranges beginning in 1990 (Krzemińska, 2021), 1991 (Tulgan, 2009), 1995 (Woźny, 2013; Sidor-Rządkowska, 2018; Rogozińska-Pawełczuk et al., 2019), and as late as 2000 (Przybylski, 2023), with some ranges extending to the present.

Table 1.
Earliest and latest starting and ending dates of cohort ranges reported in the literature for individual generations

Earliest/latest year of cohort start				
Generation	**BB min./max.**	**X min./max.**	**Y min./max.**	**Z min./max.**
Year	1943/1949	1961/1970	1977/1982	1990/2003
Earliest/latest year of cohort end				
Generation	**BB min./max.**	**X min./max.**	**Y min./max.**	**Z min./max.**
Year	1960/1969	1976/1983	1989/2004	2012/present

Source: Authors' own work based on: (Nowak, 2025), (Sidor-Rządkowska, 2018), (Woźny, 2013), (Krzemińska, 2021), (Wojtoszek, 2023), (Wojtaszczyk, 2016), (Tulgan, 2009), (Pendergast, 2009), (Rogozińska-Pawełczuk et al., 2019), (Przybylski, 2023), (Wojciechowska et al., 2025).

This review demonstrates substantial definitional inconsistency in cohort boundaries. At the extremes, the difference between the earliest and latest proposed cohort onset reaches 13 years, while the corresponding difference for cohort end dates reaches 15 years. Comparing studies solely by generational label − without checking the underlying age cohort − may therefore seriously undermine the validity of interpretation and comparison.

3. Traits Commonly Attributed to Individual Generations (Nowak, 2025)

Generations currently active in the labour market are described as possessing distinct constellations of competencies and traits shaped by the social, historical, and technological conditions of their formative years. These conditions are assumed to affect both their approach to work and their expectations regarding professional development. This source was selected because of its recency and because it offers a comprehensive discussion of the issues under investigation.

3.1. Baby Boomers (1946-1964)

Members of the Baby Boomer generation entered adulthood during a period of labour-market expansion and economic growth. In Poland, work was then widely perceived as a moral obligation, which often fostered long-term attachment to one employer and a sense of security rooted in occupational stability. Competence and adherence to order, expressed through clear hierarchical structures, were also highly valued. Accordingly, the literature most often associates this generation with loyalty and stability, respect for hierarchy, and experience combined with mentoring.

3.2. Generation X (1965-1979)

Generation X comprises individuals born between 1965 and 1979. They are commonly described as highly self-reliant and are sometimes referred to as “latchkey children” or “children of the Polish People’s Republic.” Because their parents were largely absorbed by paid work and because their formative years coincided with systemic transformation, they are said to have developed such traits as independence and pragmatism, a strong results orientation and adaptability.

3.3. Generation Y (1980-1994)

Generation Y includes people who grew up during digitalisation and entered the labour market at the turn of the millennium; for this reason, they are also referred to as Millennials. Modern technologies are natural work tools for this cohort, and its members tend to expect innovation and flexibility from employment. They also place strong emphasis on personal development and are motivated by job satisfaction. They are willing to work in environments that are demanding, provided that these environments also offer a sense of purpose and agency. The traits most commonly ascribed to this generation are technological proficiency, a need for meaning and development, and multitasking combined with flexibility.

3.4. Generation Z (1995-2015)

The youngest generation analysed is distinguished by the seamless integration of the digital and offline worlds. The internet constitutes a natural environment for both professional and private functioning. Members of this cohort communicate rapidly through multiple online channels, treat work–life balance as a baseline expectation, and articulate their needs clearly. Having grown up amid multiculturalism and diversity, they tend to value independence, including occupational independence. The literature therefore associates this generation primarily with digital mobility, openness and tolerance, and entrepreneurship combined with independence.

4. Generational Characteristics and Employees' Self-Perception: Empirical Evidence

4.1. Research Methodology

The empirical part of the study took the form of a quantitative cross-sectional survey administered via a standardised online questionnaire. A comparative design was adopted: each participant received the same set of questions and was asked to indicate the extent to which the listed traits described their functioning at work. By design, these assessments were subjective.

The purpose of this procedure was to determine whether traits attributed in the literature to specific generations (BB, X, Y, and Z) are declared as more self-descriptive primarily by members of the corresponding generation, identified by year of birth, or whether they display a transgenerational pattern and are self-assessed similarly regardless of age cohort.

Respondents were assigned to generations using the age ranges proposed by Nowak (2025): BB (1946-1964), X (1965-1979), Y (1980-1994), and Z (1995-2015). This source was chosen because of its recency and its comprehensive treatment of the topic.

Participation was voluntary and anonymous. The sample comprised 230 respondents (N = 230): BB (N = 11), X (N = 89), Y (N = 83), and Z (N = 47). Owing to the substantial imbalance in group sizes, especially between the BB cohort and the remaining cohorts, the analysis was conducted in two variants: one including all four generations and one restricted to Generations X, Y, and Z. In all statistical tests, the significance threshold was set at $p < 0.05$. Self-perception levels were compared by age using the Kruskal-Wallis ANOVA.

The research instrument was an original questionnaire created in Google Forms and composed of two parts:

- A demographic section including the information necessary to assign respondents to age cohorts, as well as the key descriptive variables such as gender, education, and work experience.
- A self-perception scale covering the traits most commonly associated with specific generations on the basis of the literature review presented above. Each trait was treated as a separate questionnaire item, and respondents were asked to assess the extent to which it described their functioning at work.

A five-point Likert scale (1-5) was used. The measure captured self-reported alignment between a given trait and the respondent's own professional functioning; it did not assess the importance of the trait or objectively verify whether the trait was present.

5. Results

Given the pronounced imbalance in the sizes of the compared groups (N(BB) = 11), the quantitative findings are presented in two analytical variants:

- for all four generations − BB, X, Y, and Z,
- for three generations (X, Y, Z), excluding BB due to the excessively low number of responses obtained.

Variant A: All Four Generations

In this variant, statistically significant intergenerational differences were identified for two traits: loyalty and stability, and technological proficiency.

Loyalty and stability

The analysis revealed a significant age-related difference in self-perception. Respondents born in 1946-1964 (BB) reported significantly higher levels than respondents born in 1980-1994 (Y) and 1995-2015 (Z). No significant difference was found relative to Generation X.

This result suggests that loyalty and stability may distinguish the Baby Boomer cohort and therefore provide partial support for treating the construct as generational. Notably, however, no significant difference emerged between Baby Boomers and Generation X, which may indicate a similar response pattern across these adjacent cohorts.

Technological proficiency − I efficiently use digital tools needed at work.

The analysis revealed a significant age-related difference in self-perception. Respondents born in 1946-1964 (BB) reported significantly lower levels than respondents born in 1980-1994 (Y) and 1995-2015 (Z). No other statistically significant differences were observed, including with respect to Generation X.

In the literature reviewed, this trait is attributed to Generation Y, but the present findings do not support that attribution. At the same time, the relatively low self-assessment reported by Baby Boomers may suggest that lower technological proficiency is more characteristic of older cohorts. As in the previous comparison, Generation X did not differ significantly from the remaining groups.

Variant B: Generations X, Y, and Z (Excluding BB)

In this analytical variant, statistically significant intergenerational differences were observed for five traits.

Loyalty and stability − I am inclined to build long-term cooperation and value predictability at work

The analysis revealed a significant age-related difference in self-perception. Respondents born in 1965-1979 (X) reported significantly higher levels than respondents born in 1995-2015 (Z). No other statistically significant differences were observed.

Experience and mentoring − I draw on my own experience and the experience of others, and I willingly support co-workers by sharing my knowledge

The analysis revealed a significant age-related difference in self-perception. Respondents born in 1980-1994 (Y) reported significantly higher levels than respondents born in 1995-2015 (Z). No other statistically significant differences were observed.

Although the literature identifies loyalty and stability as well as experience and mentoring as traits characteristic of Baby Boomers, the authors also examined these variables in the X–Y–Z comparison. If these traits were truly exclusive to the BB cohort, the analysis − similarly to the case of respect for hierarchy − should not have revealed significant differences

within the younger cohorts. Yet such differences did emerge. Consequently, self-perception data do not support the view that these traits are exclusive to Baby Boomers.

Independence and pragmatism (X) − I act independently and focus on practical solutions

The analysis revealed a significant age-related difference in self-perception. Respondents born in 1980-1994 (Y) reported significantly higher levels than respondents born in 1995-2015 (Z). No other statistically significant differences were observed.

Accordingly, the study does not show that independence and pragmatism are self-perceived more strongly by Generation X. Interestingly, the only significant difference emerged between Generation Y and Generation Z, suggesting that this trait cannot be treated as distinctive of Generation X on the basis of the present self-perception data.

Technological proficiency (Y) −I efficiently use digital tools needed at work

The analysis revealed a significant age-related difference in self-perception. Respondents born in 1965-1979 (X) reported significantly lower levels than respondents born in 1995-2015 (Z). No other statistically significant differences were observed.

Although technological proficiency is attributed in the literature to Generation Y, the present study shows only that Generation X assesses this trait significantly lower than Generation Z. It does not demonstrate that Generation Y reports significantly higher levels than the remaining cohorts. In this analytical framework, therefore, technological proficiency cannot be treated as a distinctive generational trait of Generation Y.

Entrepreneurship and independence (Z) − I demonstrate initiative, seek improvements, and like to influence how tasks are carried out

The analysis revealed a significant age-related difference in self-perception. Respondents born in 1965-1979 (X) reported significantly higher levels than respondents born in 1995-2015 (Z). No other statistically significant differences were observed.

These findings likewise do not justify treating entrepreneurship and independence as a distinctive generational trait of Generation Z. Although respondents from Generation X reported significantly higher levels than those from Generation Z, Generation Z did not achieve a significantly higher score than the remaining cohorts.

6. Conclusions and Recommendations

The theoretical analysis demonstrates that definitional discrepancies in age cohorts are substantial: in extreme cases, the difference between the earliest and latest proposed cohort onset reaches 13 years, while the corresponding difference for cohort end dates reaches 15 years. This finding indicates that considerable caution is required when year of birth is used

as the sole criterion for assigning individuals to generations. In comparative research on generations, the cohort definitions adopted at the design stage should therefore be made explicit. Specifying age cohorts appears essential for valid interpretation and credible conclusions.

Taking both analytical variants into account, the study indicates that traits attributed in the literature to particular generations (BB, X, Y, and Z), defined within specific age ranges, are not self-reported as significantly more descriptive by members of those generations than by members of other cohorts. Moreover, most of the traits analysed display similar levels of self-perception across generations, which points to their transgenerational character in the self-perception dimension.

Thus, the main hypothesis was supported to a substantial extent, while the supplementary hypothesis was fully supported. In answer to the research questions, the findings indicate that membership of a given age cohort does not entail a higher self-perception of traits described in the literature as characteristic of that generation. Accordingly, the results do not provide sufficient grounds for assigning the analysed traits to specific generations solely on the basis of year of birth. The main exception is loyalty and stability, for which Baby Boomers reported significantly higher self-perception than Generations Y and Z.

The purpose of the article was to determine whether the traits ascribed in the analysed literature to Baby Boomers and Generations X, Y, and Z are reflected in the self-perception of individuals assigned to those cohorts on the basis of year of birth. The results show that, for the vast majority of analysed traits, there are no statistically significant intergenerational differences and that these traits overlap across cohorts. Year of birth should therefore not be treated as a sufficient basis for assigning specific characteristics to individuals, and generational boundaries appear less distinct than suggested by the literature reviewed. The study also sought to verify empirically whether some of the analysed traits may have a transgenerational character. The results support this interpretation: for most traits, the declared level of self-perception was similar across age cohorts. A substantial share of the traits described in the literature as generation-specific may therefore be better understood, in the self-perception dimension, as transgenerational.

In this context, caution is warranted with regard to the cohort-based approach as the primary criterion for differentiating employees. Rather than defining individuals mainly through generational affiliation, a more adequate approach would focus on actual competencies and individual patterns of professional functioning. Such an approach helps to avoid oversimplification and stereotyping while better reflecting the complexity and intra-generational diversity of contemporary teams.

References

1. Costanza, D.P., Rudolph, C.W., Zacher, H. (2023). Are generations a useful concept? *Acta Psychologica*, *241*. https://doi.org/10.1016/j.actpsy.2023.104059
2. Jankowiak, N., Czerwińska-Lubszczyk, A. (2024). Pokolenia na rynku pracy – podejście teoretyczne, *ZN Systemy Wspomagania w Inżynierii Produkcji*, *13*(2), 123-134.
3. Krzemińska, K. (2021). Zarządzanie różnorodnością pokoleniową – kontekst rynku pracy. In: W. Wolniaka, B. Orzeł, *Management and quality. Zarządzanie i jakość*, *3*(1), Towarzystwo Naukowe Organizacji i Kierownictwa Oddział w Katowicach.
4. Moczydłowska, J.M., Smarżewska, D. (2023), Generacyjne uwarunkowania lojalności wobec organizacji w ocenie grupy zawodowej pielęgniarek/rzy. *Zeszyty Naukowe Akademii Górnośląskiej*, *7*, 78-88.
5. Nowak, D. (2025). Przemiany pokoleniowe na rynku pracy, In: S. Narojczyk, D. Nowak, F. Remlein, K. Romanchuk, *Przedsiębiorstwa w erze globalnych kryzysów i przemian technologicznych. Aspekty ekonomiczne, społeczne i prawne* (pp. 66-80). Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu. https://doi.org/10.18559/978-83-8211-268-9/4
6. Parry, E., Urwin, P. (2021). Generational categories: A broken basis for human resource management research and practice. *Human Resource Management Journal*, *31*(4), 857-869. https://doi.org/10.1111/1748-8583.12353
7. Pendergast, D. (2009). Getting to Know the Y Generation, In: Y.P. Benckendorff, G. Moscardo, D. Pendergast (Eds.), *Tourism and Generation*. Wallingford: CABI Publishing.
8. Przybylski, B. (2023). Pokolenie X, Y oraz Z. Próba uporządkowania ram czasowych i etykiet pokoleniowych, *Pedagogika Społeczna*, *3*(89), 27-44.
9. Ravid, D.M., Costanza, D.P., Romero, M.R. (2024). Generational differences at work? A meta-analysis and qualitative investigation. *Journal of Organizational Behavior*. https://doi.org/10.1002/job.2827.
10. Rogozińska-Pawełczuk, A., Cewińska, J., Lubrańska, A., Oleksiak, P., Striker, M., (2019). *Pokolenie wobec wartości i zagrożeń współczesnych organizacji*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.
11. Rudolph, C.W., Rauvola, R.S., Costanza, D.P., Zacher, H. (2021), Generations and Generational Differences: Debunking Myths in Organizational Science and Practice and Paving New Paths Forward. *Journal of Business and Psychology*, *36*, 945-967, https://doi.org/10.1007/s10869-020-09715-2
12. Sidor-Rządkowska, M. (2018), Zarządzanie różnorodnością pokoleniową we współczesnych organizacjach. *Studia i Prace WNEiZ US, 51(2),* 87-96. https://doi.org/10.18276/sip.2018.51/2-08

13. Tulgan, B. (2009). Not Everyone Gets A Trophy: How to Manage Generation Y, Jossey--Bass, San Francisco, In: J.M. Moczydłowska, D. Smarżewska D. (2023), *Generacyjne uwarunkowania lojalności wobec organizacji w ocenie grupy zawodowej pielęgniarek/rzy*, *Zeszyty Naukowe Akademii Górnośląskiej*, *7*.
14. Wojciechowska, G., Cewińska, J. (2025). Motywacja do pracy różnych pokoleń. *Zarządzanie Zasobami Ludzkimi*, *162*(24).
15. Wojtaszczyk K. (2016). Przynależność generacyjna jako determinanta postaw wobec pracy. Stereotypy a rzeczywistość. *Edukacja Ekonomistów i Menedżerów*, *1*(39), 29-40. https://doi.org/10.5604/01.3001.0009.7502
16. Wojtoszek, K. (2023). Zrozumieć pokolenie Z. In: L. Kowalczyk, F. Mroczko (2023). *Prace Naukowe WSZiP, 53(1)*. Wałbrzych: Wydawnictwo Wyższej Szkoły Zarządzania i Przedsiębiorczości z siedzibą w Wałbrzychu.
17. Woźny, D. (2013), Analiza kategorii młodych konsumentów z uwzględnieniem różnych kryteriów jej wyodrębniania. *Zeszyty Naukowe WSZiB w Krakowie*, *31*.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

THE SIGNIFICANCE OF BIOENERGY PRODUCTION IN EUROPEAN UNION MEMBER STATES IN THE CONTEXT OF ACHIEVING SUSTAINABLE DEVELOPMENT GOALS

Artur KRUKOWSKI[1], Anna NOWAK[2*]

[1] Department of Economics and Agribussines, University of Life Sciences in Lublin; artur.krukowski@up.lublin.pl, ORCID: 0000-0001-6048-4332
[2] Department of Economics and Agribussines, University of Life Sciences in Lublin; anna.nowak@up.lublin.pl, ORCID: 0000-0003-1741-8692
* Correspondence author

Purpose: This study aims to assess the significance of bioenergy production in EU member states in the context of selected sustainable development goals achieving.
Design/methodology/approach: This study focuses on the socioeconomic aspects related to the achievement of SDG 7 (clean and affordable energy) and SDG 8 (economic growth and decent work), assuming that progress in these objectives also contributes to the achievement of SDG 13, which concerns climate protection. The analysis covers changes in employment levels, gross value added, and labour productivity within the bioeconomy sectors related to bioenergy production in EU members countries. This study utilised data from the Data-Modelling Platform of Resource Economics and the EU Bioeconomy Monitoring System for the years 2010-2023.
Findings: The results indicate that the development of bioenergy production in the EU contributes to the achievement of sustainable development goals; however, the scale and effectiveness of this contribution vary greatly between member states and depend on national structural conditions and the extent of political support for the sector.
Practical implications: The research results presented in the article, showing the efficiency of production of particular types of bioenergy, may provide guidance for private entrepreneurs regarding the allocation of capital in sectors related to the production of renewable energy sources.
Social implications: The results presented in the article can be used by public institutions in promotional and educational activities to increase the use of bioenergy in European Union countries in achieving sustainable development goals.
Originality/value: This study fills the research gap by assessing the importance of bioenergy production in European Union countries in the context of achieving selected sustainable development goals.
Keywords: bioenergy, bioeconomy, sustainable development goals, labour productivity, European Union.
Category of the paper: Research paper.

1. Introduction

The growing world population, depletion of many non-renewable resources, and increasing scale of environmental pollution and climate change are prompting the member states of the European Union to seek new development strategies in response to the socio-economic challenges faced by the modern world (Adamowicz, 2017, p. 29). The answer to the rising economic, social, and environmental challenges is the idea of sustainable development within the European Union, which aims to improve the quality of life and well-being of current and future generations (Kasztelan et al., 2021, p. 9).

Sustainable development is currently a key concept within the framework of global policy and development programs, providing a mechanism by which society interacts with the natural environment. Simultaneously, it is a concept that calls for the improvement of living standards without compromising the planet's ecosystems or creating environmental threats such as deforestation and water and air pollution, all of which now lead to climate change and species extinction (Cerin, 2006; Benaim et al., 2008). The bioeconomy development strategy created in the first decade assumed the sustainable use of natural resources and a reduction in dependence on non-renewable resources, mitigation and adaptation to climate change, and strengthening Europe's competitiveness and job creation (EC, 2012, 2018).

Over several decades, the goals of sustainable development have evolved from a single-factor approach focused on the sustainable use of natural resources, through the Millennium Development Goals, which concentrated on poverty, to the current comprehensive and universal objectives of the SDGs (Asadullah, Savoia, 2018). In 2015, based on the experience of implementing the Millennium Goals, the UN adopted the 2030 Agenda, in which the Sustainable Development Goals (SDGs) were redefined (UN, 2015). The Sustainable Development Goals now consist of 17 main goals and 169 sub-goals, intended to serve as guidelines for the operation of all countries and regions over the next 15 years (Muff, 2017).

Sustainable development constitutes the overriding paradigm of the European Union's economic policy, defined by the objectives of the UN 2030 Agenda (UN, 2015) and the European Green Deal (EC, 2019). Bioenergy production, as a key component of the bioeconomy development strategy, integrates environmental, social, and economic objectives, making it a natural area of analysis in the context of implementing Sustainable Development Goals (SDGs). Despite the growing role of bioenergy in the EU energy mix, its contribution to achieving SDGs has rarely been comprehensively and comparatively analysed at the member state level.

Bioenergy is an important component in combating climate change, securing energy supply, and providing income for producers operating in regional biomass supply chains. (Perišić et al., 2022, p. 2; IEA, 2023). Bioenergy supports the transition to a low-carbon economy in several ways and offers numerous benefits to society. It substitutes fossil fuels and thereby reduces

greenhouse gas emissions (Tiwari et al., 2024; IEA, 2023). Owing to the high prices of fossil resources, renewable energy sources are becoming a cost-effective alternative for energy acquisition, contributing to improved economic competitiveness and the creation of new jobs (IRENA, 2025). Therefore, bioeconomy sectors associated with bioenergy production require special attention from both researchers and policymakers responsible for implementing climate and energy policies. Meanwhile, there is a clear research gap in this area, especially in the context of the role these sectors play in the development of the bioeconomy, and thus the extent to which the Sustainable Development Goals (SDGs) are implemented in the country.

This study aims to fill this research gap by analysing the significance of selected bioeconomy sectors responsible for the production and supply of bioenergy (biofuels, i.e. bioethanol and biodiesel, as well as bio-electricity) for the development of the bioeconomy and by analysing socio-economic indicators that determine the degree of attainment of selected Sustainable Development Goals (SDGs) directly linked to the development of the bioeconomy. The assumption was made of a relationship between bioenergy production and Goal 7, which ensures access to stable, sustainable, and modern energy sources at an affordable price for all, and Goal 8, which concerns promoting stable, sustainable, and inclusive economic growth, full and productive employment, and decent work for everyone. Furthermore, it was assumed that the development of bioeconomy sectors responsible for bioenergy production directly contributes to achieving Goal 13, which pertains to taking urgent actions to combat climate change and its impacts, that is, substituting fossil fuels, the potential for greenhouse gas emission reduction, and climate neutrality. This study focuses on analysing socioeconomic indicators without determining environmental indicators that verify the level of Goal 13 achievement.

2. Data and Methods

This study uses numerical data obtained from the EU Bioeconomy Monitoring System, including the Data-Modelling platform of resource economics (Data-Modelling platform, 2026) and Eurostat data covering the share of renewable energy sources (RES) in energy consumption from 2008 to 2023 for all 27 European Union countries (Eurostat, 2025). The analysis includes the official European classification of economic activities known as NACE 3, which encompasses ten sections of the bioeconomy (Ronzon, M'Barek, 2018).

The first part of the study presents the significance of renewable energy production in total energy acquisition and the share of bioenergy production in RES generation in individual EU countries. The analysis then focuses on economic indicators related to employment, gross value added, and labour productivity within sectors covering bioenergy production, that is, the production of biofuels (biodiesel and bioethanol) and bioelectricity. The time frame of the

analysis covers the period from 2008 to 2023 and is determined by the availability of the statistical data. This study presents the significance of bioenergy production in individual EU countries and analyzes socio-economic indicators, including added value, employment level, and labour productivity, understood as the ratio of gross value added to the number of people employed in the analysed bioeconomy sections. This indicator allows for a comparison of labour efficiency between EU member states and between different types of bioenergy produced, that is, biodiesel, bioethanol, and bio-based electricity. The analysis covers the years 2008 and 2023, enabling the capture of long-term changes under conditions of intensive energy transformation and the implementation of the EU's climate and energy policy.

3. Results and Discussion

As part of the implementation of the EU's climate and energy policy, the revised Directive of the European Parliament and of the Council (EU) 2023/2413, known as RED III, came into force in November 2023, focusing on the promotion of energy from renewable sources. The main goal of the new regulations was to increase the share of "green" energy in the European energy mix to 42.5% by 2030, with the intention of raising it to 45%. Another objective was to encourage investment in the production of energy from renewable sources while allowing member states to maintain energy sovereignty in the face of Russian policy (EC, 2022).

The degree of goal achievement varies highly across European Union countries. As shown in Figure 1, the highest share of renewable energy consumption was recorded in Scandinavian countries, such as Sweden (66.4%), Finland (50.8%), and Denmark (43.7%). These countries also experienced the highest growth rates in renewable energy consumption, exceeding 20% in the years surveyed. On the other hand, the lowest values of this indicator were found in countries from both the "old" and "new" European Union that joined the Community in 2004, such as Luxembourg (14.3%), Belgium (14.7%), Ireland (15.2%), Malta (16.7%), and Poland (15.4%). The low share of renewables in these countries was mainly observed in the transport sector, which, alongside the sectors of electricity production, heating, and cooling, includes the possibility of producing energy from renewable sources.

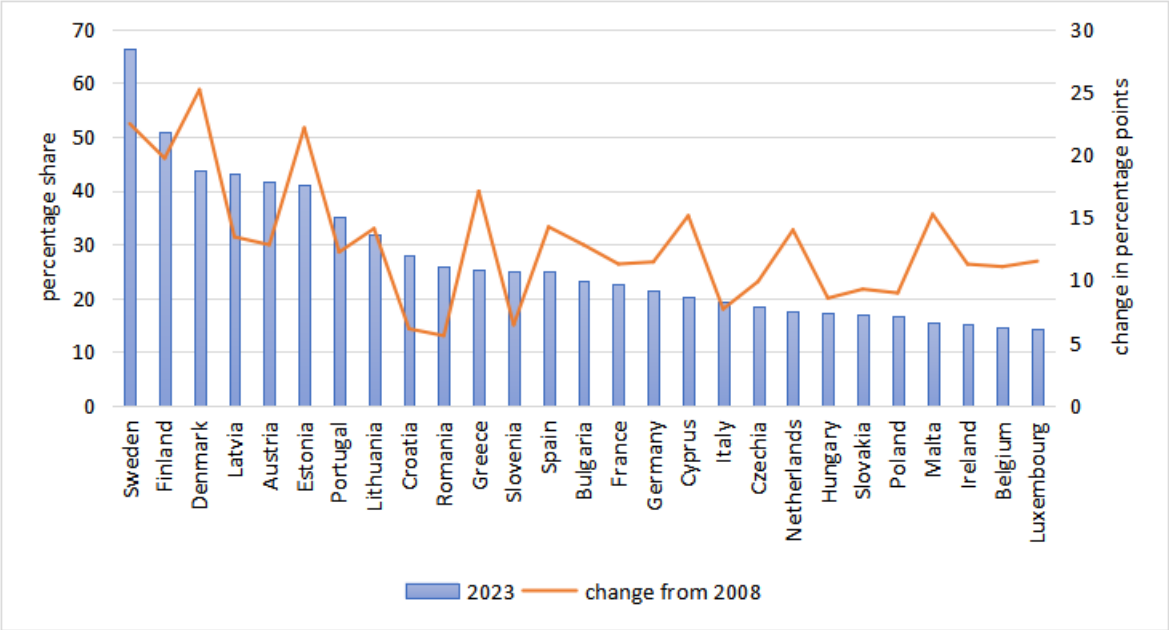


Figure 1. Share of renewable energy in total final energy consumption in 2023 and change compared to 2008 (percentage points) in EU member states.

Source: Own elaboration.

The renewable energy used in EU countries can come from diverse sources, depending on the natural and climatic conditions, biomass production potential, and types of technologies employed. Renewable energy sources in EU countries include solar radiation, wind energy, rivers and waterfalls, marine energy, geothermal energy, waste, and biomass. Bioenergy is primarily produced from biomass and biological waste, and its share in energy production varies among different EU countries. In 2023, the highest levels of bioenergy production and consumption were observed in the largest EU economies, such as Germany, France, Italy, Sweden, Poland, and Finland. In contrast, the greatest significance in renewable energy (RES) production, measured by its share, was found in Latvia (84%), Lithuania (77%), Luxembourg (77%), the Czech Republic (79%), and Estonia (78%). Conversely, the smallest share and least significant bioenergy production were observed in Malta (19%), Ireland (32%), Spain (33%), the Netherlands (37%), and Greece (37%) (Figure 2).

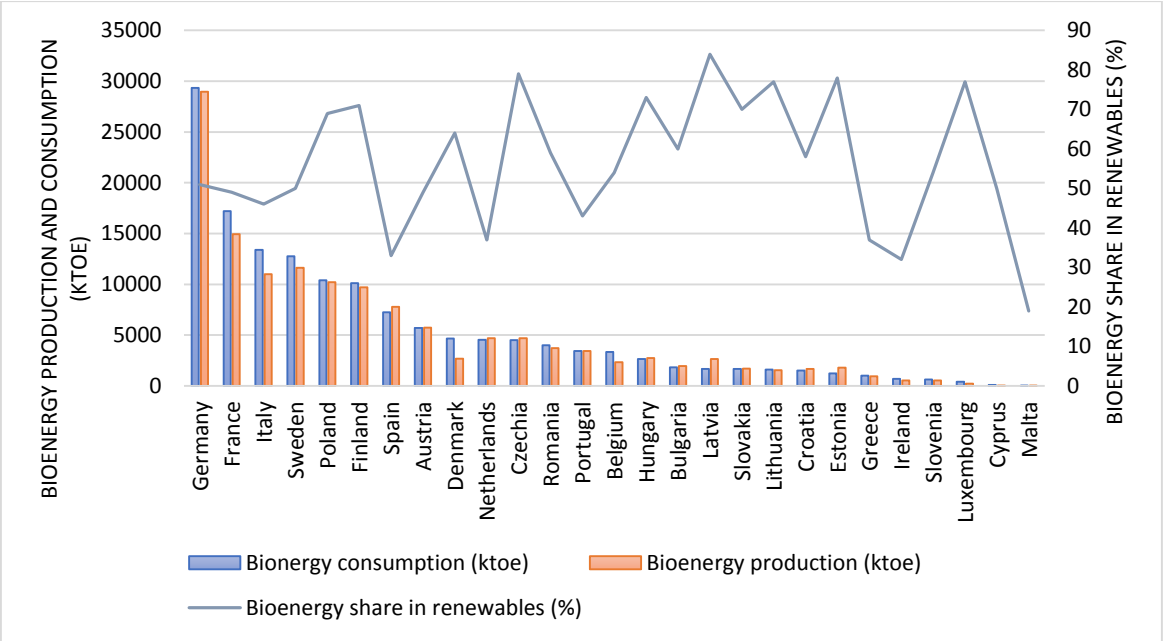


Figure 2. Volume of bioenergy production and consumption and its share in RES (Renewable Energy Sources) production in EU countries in 2023.

Source: Own elaboration.

The analysis conducted to assess the potential and efficiency of selected bioeconomy sectors related to bioenergy production included indicators illustrating employment levels in individual sectors, as well as labour productivity indicators measured by value added per employee. First, the potential of the examined bioeconomy sectors and their socio-economic significance are presented through the lens of employment size in the three sectors related to bioenergy production (Table 1). In 2023, these sectors employed 71,158.9 thousand people, which means that compared to 2008, this number almost tripled (278.3%). Among the three sectors studied, the highest employment was recorded in electricity production based on sourced biomass. In 2023, this sector employed 37.3 million people, and the employment growth rate during the study period was 315.4%. Meanwhile, in the sector related to bioethanol production, employment grew from just under 3.3 million to 11.1 million, which constituted an increase of 337.8% compared with 2008. The biodiesel production sector exhibited the lowest growth dynamics, where employment increased by 217.8% from 10.4 million to 22.8 million employees.

Table 1.
Employment in bioenergy production sections in the EU in 2008 and 2023

Sections	People employed (thou.)	Share of employment in the bioeconomy (%)	People employed (thou.)	Share of employment in the bioeconomy (%)	Employment dynamics (%)
	2008	2008	2023	2023	2008 = 100
Bio-based electricity	11808.3	0.06	37248.4	0.22	315.44
Liquid biofuels, including:	13757.3	0.07	33910.5	0.20	246.49
bioethanol	3286.2	0.02	11100.1	0.06	337.8
biodiesel	10471.2	0.05	22810.4	0.13	217.8

Source: Own elaboration based on the Data-Modelling platform of resource economics (2026).

The subsequent analysis presents the economic significance of the examined sections in the context of the generated value added. Gross Value Added (GVA) is a key macroeconomic indicator that represents the value of goods and services produced minus the cost of consumed intermediate goods. Alongside employment levels and generated turnover, it is one of the most commonly used indicators for monitoring the bioeconomy and measuring its size (Kuosmanen et al., 2020). It reflects both the production capacity inherent in the accumulated and utilised input resources and their market realisation made possible by the existence of effective demand (Cyrek, 2014).

Based on the data presented in Table 2, it can be stated that the total GVA of the three examined sections responsible for bioenergy production amounted to EUR 3,537.2 million and EUR 15,550.8 million in 2008 and 2023, respectively. This represents more than a fourfold increase in its value over the analysed period, resulting from investments in their development and a significant increase in the competitiveness of these sectors. The growth dynamics of this indicator varied among the analysed sections. The GVA in the section for the production of electricity from biological sources increased by 391.5%, from EUR 2,245.7 million in 2008 to EUR 11,036.6 million in 2023. In the case of biodiesel production, GVA increased by 228.9% between 2008 and 2023, whereas for bioethanol, it was 291.2%.

Table 2.
Gross value added in bioenergy production sections compared to other bioeconomy sectors in the EU in 2008-2023

Sections	Value added (mln EUR)	Share in the added value of the bioeconomy	Value added (mln EUR)	Share in the added value of the bioeconomy	Value added dynamics (%)
	2008	%	2023	%	2008 = 100
Bio-based electricity	2245.7	0.44	11036.6	1.28	491.5
Liquid biofuels, including:	1291.5	0.25	4514.2	0.52	349.5
bioethanol	427.9	0.08	1674.3	0.19	391.25
biodiesel	863.6	0.17	2840.0	0.33	328.85

Source: Own elaboration based on the Data-Modelling platform of resource economics (2026).

One of the key indicators for assessing the competitiveness and effectiveness of economic sectors is labour productivity, which is understood as the ability to generate added value using labour resources. In this analysis, labour productivity in the bioenergy production sector was calculated as the ratio of added value to the number of employees in a given sector. In the context of achieving sustainable development goals, this indicator gains particular significance, as it allows for the simultaneous assessment of the sector's economic efficiency, growth potential, and capacity to create stable jobs. High labour productivity promotes both improved competitiveness of the economy and the stability of workers' incomes, which aligns with the pursuit of SDG 7, that is, ensuring access to reliable, sustainable, and modern energy at an affordable price for all residents, and SDG 8, which concerns promoting sustained, sustainable, and inclusive economic growth, full and productive employment, and decent work for all people (Raman et al., 2025).

The data presented in Table 3 show both a significant increase in average labour productivity across the European Union and considerable variation in this indicator between individual countries and bioenergy production sectors. These differences reflect varying structural conditions, levels of technological advancement, scale of investments, and availability of domestic raw material bases. Consequently, labour productivity becomes not only a measure of the economic efficiency of the bioenergy sector but also an indicator of the ability of individual member states to use bioenergy as a tool for achieving sustainable development goals.

Table 3.
Labour productivity in bioenergy production sectors in EU member states in 2008 and 2023 (thousand EUR)

Country	Labour productivity (thou. EUR)					
	Biodiesel		Bioethanol		Bio-based electricity	
	2008	2023	2008	2023	2008	2023
European Union	82.5	124.5	130.2	150.8	190.2	296.3
Austria	106.0	126.0	ND	ND	254.1	466.7
Belgium	105.1	155.9	174.8	274.1	389.5	528.8
Bulgaria	ND	25.4	3.8	18.5	33.3	97.2
Croatia	27.5	45.3	36.5	31.1	72.7	181.7
Cyprus	ND	ND	ND	ND	102.6	149.5
Czechia	24.7	47.2	30.2	57.1	ND	ND
Estonia	ND	ND	55.1	49.3	37.3	146.6
Denmark	132.8	182.7	ND	ND	202.0	254.5
Finland	73.5	118.2	131.3	137.0	254.6	402.2
France	ND	ND	101.5	122.2	129.4	294.6
Germany	87.9	126.8	138.0	138.3	180.8	225.8
Greece	36.3	66.6	42.6	72.5	69.7	140.5
Hungary	ND	83.3	32.4	62.8	97.5	254.5
Ireland	ND	ND	ND	ND	293.2	395.6
Italy	75.0	140.6	-3.4	37.9	368.3	440.9
Latvia	ND	ND	ND	ND	115.1	47.8
Lithuania	62.1	268.7	26.3	59.3	24.6	143.0
Luxembourg	ND	ND	ND	ND	245.5	331.7
Malta	ND	ND	ND	ND	ND	141.1
Netherlands	ND	ND	246.6	164.1	416.1	1171.1
Poland	27.5	46.0	40.9	63.6	89.0	315.7
Portugal	31.4	65.7	57.3	97.8	449.9	232.1
Romania	9.3	40.5	12.7	8.3	43.1	142.8
Slovakia	ND	ND	20.4	54.0	140.6	439.6
Slovenia	ND	ND	ND	ND	108.6	156.2
Spain	80.2	102.1	182.6	131.1	367.2	753.8
Sweden	116.0	207.7	111.5	175.4	287.1	620.5

Note: ND – no data.

Source: Own elaboration based on the Data-Modelling platform of resource economics (2026).

According to the analysis, a clear increase in labour productivity was observed between 2008 and 2023 in the sectors responsible for bioenergy production in EU countries. Across the entire European Union, the average value added per employee increased in all three analysed sectors, indicating improved efficiency in the use of labour resources amid the ongoing energy transition. The highest level of labour productivity in both 2008 and 2023 was recorded in the

electricity production sector from biological sources. The value of this indicator at the EU level rose from EUR 190,200 to EUR 296,300 per employee, representing an increase of over 55%.

A significant increase in labour productivity was also observed in the biodiesel production sector, where the average EU indicator rose from EUR 82,500 in 2008 to EUR 124,500 by 2023. Although biodiesel remains the least productive of the analysed sectors, the rate of change indicates a gradual improvement in the efficiency of this segment, especially in Central and Eastern European countries (CEECs). For example, in Lithuania, labour productivity in 2023 significantly exceeded the EU average. Simultaneously, low values of this indicator in countries such as Bulgaria and Romania point to persistent technological and organizational barriers in the development of this sector.

Bioethanol production was characterised by moderate but varied labour productivity growth. Across the EU, this indicator increased from EUR 130,200 to EUR 150,800, per employee. In 2023, high labour productivity was observed in countries with a well-developed industrial base and a strong technological background, such as Belgium, Sweden, and the Netherlands. Simultaneously, some countries, including Italy and Romania, recorded very low values for the indicator, which may suggest an early development stage of the sector.

The analysis also revealed significant differences in labour productivity between the "old" and "new" EU member states. Countries such as the Netherlands, Sweden, Belgium, and Finland achieved the highest indicator values in all analysed sectors owing to advanced technological capabilities, production scale, and stable energy policy frameworks. Meanwhile, Central and Eastern European countries have demonstrated dynamic growth in labour productivity, although the absolute levels remain lower. The variation in results between countries suggests that the effective achievement of development goals requires not only increased bioenergy production but also investment in modern technologies and human capital.

The results confirm that bioenergy plays a significant role in the implementation of the EU's energy transition and key Sustainable Development Goals, particularly SDG 7 and SDG 8. The increased share of renewable energy sources and the significant rise in employment and value added in the bioenergy sectors align with the objectives of Directive 2023/2413 of 18 October 2023 aimed at accelerating decarbonisation while strengthening the EU's energy security (Directive (EU) 2023/2413 of the European Parliament and of the Council). The varying levels of bioenergy use among member states confirm that its development is highly dependent on national resource conditions and energy sector structure. Countries with a high share of bioenergy in the renewable energy mix use it as a stable source of renewable energy, which strengthens the resilience of energy systems and supports the achievement of SDG 7, in line with previous literature (Motola et al., 2023). At the same time, the observed increase in employment and gross value added in bioenergy production sectors confirms their growing socio-economic importance within the EU bioeconomy, as demonstrated, among others, by research by Krukowski and Nowak (2025). These results support the thesis that bioenergy can serve as an important pillar in achieving SDG 8, especially through job creation

and increased labour productivity, provided that investments in modern technologies and human capital are sustained (Ronzon, M'Barek, 2018; Wysocka, 2023; Hanna et al., 2024). Simultaneously, persistent differences between member states indicate that the effective achievement of sustainable development goals requires complementary actions supporting innovation and technology diffusion throughout the Community.

4. Conclusions

This study assessed the significance of selected sections of the bioeconomy responsible for the production and supply of bioenergy for the development of the bioeconomy and analysed socioeconomic indicators determining the degree of achievement of selected Sustainable Development Goals (SDGs). The analysis indicates that the development of renewable energy sources is a key element in achieving the European Union's climate goals and the assumptions of the European Green Deal. Despite progress in increasing the share of renewable energy, there are still significant differences among member states in the level of use. The research results confirm the growing importance of bioenergy within the structure of renewable energy sources and its significant socioeconomic role, manifested in the growth of employment and labour productivity in its production sectors. At the same time, the variation in results between countries indicates the need for further investment in technological development, innovation, and human capital to increase the efficiency of the sector and support the achievement of sustainable development goals, including SDGs 7 and 8. It is also important to support the transfer of knowledge and diffusion of technology between member states, which can contribute to reducing disparities in the development of bioenergy in the European Union.

References

1. Adamowicz, M. (2017). Biogospodarka – koncepcja, zastosowanie i perspektywy. *Zagadnienia Ekonomiki Rolnej*, *1*(350), 29-49. https://doi.org/10.5604/00441600.1232987
2. Asadullah, M.N., Savoia, A. (2018). Poverty reduction during 1990-2013: Did Millennium Development Goals adoption and state capacity matter? *World Development Forthcoming*, *105*, 70-82. https://doi.org/10.2139/ssrn.3082925
3. Benaim, A., Collins, A.C., Raftis, L. (2008). *The social dimension of sustainable development: Guidance and application*. Karlskrona: Blekinge Institute of Technology.

4. Cerin, P. (2006). Bringing economic opportunity into line with environmental influence: A discussion on the Coase theorem and the Porter and van der Linde hypothesis. *Ecological Economics*, *56*(2), 209-225. https://doi.org/10.1016/j.ecolecon.2005.01.016
5. Cyrek, M. (2014). Międzywojewódzkie dysproporcje wytwarzania wartości dodanej w branżach usługowych. *Nierówności społeczne a wzrost gospodarczy*, *39*, 383-393.
6. *Data-Modelling platform of resource economics* (2026). Retrieved from: https://datam.jrc.ec.europa.eu/datam/mashup/BIOECONOMICS/index.html, 07.01.2026.
7. Dyrektywa Parlamentu Europejskiego i Rady (UE) 2023/2413 z dnia 18 października 2023 r. zmieniająca dyrektywę (UE) 2018/2001, rozporządzenie (UE) 2018/1999 i dyrektywę 98/70/WE w odniesieniu do promowania energii ze źródeł odnawialnych oraz uchylająca dyrektywę Rady (UE) 2015/652 (Dz.U. L 2023/2413 z 31.10.2023). http://data.europa.eu/eli/dir/2023/2413/oj
8. European Commision (2022). *REPower EU: Joint European action for more affordable, secure and sustainable energy.* Strasbourg: Press release.
9. European Commission (2012). *Innovating for sustainable growth. A bioeconomy for Europe*. Luxembourg: Publications Office of the European Union.
10. European Commission (2018). *A sustainable bioeconomy for Europe: Strengthening the connection between economy, society and the environment* (COM (2018) 673 Final).
11. European Commission (2019). *The European Green Deal*. COM (2019) 640 final, Brussels.
12. Hanna, R., Heptonstall, P., Gross, R. (2024). Job creation in a low carbon transition to renewables and energy efficiency: a review of international evidence. *Sustainability Science*, *19*, 125-150. https://doi.org/10.1007/s11625-023-01440-y
13. IEA Bioenergy Report (2023). *How bioenergy contributes to a sustainable future. The IEA Bioenergy Technology Collaboration Programme*. Retrieved from: https://www.ieabioenergy.com/blog/publications/press-release-how-bioenergy-contributes-to-a-sustainable-future/, 11.12.2025.
14. IRENA (2025). *Renewable power generation costs in 2024*. Abu Dhabi: International Renewable Energy Agency.
15. Kasztelan, A., Jarosz-Angowska, A., Nowak, A., Krukowski, A. (2021). *Konkurencyjna biogospodarka szansą dla zrównoważonego rozwoju krajów Unii Europejskiej*. Radom: Instytut Naukowo-Wydawniczy „Spatium".
16. Krukowski, A., Nowak, A. (2025). Socio-economic importance of bioenergy production in EU member states. *Scientific Papers of Silesian University of Technology Organization and Management*, *226*, 575-586. https://doi.org/10.29119/1641-3466.2025.226.45
17. Kuosmanen, T., Kuosmanen, N. El-Meligi, A., Ronzon, T., Gurria, P., Iost, S., M'Barek, R. (2020). *How big is the bioeconomy? Reflections from an economic perspective*. Luxembourg: Publications Office of the European Union. https://doi.org/10.2760/144526

18. M'barek, R., Wesseler, J. (2023). The rapid development of bioeconomy policies in the EU and other regions of the world. *EuroChoices*, *22*(3), 5-12. https://doi.org/10.1111/1746-692X.12415
19. Motola, V., Scarlat, N., Hurtig, O., Buffi, M., Georgakaki, A., Letout, S., Mountraki, A., Salvucci R., Schmitz, A. (2023). *Clean Energy Technology Observatory: Bioenergy in the European Union - 2023 Status. Report on Technology Development, Trends, Value Chains and Markets*. Luxembourg: Publications Office of the European Union. https://doi.org/10.2760/327569
20. Muff, K., Kapalka, A., Dyllick, T. (2017). The gap frame - Translating the SDGs into relevant national grand challenges for strategic business opportunities. *The International Journal of Management Education*, *15*, 363-383, https://doi.org/10.1016/j.ijme.2017.03.004
21. Perišić, M., Barceló, E., Dimic-Misic, K., Imani, M., Spasojević Brkić, V. (2022). The role of bioeconomy in the future energy scenario: A state-of-the-art review. *Sustainability*, *14*, 560. https://doi.org/10.3390/su14010560
22. Raman, R., Gunasekar, S., Ray, S., Behera, D.K., Nedungadi, P., Dénes, D.L. (2025). A holistic approach to Sustainable Development Goal 8: Integrating economic growth, employment, and sustainability. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, *20*(1), 147-202. https://doi.org/10.24136/eq.3342
23. Ronzon, T., M'Barek, R. (2018). Socioeconomic indicators to monitor the EU's bioeconomy in transition. *Sustainability*, *10*, 1745. https://doi.org/10.3390/su10061745
24. Tiwari, T., Kaur, G.A., Singh, P.K., Balayan, S., Mishra, A., Tiwari, A. (2024). Emerging bio-capture strategies for greenhouse gas reduction: Navigating challenges towards carbon neutrality. *Science of the Total Environment*, *929*, 172433. https://doi.org/10.1016/j.scitotenv.2024.172433
25. UN (2015). *Transforming Our World: The 2030 Agenda for Sustainable Development*. Resolution Adopted by the General Assembly on 25 September 2015, 42809, 1-13. https://doi.org/10.1007/s13398-014-0173-7.2
26. Wysocka, M. (2023). The impact of renewable energy sources on generating jobs: The case of Poland. *International Entrepreneurship Review*, *9*(1), 43-60. https://doi.org/10.15678/IER.2023.0901.04

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

CSR PRACTICES AND EMPLOYEE LOYALTY TO THE EMPLOYER – A REVIEW OF THE SUBJECT LITERATURE

Agnieszka KWARCIŃSKA

University of Szczecin; agnieszka.kwarcinska@usz.edu.pl, ORCID: 0000-0003-2766-1856

Purpose: The aim of this article is to identify and systematise the current state of knowledge and ongoing research in the field of both CSR practices—particularly those aimed at employees—and employee loyalty towards employers. Achieving this aim will help to organise existing areas of analysis, identify research gaps and suggest directions for future research.
Design/methodology/approach: This article takes the form of a literature review based on desk research. The review involved analysing the content of selected academic publications—as up-to-date as possible—identified through an analysis of Google Scholar using relevant search terms. Given the substantial body of literature on the subject, the focus was placed on selected publications.
Findings: An analysis of the content of selected publications has, above all, helped to systematise the current state of knowledge on corporate social responsibility and related initiatives aimed at employees, highlighting their broad benefits. Additionally, it enabled an understanding of the category of employee loyalty, identifying its attributes and determinants. As a result, it was recognised that CSR practices aimed at employees can influence employee loyalty. Finally, the study noted the objective, subjective, temporal and territorial limitations of the analysed body of literature covering the impact of CSR activities on employee loyalty.
Research limitations/implications: A limitation of this article is, first and foremost, that it relies on just one of the many available search engines to conduct the literature review. Furthermore, no specific criteria for selecting publications were applied.
Practical implications: The analysis of secondary data forms part of the conceptualisation phase and serves as a prelude to the operationalisation stage for the verification of the identified relationships. It therefore constitutes preparation for the conduct of empirical research.
Originality/value: The article presents an analysis of the content and subject matter of recent academic publications, highlighting opportunities and directions for future research.
Keywords: corporate social responsibility, CSR, CSR initiatives aimed at employees, employee loyalty, attributes of employee loyalty, determinants of employee loyalty.
Category of the paper: Research paper.

1. Introduction

The current trend of conducting business in accordance with the principles of Corporate Social Responsibility (CSR) – a concept that, incidentally, resonates with the forward-looking idea of sustainable development – is steadily gaining ground and taking root among an increasing number of market players. There are many drivers behind the spread of responsible behaviour. It is worth noting, for instance, the growing public awareness of the values of sustainable development, which are important both for the functioning of current communities and for future generations.

Furthermore, it is important to note that the concept of CSR involves the implementation of positive behavioural standards that foster the creation of strong and long-lasting interpersonal and inter-organisational relationships. Finally, the benefits of such conduct, enjoyed by both society and businesses (organisations), serve as specific, almost intrinsic motivators for undertaking activities that align with the message of corporate social responsibility. These also include benefits relating to employee-related aspects, encompassing primarily: the development of a positive company image among employees, increased employee satisfaction and contentment, or the recruitment and retention of the best staff, which directly or indirectly influence the loyalty of these internal stakeholders towards the organisation.

The subject and aim of this article require a review of the literature, primarily in three areas: CSR practices, including those directed at employees; employee loyalty to the employer; and current research on the connection between these two issues.

2. Research methodology

The article employed a desk research method, focusing primarily on the collection, analysis and synthesis of publicly available academic publications, books and articles relevant to the concepts under study. In searching for the necessary data, one of the internet search engines – Google Scholar – was also used, entering the terms “CSR”, “CSR activities towards employees”, “CSR and employee loyalty” and “CSR activities and employee loyalty”, as well as their English equivalents. The multitude of results prompted the need for appropriate selection. First, a preliminary review of the titles and abstracts of the articles was carried out, followed by a review of the content of the selected publications. On this basis, the article presents a characterisation of the necessary concepts and categories, taking into account the division of the content into three analytical strands.

The first strand of analysis focuses on the implementation of CSR practices, including those aimed at employees, highlighting primarily the utilitarian motives that prompt organisations to adopt them. The second strand concerns employee loyalty, outlining its nature, attributes and key determinants. The final strand examines the findings of previous research on the interrelationships between the implementation of CSR concepts by various organisations—including specific CSR initiatives directed directly at employees—and employees' loyalty to their employer.

3. Implementation of CSR initiatives aimed at employees – a theoretical and utilitarian perspective

The concept of corporate social responsibility (CSR), in accordance with its fundamental principles, is based on organisations and businesses respecting the interests of various stakeholders whilst carrying out their core functions (Dahlsrud, 2008; Bartkowiak, 2011, pp. 15-16; Paliwoda-Matiolańska, 2012, p. 177; Sheehy, 2015; Hope, 2017, p. 300). This stems mainly from an awareness of the importance to the organisation of maintaining good relations with all entities on which it has an impact or which influence it. Ensuring the soundness of these specific ties often determines the strength and sustainability of the organisation. Among the internal stakeholders of any organisation are, first and foremost, the employees, who in a special way constitute it, build it from within and act as its ambassadors externally. Presumably due to the great importance of employee relations for an organisation, this area of CSR is highlighted in international guidelines and standards defining the framework and principles of responsible business conduct (OECD, 2024; Zasady Global Compact; ISO 26000) and is relatively frequently the subject of discussion, research and analysis in the relevant literature (Onkila, Sarna, 2022; Kwarcińska, 2023). It is worth noting that the publications examined, which cover CSR issues relating to employees, are highly diverse. Some present individual case studies of market entities and their activities in various countries (Arzenšek et al., 2018; Badura-Mojza, 2016). Others refer to practices in the employee sphere, but only within relatively large organisations and not necessarily enterprises (Adu-Gyamfi et al., 2021; Bhatti et al., 2022). Finally, there are also those which, in the area of human resources, focus solely on broadly defined groups of actions taken towards employees (Santoso, 2014; Furmańska-Maruszak, Sudolska, 2017).

Given that this article addresses the issue of building, strengthening and maintaining employee loyalty to the employer as a specific benefit of implementing CSR practices aimed at employees, the literature review also identified and analysed publications discussing the benefits of implementing CSR concepts (Rok, 2004, pp. 54-55; Madrak-Grochowska, 2010, p. 51; Bachnik, 2017). It was found that the benefits of responsible business conduct include,

amongst others: improving the organisation's image, increasing the loyalty of consumers and stakeholders, fostering a positive image of the company amongst employees, attracting and retaining the best employees, and increasing employee satisfaction and contentment.

The review also examined publications specifically addressing the assessment of the impact of CSR implementation on stakeholders, such as employees, and their job satisfaction (Barakat et al., 2016; Murshed et al., 2021) and their engagement (Esmaeelinezhad et al., 2015; Glavas, 2016; Nanayakkara, Sangarandeniya, 2022). It has been observed that, although the research conducted in this area involved samples from different countries and sectors, its findings confirm both the direction of the relationship and the validity of implementing CSR concepts to improve employees' job satisfaction and build their engagement, which in turn largely translates into employee loyalty towards the employer.

4. Employee loyalty, its characteristics and determinants

Employee loyalty is a concept examined from the perspective of various disciplines (Świątek-Barylska, 2013, p. 19), which likely explains the variety of ways in which it is defined and described. Hirschman's (1995) approach can be regarded as one of the earliest analyses of employee loyalty, useful in the field of management studies, as he focused primarily on the significance of employee loyalty in the context of their propensity to leave or criticise. He stated, amongst other things, that 'if loyalty is present, departure is less likely…' (Hirschman, 1995, p. 78). This aspect of a kind of 'staying put' within the organisation, sometimes described as attachment to the organisation or remaining in the organisation alongside other attitudes and behaviours, features in contemporary definitions of employee loyalty. Lewicka-Strzałecka (2014) noted that "apart from maintaining a relationship with the company over a long period, employee loyalty can be expressed in many other ways. These include behaviours and attitudes such as: a willingness to sacrifice one's own goals for the good of the company, avoiding external criticism, sharing knowledge and skills acquired within the company with other employees, commitment to one's work, maintaining professional confidentiality, raising issues that arise at work, caring for the customer, etc.". Other authors also draw attention to the context of understanding loyalty through the prism of attitudes and behaviours. According to Bloemer and Odekerken-Schroder (2006): "When discussing employee loyalty, a distinction must be made between loyalty as an attitude (attitudinal loyalty) and as behaviour (behavioural loyalty). The attitude of loyalty is equated with commitment (affective, normative and calculative)". Loyalty as behaviour manifests itself in: expressing positive opinions about the company, the intention to remain in the organisation, low sensitivity to financial offers from other companies, and reporting problems within the organisation. Due to conceptual differences, the various types of commitment have a different

impact on loyalty as behaviour". Similarly, Lipka (2012a, p. 20) defines employee loyalty as "an (ethical) value manifested in attitude/behaviour – the (perceived) likelihood of an employee continuing to work in the organisation – towards which, regardless of any temporary loss of its reputation in the labour market, the employee harbours constant and positive feelings – either because of the benefits they themselves derive or the well-being of other people employed in the organisation, or because of a lack of other opportunities or the high costs of changing employer".

The various definitions of employee loyalty presented above reveal its specific attributes. Krupski and Piórkowska-Wojciechowska (2005) attempted to categorise the attributes of loyalty according to two dimensions: internal (emotional) and external (behavioural). According to them, the internal dimension of employee loyalty comprises: strong internal motivation to work, identification with the organisation, emotional attachment to the organisation, honesty, reliability, the belief that the employer deserves the employee's loyalty, commitment, a willingness to learn and apply knowledge for the benefit of the organisation, and a willingness to go the extra mile in times of crisis. In contrast, the external dimension comprises: rejecting other job offers, recommending the organisation, looking after the customer, not questioning the employer's authority, representing and pursuing the organisation's goals, behaving in accordance with established standards, building positive relationships with other members, organisational citizenship behaviour, safeguarding the organisation's reputation and image, striving for the organisation's development and strengthening its market position, safeguarding the organisation's financial and non-financial resources, not overstepping one's authority, and a high level of staff retention.

It should be emphasised that employees' attitudes and behaviours regarding loyalty are not static and depend on a number of factors, such as the prospect of higher future pay, organisational justice and prestige, or bonds between employees (Mazur-Wierzbicka, 2021). Lipka (2012c) identified the following determinants of the formation of an effective, i.e. long-lasting and mutually beneficial, employee-employer relationship: the type of pro-loyalty strategy employed by the company, the quality of human capital / HC-marketing (including: retention investments dependent on the loyalty strategy), the company's use of loyalty assessment methods, the socio-demographic characteristics of employees, employees' motives for loyalty, employees' multi-loyalty and its intensity, employees' perception of time, and the type of workaholism they exhibit. In addition, one may also take into account the broadly understood determinants of employee loyalty, which are rooted in (Lipka, 2012b, pp. 54-75):

- the organisation's environment, which comprises external factors such as competition, market characteristics, the organisation's image, employee-focused marketing activities, as well as demographic, social, cultural and legal aspects,

- internal organisational factors related to the organisation's identity, the quality of human capital management, and its strategy, structure and organisational culture,
- determinants directly concerning employees, which constitute psychological correlates of loyalty.

It should be noted that CSR initiatives undertaken by employers and directed at employees fit within the set of determinants and conditions of employee loyalty presented above, particularly those related to the internal workings of the organisation and the quality of human capital management, and may influence specific attributes of loyalty, such as, amongst others: length of service within the organisation, planned duration of employment with the organisation, recommending employment with the organisation to others, and speaking positively about the organisation outside the workplace.

5. Research into the relationship between the implementation of CSR principles and employee loyalty

A review of the most recent publications from 2020–2024 covering the topics of corporate social responsibility and issues related to employee loyalty has, above all, highlighted the topicality of this subject and the diversity of research approaches and analyses in this field. The research findings presented relatively often highlight a positive correlation between CSR activities and employee loyalty, as well as, frequently, their job satisfaction, engagement and the organisation's performance outcomes. According to Stojanovic et al. (2020), "CSR activities significantly influence employee loyalty, and consequently lead to greater employee commitment to the company". Their findings also suggest that "the greater the employee loyalty, the higher the company's productivity and competitiveness". Similarly, the findings of Shafique and Ahmad (2020) showed that CSR positively influences employee satisfaction and loyalty, and that employee loyalty positively influences financial performance. Karmoker et al. (2021) confirmed that CSR towards employees and CSR towards the community have a significant positive impact on employee loyalty. Singh and Lakshmi (2023) reached similar conclusions, finding that there is a positive correlation between CSR and employee loyalty to employers. At the same time, they suggest that the organisations under study must improve and integrate CSR in order to attract and retain motivated, committed employees. The positive and significant impact of CSR on employee loyalty was also highlighted by Jin et al. (2024). Similarly, according to Cachón-Rodríguez et al. (2022), actions promoting sustainable social development have a significant impact on the social capital perceived by employees, and social capital significantly influences their loyalty and retention. It can therefore be concluded that CSR activities may constitute, alongside other factors of course (Cuong, 2023), determinants of employee loyalty and may form part of a loyalty-building strategy.

6. Discussion and conclusions

The literature review concluded, first and foremost, that both the issue of corporate social responsibility in the context of employee relations and employee loyalty are topics that are constantly discussed and remain highly relevant, with an emphasis on their evolving nature and a suggestion that research areas should be expanded to include further aspects and issues related to these topics. First, the state of knowledge on corporate social responsibility and related initiatives aimed at employees was outlined (Adu-Gyamfi et al., 2021; Bhatti et al., 2022; Santoso, 2014; Furmańska-Maruszak, Sudolska, 2017), highlighting their broadly defined benefits (Rok, 2004, pp. 54-55; Madrak-Grochowska, 2010, p. 51; Bachnik, 2017). There is a wealth of literature in this field, which primarily indicates researchers' unwavering interest in issues related to the implementation of the CSR concept and its various areas, including the employee aspect. It should be emphasised that among the advantages of implementing a CSR strategy, those frequently cited are those whose benefits are manifested in improved employee engagement and job satisfaction, which may also be reflected in strengthened employee loyalty.

For this reason, amongst others, the article goes on to highlight the significance of the impact of CSR strategy implementation on employees' job satisfaction (Barakat et al., 2016; Murshed et al., 2021), as well as their engagement (Esmaeelinezhad et al., 2015; Glavas, 2016; Nanayakkara, Sangarandeniya, 2022). It appears that research in this area is extensive and constantly expanding. There are numerous contextual factors, including sector-specific and territorial conditions.

To broaden the scope of research on the utility of implementing the CSR concept for fostering employee loyalty, the literature on the understanding of the category of employee loyalty was analysed (Hirschman, 1995; Lewicka-Strzałecka, 2014; Bloemer, Odekerken-Schroder, 2006; Lipka 2012a), the attributes of loyalty (Krupski, Piórkowska-Wojciechowska, 2005) and its determinants and conditions (Lipka, 2012c) were identified. On this basis, it was concluded that employee loyalty manifests itself primarily in various attitudes and behaviours of employees, and among these, particular attention should be paid to: maintaining a relationship with the company over a long period, the intention to remain in the organisation, expressing positive opinions about the organisation or recommending it, which, incidentally, constitute specific attributes of employee loyalty.

In turn, the identified factors and determinants of employee loyalty have, above all, highlighted their alignment with CSR initiatives aimed at employees, which means that they can influence the development of loyal attitudes and behaviours among staff.

As the subsequent part of the analysis of the relatively recent literature on the subject has shown, the issue of CSR implementation and employee loyalty has been the focus of many researchers (Stojanovic et al., 2020; Shafique, Ahmad, 2020; Karmoker et al., 2021; Singh, Lakshmi, 2023; Jin et al., 2024; Cachón-Rodríguez et al., 2022). The studies were conducted

in various countries, covered different market entities and took into account various aspects of CSR. However, they confirmed the relationship between the implementation of CSR and employee loyalty to the organisation.

In conclusion, it is worth noting that the analysed body of thematic literature is not an exhaustive list. Given the significant number of publications, certain temporal and thematic restrictions were applied. This made it possible, on the one hand, to outline the current state of knowledge and, on the other, to organise key issues and recognise the inexhaustibility of the subject matter. It also turned out that each study constitutes an important contribution to filling research gaps, but does not completely fill them; indeed, it sometimes serves as a starting point for further research. Therefore, when setting out directions for future research in this field, it is worth considering, for example, conducting studies that, firstly, in terms of subject matter, take into account both a detailed proposal for CSR activities directed specifically at employees and a specific set of employee loyalty attitudes and behaviours; and secondly, in terms of the subject, small and medium-sized enterprises in Poland, which, to a significant extent, do not yet demonstrate a strategic approach to engagement in the implementation of CSR concepts.

Acknowledgements

Co-financed by the Minister of Science under the “Regional Excellence Initiative”.

Regionalna Inicjatywa Doskonałości

Ministerstwo Nauki i Szkolnictwa Wyższego

References

1. Adu-Gyamfi, M., He, Z., Nyame, G., Boahen, S., Frempong, M.F. (2021). Effects of Internal CSR Activities on Social Performance: The Employee Perspective. *Sustainability, 13,* 6235. https://doi.org/10.3390/su13116235
2. Arzenšek, A., Franca, V., Laporšek, S. (2018). *Corporate Social Responsibility Towards Employees - Analysis of Slovenian and Foreign Good Practices*. Management International Conference At: Bled, Slovenia, http://www.hippocampus.si/ISBN/978-961-7023-92-3.pdf
3. Bachnik, K. (2017). CSR w praktyce polskich przedsiębiorstw: korzyści i bariery. *Handel Wewnętrzny, nr 3(368), Tom II,* pp. 202-213.

4. Badura-Mojza, A. (2016). Działania wobec pracowników w ujęciu zastosowania koncepcji społecznej odpowiedzialności przedsiębiorstwa (CSR) – analiza przypadku. *Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, nr 283*, pp. 86-98.
5. Barakat, S.R., Isabella, G., Boaventura, J.M.G., Mazzon, J.A. (2016). The Influence of Corporate Social Responsibility on Employee Satisfaction. *Management Decision, 54,* 2325-2339, https://doi.org/10.1108/MD-05-2016-0308
6. Bartkowiak, G. (2011). *Społeczna odpowiedzialność biznesu w aspekcie teoretycznym i empirycznym*. Warszawa: Difin.
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. Bloemer, J., Odekerken-Schroder, G. (2006). The role of employee relationship proneness in creating employee loyalty. *International Journal of Bank Marketing, Vol. 24, No. 4.*
9. Cachón-Rodríguez, G., Blanco-González, A., Prado-Román, C., Del-Castillo-Feito, C., (2022). How sustainable human resources management helps in the evaluation and planning of employee loyalty and retention: Can social capital make a difference? *Evaluation and Program Planning, Vol. 95,* https://doi.org/10.1016/j.evalprogplan.2022.102171
10. Cuong, D.T. (2023). The Best Model for Determinants Impacting Employee Loyalty. In: Silhavy, R., Silhavy, P. (eds.), Artificial Intelligence Application in Networks and Systems. CSOC 2023. *Lecture Notes in Networks and Systems, vol 724*. Cham: Springer. https://doi.org/10.1007/978-3-031-35314-7_11
11. Dahlsrud, A. (2008). How Corporate Social Responsibility is Defined: an Analysis of 37 Definitions. *Corporate Social Responsibility and Environmental Management 15(1),* https://doi.org/10.1002/csr.132
12. Esmaeelinezhad, O., Singaravelloo, K., Boerhannoeddin, A. (2015). Linkage between perceived corporate social responsibility and employee engagement: Mediation effect of organizational identification. *International Journal of Human Resource Studies, Vol. 5, No. 3,* https://doi.org/10.5296/ijhrs.v5i3.8376
13. Furmańska-Maruszak, A., Sudolska, A. (2017). Relacje z pracownikami jako obszar wdrażania CSR. *Organizacja i Kierowanie, nr 2(176),* pp. 253-267.
14. Glavas, A. (2016). Corporate Social Responsibility and Employee Engagement: Enabling Employees to Employ More of Their Whole Selves at Work. *Frontiers in Psychology, Vol. 7,* https://doi.org/10.3389/fpsyg.2016.00796
15. Hirschman, A.O. (1995). *Lojalność, krytyka, rozstanie. Reakcje na kryzys państwa, organizacji i przedsiębiorstwa.* Kraków: Znak.

16. Hope. E. (2017). Społeczna odpowiedzialność organizacji w zarządzaniu zespołami pracowników. In: M. Tomczak, B. Krawczyk-Bryłka (eds.), *Zarządzanie zasobami ludzkimi. Wybrane aspekty.* Warszawa: Difin.
17. ISO 26000 *Guidance on social responsibility, Norma Międzynarodowa dotycząca społecznej odpowiedzialności*, www.pkn.pl (20.06.2024).
18. Jin, H., Li , X., Li, G. (2024). Impact of corporate social responsibility on employee loyalty: Mediating role of person-organization fit and employee trust. *PLoS ONE, 19(3),* e0300933. https://doi.org/10.1371/journal.pone.0300933
19. Karmoker, K., Zaman, Z., Rahman, Sk.N. (2021). Effects of corporate social responsibility on employee loyalty: a study on multinational companies (MNCS) in Bangladesh. *Khulna University Studies, Volume 18(2),* pp. 45-58, https://doi.org/10.53808/ KUS.2021.18.02.2111-m
20. Krupski, R., Piórkowska-Wojciechowska, K. (2005). Theoretical Basics of Employee Loyalty. *Management, No. 1(9)*.
21. Kwarcińska., A. (2023). Implementation of the Employee-Oriented Corporate Social Responsibility Activities vs the Preferences of the Employed. *European Research Studies Journal, Vol. XXVI, Iss. 2*, 522-539, https://ersj.eu/journal/3185
22. Lewicka-Strzałecka, A. (2014). Lojalność pracownika: trwała wartość czy anachroniczna cnota? *Człowiek i Społeczeństwo, vol. XXXVIII.* Adam Mickiewicz University Press, pp. 147-164.
23. Lipka, A. (2012a). Pojęcie i ekonomiczna wartość lojalności pracowników. In: Lipka, A., Winnicka-Wejs, A., Acedański, J. (2012). *Lojalność pracownicza. Od diagnozy typów lojalności do Zarządzania Relacjami z Pracownikami (Employee Relationship Management).* Warszawa: Difin.
24. Lipka, A. (2012b). Wewnętrzne mechanizmy lojalności pracobiorców. In: Lipka, A., Winnicka-Wejs, A., Acedański, J. (2012). *Lojalność pracownicza. Od diagnozy typów lojalności do Zarządzania Relacjami z Pracownikami (Employee Relationship Management).* Warszawa: Difin.
25. Lipka, A. (2012c). Propozycja modelu długookresowych relacji lojalnościowych firmy z pracownikami. *Education of Economists & Managers, Vol. 23 Iss. 1*, pp. 85-100.
26. Madrak-Grochowska, M. (2010). Społeczna odpowiedzialność biznesu – pomiędzy altruizmem a egoizmem przedsiębiorstw. *Ekonomia i Prawo, nr 1, tom VI.*
27. Mazur-Wierzbicka, E. (2021). Determinants of Employee Loyalty from the Perspective of Employees of Socially Responsible Organizations. *European Research Studies Journal, Volume XXIV, Issue 4B*, pp. 713-722.
28. Murshed, F., Sen, S., Savitskie, K., Xu, H. (2021). CSR and job satisfaction: Role of CSR importance to employee and procedural justice. *Journal of Marketing Theory and Practice, 29(4),* 518-533, https://doi.org/10.1080/10696679.2021.1877156

29. Nanayakkara, H., Sangarandeniya, Y. (2022). Employee Engagement through Corporate Social Responsibility: A Study of Executive and Managerial Level Employees of XYZ Company in Private Healthcare Services Sector. *Open Journal of Business and Management, 10*, 1-16. https://doi.org/10.4236/ojbm.2022.101001
30. OECD (2024). *Wytyczne OECD dla przedsiębiorstw wielonarodowych dotyczące odpowiedzialnego prowadzenia działalności biznesowej*. Paris: OECD Publishing, https://doi.org/10.1787/9fe6d8dc-pl (20.06.2024).
31. Onkila, T., Sarna, B. (2022). A systematic literature review on employee relations with CSR: State of art and future research agenda. *Corporate Social Responsibility and Environmental Management, 29(2),* 435-447. https://doi.org/10.1002/csr.2210
32. Paliwoda-Matiolańska, A. (2012). Social responsibility in business in theory and practice. *Marketing Instytucji Naukowych i Badawczych, nr 223*, http://minib.pl/en/social-responsibility-in-business-in-theory-and-practice (06.05.2019).
33. Rok, B. (2004). *Odpowiedzialny biznes w nieodpowiedzialnym świecie*. Warszawa: Akademia Rozwoju Filantropii w Polsce, Forum Odpowiedzialnego Biznesu.
34. Santoso, I.L. (2014). The Impact of Internal CSR towards Employee Engagement and Affective Commitment in XYZ Hotel Surabaya. *iBuss Management Vol. 2, No. 2,* 79-88.
35. Shafique, O., Ahmad, B.S. (2022). Impact of corporate social responsibility on the financial performance of banks in Pakistan: Serial mediation of employee satisfaction and employee loyalty. *Journal of Public Affairs, 22(3),* e2397, https://doi.org/10.1002/pa.2397
36. Sheehy, B. (2015). Defining CSR: Problems and Solutions. *Journal of Business Ethics, 131(3)*, 625-648, https://doi.org/10.1007/s10551-014-2281-x
37. Singh, A., Lakshmi, N. (2023). A study on the impact of corporate social responsibility effects on employee motivation, job satisfaction and organizational commitment in select Indian companies. *Journal of Research Administration, 5(1),* 435-455. http://journalra.org/index.php/jra/article/view/1384
38. Stojanovic, A., Milosevic, I., Arsic, S., Urosevic, S., Mihaljovic, I. (2020). Corporate Social Responsibility as a Determinant of Employee Loyalty and Business Performance. *Journal of Competitiveness, 12(2),* 149-166, https://doi.org/10.7441/joc.2020.02.09
39. Świątek-Barylska, I. (2013). *Lojalność pracowników współczesnych organizacji. Istota i elementy składowe.* Wydawnictwo Uniwersytetu Łódzkiego, DOI: https://doi.org/10.18778/7525-937-7
40. *Zasady Global Compact*, https://ungc.org.pl/o-nas/#10zasad (20.06.2024).

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

THE RELATIONSHIP BETWEEN CSR PRACTICES AND EMPLOYEE LOYALTY TO THEIR EMPLOYER – FINDINGS FROM OUR OWN RESEARCH

Agnieszka KWARCIŃSKA

University of Szczecin; agnieszka.kwarcinska@usz.edu.pl, ORCID: 0000-0003-2766-1856

Purpose: The aim of this article is to examine the relationship between the implementation by Polish small and medium-sized enterprises (SMEs) of selected corporate social responsibility (CSR) practices aimed at employees, and employee loyalty towards their employer.
Design/methodology/approach: This article is of a theoretical and empirical nature. In the introductory section, to highlight the essence of the issue under consideration, the current body of literature has been cited, focusing exclusively on analyses of the relationship between the implementation of CSR concepts and employee loyalty. It should be added that a synthetic and critical analysis of the literature on the concept of CSR, in particular CSR activities directed at employees, as well as the definition of employee loyalty and its attributes, has been published in a separate article by the author. In turn, the empirical section presents the results of a survey conducted using a questionnaire via Computer-Assisted Telephone Interviewing (CATI) in 2023 on a sample of 200 employees from Polish SMEs.
Findings: Based on the survey results, it was found that the identified CSR initiatives aimed at employees are significant in shaping employee loyalty towards the employer; they can influence certain attitudes and behaviours associated with loyalty and may therefore constitute specific—though it should be emphasised that they are not the only—determinants of employee loyalty.
Research limitations/implications: The limitations of this study lie primarily in the analytical assumptions made regarding the selection of CSR practices aimed at employees and the chosen attributes of employee loyalty, as well as the deliberate sampling procedure.
Practical implications: The findings of the study confirm that CSR initiatives may be among the factors influencing employee loyalty. Careful selection and adaptation of such initiatives can help to improve staff retention, boost employee engagement, foster a sense of attachment to the organisation, and increase the desire to remain with the organisation.
Originality/value: The article presents the results of original research.
Keywords: corporate social responsibility, CSR, CSR initiatives aimed at employees, employee loyalty to the employer.
Category of the paper: Research paper.

1. Introduction

According to the literature on the subject, the utilitarian nature of the concept of corporate social responsibility (CSR) implemented in modern organisations, and the activities carried out within its framework, takes the form of multiple benefits (Rok, 2004, pp. 54-55; Madrak-Grochowska, 2010, p. 51; Bachnik, 2017). Many of these benefits relate to one of the stakeholder groups of any organisation, namely employees. They pertain to various aspects of the broadly understood functioning of employees within the organisation and include, amongst others: the creation of a positive company image among employees, increased job satisfaction and improved employee engagement, as well as increased employee loyalty. In this context, the following research question was posed: can it currently be confirmed in practice within Polish enterprises, particularly small and medium-sized ones, that activities related to the implementation of CSR concepts directed by enterprises towards employees influence employees' loyalty towards their employers? In response to this question, and based on two fundamental assumptions—firstly, that the range of CSR activities directed towards employees is highly complex and diverse (Kwarcińska, 2019), and secondly, that employee loyalty is defined in various ways (Lewicka-Strzałecka, 2014; Bloemer, Odekerken-Schroder, 2006; Lipka, 2012a, p. 20; Świątek-Barylska, 2013) and described using numerous attributes (Krupski, Piórkowska-Wojciechowska, 2005), an appropriate study was conducted to verify the existence, within Polish SMEs, of a relationship between the implementation of selected CSR activities aimed at employees and their specific attitudes and behaviours that determine employee loyalty towards the employer.

It is worth noting here that numerous studies in the relevant literature confirm a positive correlation between the implementation of CSR concepts and employee loyalty. An analysis of the current (2020-2024) body of research, based on selected publications found via a Google Scholar search using the terms 'CSR and employee loyalty', reveals above all that many researchers from various countries have previously been interested in similar investigations, and their conclusions, although based on diverse approaches, are very consistent and have confirmed the relationship between CSR and employee loyalty or lower staff turnover and continued employment. A summary of the researchers' findings is presented in Table 1.

Table 1.
A review of research findings

Authors	Conclusions
Shafique, Ahmad (2020)	CSR has a positive impact on employee satisfaction and loyalty.
Stojanovic et al. (2020)	CSR initiatives have a significant impact on employee loyalty, and consequently lead to greater employee commitment to the company.
Karmoker et al. (2021)	CSR towards employees and CSR towards the community have a significant positive impact on employee loyalty.

Cachón-Rodríguez et al. (2022)	Activities promoting sustainable social development have a significant impact on the social capital perceived by employees, and social capital significantly influences their loyalty and retention.
Singh i Lakshmi (2023)	There is a positive correlation between CSR and employee loyalty towards employers.
Marcinkowska, Sawicka (2023)	CSR activities are a key factor influencing employees' decisions regarding potential employment and/or continued employment.
Jin et al. (2024)	CSR has a positive and significant impact on employee loyalty.

Source: compiled by the author based on: Shafique, Ahmad, 2020; Stojanovic et al., 2020; Karmoker et al., 2021; Cachón-Rodríguez et al., 2022; Singh, Lakshmi, 2023; Marcinkowska, Sawicka, 2023; Jin et al., 2024.

An analysis of the existing research in this field has, above all, revealed the nature of the relationship between CSR and employee loyalty towards employers. At the same time, its limitations in terms of subject matter, scope, time and geographical area have been identified.

This article, which contributes to the ongoing discussion on the validity of implementing CSR concepts to foster employee loyalty, makes the following contributions in this regard:

- complementary, as it presents the results of a survey of employees in the SME sector in Poland,
- detailed, as it refers to specific examples of CSR practices aimed at employees and selected, specific attributes of loyalty.

2. Research methodology

Achieving the article's objective in practice required taking two factors into account. The first concerned the significant diversity of CSR initiatives undertaken by companies for their employees, which is why only ten examples of such practices were selected. Their selection was based on the results of the author's earlier study from 2020 (Kwarcińska, 2022), conducted on a group of 600 employees from the West Pomeranian Voivodeship in Poland, employed in companies providing accounting and bookkeeping services, tax consultancy, and facility cleaning services. At that time, the respondents were asked, amongst other things, to identify five of the listed activities which they—that is, the employees—considered to be the most important, the most beneficial, and therefore the most desirable, anticipated and preferred. For the purposes of that survey, examples of CSR activities aimed at the organisation's employees were gathered during a prior analysis of social reports, and a set of ten activities which the surveyed employees considered most significant in terms of benefits to employees was selected as those most relevant to fostering employee loyalty.

In turn, taking into account the second premise underlying the article's objective—namely, the ambiguity in defining the term 'employee loyalty' and the diversity of attributes used to characterise it for the purposes of this study—loyalty to the employer has been described in

terms of four attributes, which are relatively the most frequently cited in the relevant literature: such as: employees' length of service in a given organisation, their planned duration of employment in a given organisation, their recommendation of employment in a given organisation to others, and employees' positive comments about the organisation outside the workplace. The relationship under investigation, presented in model form, is shown in Figure 1.

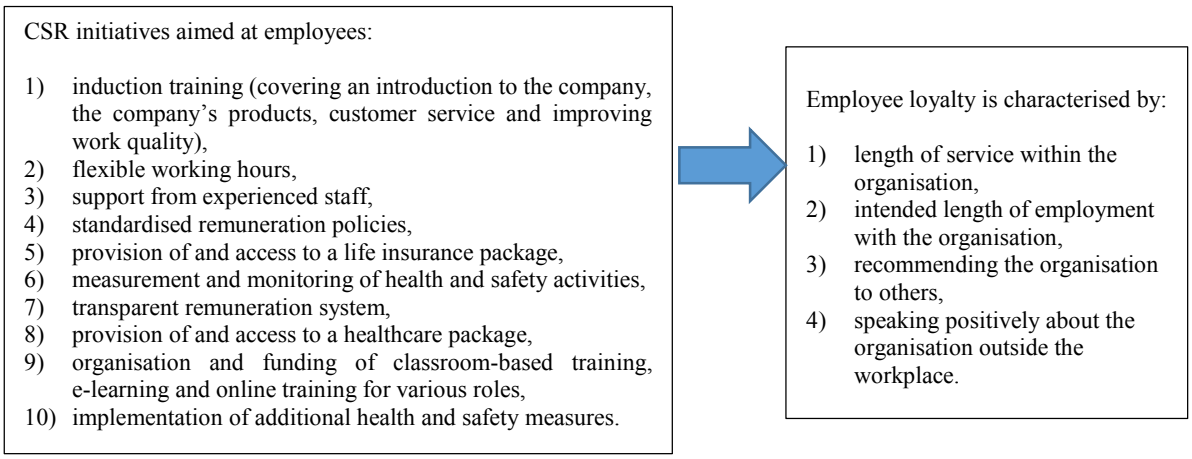


Figure 1. A model examining the relationship between the implementation of selected CSR practices aimed at employees and their loyalty to their employer.

Source: own work.

All the model variables presented were qualitative in nature. For this reason, the empirical section utilised Pearson's Chi-square test. The relationship shown in Figure 1 was verified through a survey using a questionnaire. The survey was conducted in 2023 using the CATI method on a sample population of employees from 200 SMEs in Poland, with a purposive selection of small and medium-sized enterprises, taking into account their structure in Poland. According to data from the Central Statistical Office (GUS) for 2020 (Raport o stanie…, 2023), small enterprises accounted for approximately 85% and medium-sized enterprises for approximately 15% of all small and medium-sized enterprises. Taking into account data on the general population, and given the need to limit the sample to N=200, this study included employees from 166 small enterprises and 34 medium-sized enterprises. In terms of type of activity, the structure of the enterprises comprised 55% service firms, 21% commercial enterprises, 17% industrial enterprises and 7% construction firms. A total of 100 women and 100 men took part in the survey, with 83 women and 83 men employed in small enterprises and 17 women and 17 men working in medium-sized enterprises. The vast majority of the employees surveyed, 75% in total, were aged between 25 and 54. 87% of respondents stated that they had secondary or higher education. In terms of overall length of service, 32% of the respondents had been working for between 10 and 20 years, and 32% had been working for more than 20 years.

3. Survey results

The statistical data collected during the study was analysed using IBM SPSS Statistics version 28.0.1.0. Pearson's chi-square test was used to assess statistical significance. The relationships between the variables were verified as presented in Table 1. The selected variables multidimensionally characterise, on the one hand, CSR practices directed at employees and, on the other, describe employee loyalty (see Figure 1). The results of the Pearson's Chi-square calculations and the corresponding significance levels are presented in Table 2.

Table 2.
Pearson's Chi2 results (two-sided asymptotic significance)

	N=200	Length of service with the organisation	Planned length of employment with the organisation	Recommending employment with the organisation to others	Positive expression about the organisation outside the workplace
1.1	Initial training, which allows you to get to know the company	1,535 (0,820)	4,338 (0,227)	18,436 (0,001)	10,232 0,037
1.2	Initial training to learn about the company's products	4,388 (0,356)	10,355 (0,016)	9,162 (0,057)	5,110 (0,276)
1.3	Initial training to learn about customer service	10,342 (0,035)	0,877 (0,831)	6,225 (0,183)	4,156 (0,385)
1.4	Training to improve the quality of work in a specific position, including language training	6,566 (0,161)	1,260 (0,739)	10,121 (0,038)	9,046 (0,060)
2	Flexible working hours	8,363 (0,399)	16,008 (0,014)	44,950 (< 0,001)	23,898 (0,002)
3	Support from experienced staff	9,436 (0,665)	5,785 (0,761)	63,519 (< 0,001)	69,201 (< 0,001)
4	Uniform principles of remuneration	16,444 (0,422)	12,676 (0,393)	18,345 (< 0,001)	94,504 (< 0,001)
5.1	A life insurance package offered by the company	18,735 (0,016)	7,660 (0,264)	11,339 (0,183)	10,360 (0,241)
5.2	Use of the company's life insurance package	3,679 (0,451)	6,179 (0,103)	14,129 (0,007)	10,044 (0,040)
6	Measurement and monitoring of health and safety measures	20,682 (0,191)	18,301 (0,107)	70,297 (< 0,001)	51,790 (< 0,001)
7	An open remuneration system	15,816 (0,466)	12,480 (0,408)	105,149 (< 0,001)	76,699 (< 0,001)
8.1	Provision of company medical package(s) for employees and their families	12,274 (0,139)	19,365 (0,004)	25,563 (0,001)	20,588 (0,008)
8.2	Company's use of medical package(s) for employees and their families	5,655 (0,226)	10,175 (0,017)	21,489 (< 0,001)	17,780 (0,001)
9	Organisation and financing of in-company training, e-training, on-line training for various positions	0,845 (0,932)	6,521 (0,089)	21,978 (< 0,001)	15,899 (0,003)
10	Application of additional health and safety measures	8,753 (0,364)	13,974 (0,030)	21,978 (< 0,001)	24,329 (0,002)

Note - Pearson's Chi2 statistic is presented in the table, with its statistical significance in brackets. Grey font indicates results that are not statistically significant, i.e. p-value $\geqslant 0.05$.

Source: own elaboration based on primary research results.

Based on the results of the employee survey in selected companies presented in Table 2, it can be observed, first and foremost, that a correlation exists between specific CSR initiatives aimed at employees and selected attributes of loyalty to the employer in the following cases:

1) Between the provision of induction training designed to familiarise employees with the company and recommending employment with the organisation to others, as well as speaking positively about the organisation outside the workplace. It follows that employees who, upon joining the organisation, had the opportunity to get to know the company well, not only speak positively of it but are also able to attract further, potentially highly valuable individuals to it.
2) Between induction training, which allows employees to familiarise themselves with the company's products, and their planned length of service within the organisation. This means that employees who are well acquainted with the products offered by the company plan to stay with it for longer. Perhaps also precisely because they are familiar with the company's offering, they feel confident, for instance, in terms of being well-prepared to work with these products, their production and/or their sale, and intend to carry out these activities for a specific employer for a longer period. All the more so if they are aware that changing employers would mean having to familiarise themselves with a new range of products and face the challenge of getting to know a new company, its products, etc., in other words, starting from scratch.
3) Between initial training, which teaches the principles of customer service, and the period of employment within the organisation. This suggests that thoroughly preparing employees for their customer service duties effectively discourages them from leaving for a new job. They are well-prepared and competent, which in turn enables them to remain with the organisation for the long term.
4) Between training designed to improve work quality in a specific role, including language training, and recommending the organisation to others. This suggests that an employer's recognition of the importance of initiatives to improve work quality across various roles becomes a reason to describe the organisation as one worth recommending to others.
5) Between flexible working hours and planned length of employment within the organisation, recommending employment in the organisation to others, and speaking positively about the organisation outside the workplace. It therefore appears that offering employees the opportunity to work under a flexible system is a highly significant factor that encourages a desire to remain with a given employer, leads employees to speak positively about their workplace, and makes them inclined to recommend it to others.
6) Between support from experienced staff, recommending the organisation to others, and speaking positively about the organisation outside the workplace. It is therefore worth noting that employees appreciate the value of assistance from more experienced staff

and, for this reason, are willing to speak highly of their employer and recommend that particular employer as a desirable place to work.

7) Between consistent remuneration policies and recommending employment with the organisation to others, as well as speaking positively about the organisation outside the workplace. This means that employers who apply consistent remuneration policies can expect positive opinions about their organisation, which may also reach potential job candidates. In other words, a sense of clarity regarding remuneration can generate favourable opinions about the workplace and contribute to attracting suitable specialists.
8) Between a company offering a life insurance package and length of service within the organisation. It is therefore intriguing to conclude that companies which offer their employees a life insurance package can expect to retain them for a long time.
9) Between the company's provision of a life insurance package and employees recommending the organisation to others, as well as speaking positively about the organisation outside the workplace. This means that the availability of a life insurance package is a factor that contributes to employees' positive views of the organisation and increases the likelihood of them recommending such an employer to others.
10) Between the measurement and monitoring of health and safety activities, and recommending employment with the organisation to others and speaking positively about the organisation outside the workplace. Hence, it is important to highlight the significance of companies carrying out activities related to the measurement and monitoring of health and safety measures, as this creates an opportunity for employees to speak positively about the company and encourage others to work for such an employer.
11) Between a transparent remuneration system and recommending employment with the organisation to others, as well as speaking positively about the organisation outside the workplace. Therefore, when companies introduce clear, transparent rules regarding remuneration, as well as perhaps more unambiguous solutions in this regard, this reflects so favourably on them that employees then speak highly of such an employer and thereby help to attract potential candidates.
12) The relationship between a company offering healthcare packages and employees' use of such packages, and the length of time they plan to remain with the organisation, their willingness to recommend the organisation to others, and their positive comments about the organisation outside the workplace. Drawing conclusions from this correlation, it should be emphasised that the health and wellbeing initiatives offered by companies are of significant importance to employees and often serve as a reason both for remaining with a particular employer for a long time and for spreading favourable opinions about them and recommending them as an employer.

13) Between organising and funding classroom-based training, e-learning and online training for various roles, and recommending employment with the organisation to others as well as speaking positively about the organisation outside the workplace. It therefore appears that the creation by employers of adequate and varied opportunities for professional development for employees means so much to them that they are inclined to speak favourably of the company and recommend such a workplace to others.
14) Between the implementation of additional health and safety measures, the planned length of employment within the organisation, recommending the organisation to others, and speaking positively about the organisation outside the workplace. It can therefore be concluded that, in the organisations studied, the implementation of additional health and safety measures is of significant importance to employees, and that is why they are able to plan to remain employed in such organisations, speak favourably of them, and recommend working in such organisations to others.

However, no such correlation was found for other CSR initiatives aimed at employees and the specified loyalty attributes.

It should be emphasised that the interpretation of the results should remain cautious, as the study results presented in the adopted analytical procedure primarily allowed for the identification of statistically significant correlations, rather than drawing conclusions about cause-and-effect relationships.

4. Discussion and conclusions

Based on the results of the study, it can be observed, first and foremost, that for each of the selected measures, a correlation with at least one attribute of loyalty was confirmed. In other words, all the measures presented are significant in terms of their impact on employee loyalty for at least one attribute defining it. This forms the basis for a conclusion consistent with that presented in this article by numerous authors (Stojanovic et al., 2020; Shafique, Ahmad, 2020; Karmoker et al., 2021; Singh, Lakshmi, 2023; Jin et al., 2024), that CSR activities may be significant in shaping employee loyalty and may influence loyalty-related attitudes and behaviours (Bloemer, Odekerken-Schroder, 2006; Świątek-Barylska, 2016; Lipka, 2012a; Krupski, Piórkowska-Wojciechowska, 2005). They may therefore constitute significant, though it should be emphasised that not the only (Lipka, 2012b, 2012c; Mazur-Wierzbicka, 2021) determinants of employee loyalty.

Furthermore, the research shows that, for the vast majority of CSR initiatives selected for the study, a correlation was confirmed with two attributes of loyalty, defined as: recommending employment with the organisation to others and speaking positively about the organisation

outside the workplace. It is therefore worth noting that, on the one hand, CSR initiatives proposed by employers and considered beneficial for employees may, on the other hand, also constitute added value for the organisation itself, as they build a distinctive socially responsible employer brand in the market. This theme may serve as a starting point for further research and deeper exploration, including within the context of analyses of the situation in Polish SMEs. This specific form of employee advocacy may, in turn, not only attract high-calibre employees but also help to establish a strong competitive position for the organisation.

Furthermore, based on the results obtained, it is worth noting that only in the case of three types of CSR activities—namely, flexible working hours, employers offering and employees making use of healthcare packages, and the implementation of additional health and safety measures—was a correlation confirmed for as many as three loyalty attributes: planned length of service within the organisation, recommending employment with the organisation to others, and speaking positively about the organisation outside the workplace. It can therefore be concluded that these are good practices which can encourage employees to remain with the organisation for longer; for these reasons, they will also be inclined to speak positively about the organisation and recommend employment there to others. At the same time, as part of continuing our investigations and conducting further research, it seems reasonable to ask: are these actions the ones most capable of influencing the development of employee loyalty?

Furthermore, according to the research findings, the only two measures—induction training, which familiarises staff with customer service principles, and the company offering a life insurance package—were found to be associated solely with length of service within the organisation. The implementation of such practices therefore remains a matter for consideration. It is, however, worth considering the merits of their use, taking into account other benefits of their implementation. A given initiative may not be significant in terms of building employee loyalty, but it may be important for other aspects of the organisation's operations. For this reason, among others, decisions on implementing specific initiatives should be made based on a broad range of potential benefits.

It is also interesting to note, as the research shows, that the link between CSR activities was most frequently confirmed in relation to the attribute of loyalty defined as recommending employment with the organisation to others. It can therefore be observed that respondents who recognise the benefits of the initiatives implemented for them are inclined to recommend a particular employer. This appears to be a significant message for employers who, when designing their employee benefits package, can expect these to be communicated externally and to attract a greater number of new applicants. This gives the organisation the opportunity to recruit competent, suitable and higher-quality employees.

Additionally, it should be noted that the primary limitations to achieving the article's objective, which significantly influenced the final research findings, were, on the one hand, the heterogeneity of CSR practices employed by Polish organisations, and on the other, the ambiguity in defining loyalty to the employer, as well as the deliberate selection of the

research sample. Therefore, when continuing the research, it is worth ensuring both the expansion of the set of CSR practices directed at employees and the consideration of the broader context of employee loyalty, taking into account its other attributes. It is also of interest to examine a more complex characterisation of the research group, including its diversity in terms of the importance of employees to the organisation or the positions they hold. It can be expected that specific CSR initiatives aimed at employees will be perceived differently by those of strategic importance to the organisation than by those in junior roles, and will consequently have a different impact on their attitudes and loyalty-related behaviour.

Acknowledgements

Co-financed by the Minister of Science under the "Regional Excellence Initiative".

References

1. Bachnik K. (2017). CSR w praktyce polskich przedsiębiorstw: korzyści i bariery. *Handel Wewnętrzny nr 3(368), Tom II,* pp. 202-213.
2. Bloemer, J., Odekerken-Schroder, G. (2006). The role of employee relationship proneness in creating employee loyalty. *International Journal of Bank Marketing, Vol. 24, No. 4*.
3. Świątek-Barylska, I. (2013). *Lojalność pracowników współczesnych organizacji. Istota i elementy składowe.* Wydawnictwo Uniwersytetu Łódzkiego, pp. 20-21, DOI: https://doi.org/10.18778/7525-937-7
4. Cachón-Rodríguez, G., Blanco-González, A., Prado-Román, C., Del-Castillo-Feito, C., (2022). How sustainable human resources management helps in the evaluation and planning of employee loyalty and retention: Can social capital make a difference? *Evaluation and Program Planning, Vol. 95,* https://doi.org/10.1016/j.evalprogplan.2022.102171
5. Jin, H., Li , X., Li, G. (2024). Impact of corporate social responsibility on employee loyalty: Mediating role of person-organization fit and employee trust. *PLoS ONE, 19(3),* e0300933. https://doi.org/10.1371/journal.pone.0300933
6. Karmoker, K., Zaman, Z., Rahman, Sk.N. (2021). Effects of corporate social responsibility on employee loyalty: a study on multinational companies (MNCS) in Bangladesh.

Khulna University Studies, Volume 18(2), pp. 45-58, https://doi.org/10.53808/KUS.2021.18.02.2111-m

7. Krupski, R., Piórkowska-Wojciechowska, K. (2005). Theoretical Basics of Employee Loyalty. *Management, No. 1(9)*.
8. Kwarcińska, A. (2019). Zróżnicowanie działań wobec pracowników w ramach realizacji koncepcji społecznej odpowiedzialności biznesu na podstawie analizy wybranych raportów społecznych. In: E. Mazur-Wierzbicka, D. Janczewska (eds.), Społeczna odpowiedzialność biznesu – perspektywa zarządzania i ekonomii. *Studia i Monografie nr 103* (pp. 157-165). Łódź/Warszawa: Społeczna Akademia Nauk.
9. Kwarcińska, A. (2022). Assessment of the preferences of CSR activities addressed to employees in the light of the results of primary research. *Silesian University of Technology, Scientific Papers, Organization and Management, Scientific paper, no. 164*. Gliwice, pp. 215-227, http://dx.doi.org/10.29119/1641-3466.2022.164.16
10. Lewicka-Strzałecka, A. (2014). Lojalność pracownika: trwała wartość czy anachroniczna cnota? *Człowiek i Społeczeństwo., vol. XXXVIII*. Adam Mickiewicz University Press, pp. 147-164.
11. Lipka, A. (2012a). Pojęcie i ekonomiczna wartość lojalności pracowników. In: Lipka, A., Winnicka-Wejs, A., Acedański, J., *Lojalność pracownicza. Od diagnozy typów lojalności do Zarządzania Relacjami z Pracownikami (Employee Relationship Management)*. Warszawa: Difin.
12. Lipka, A. (2012b). Wewnętrzne mechanizmy lojalności pracobiorców. In: Lipka, A., Winnicka-Wejs, A., Acedański, J., *Lojalność pracownicza. Od diagnozy typów lojalności do Zarządzania Relacjami z Pracownikami (Employee Relationship Management)*. Warszawa: Difin.
13. Lipka, A. (2012c). Propozycja modelu długookresowych relacji lojalnościowych firmy z pracownikami. *Education of Economists & Managers, Vol. 23 Iss. 1*, pp. 85-100.
14. Madrak-Grochowska, M. (2010). Społeczna odpowiedzialność biznesu – pomiędzy altruizmem a egoizmem przedsiębiorstw. *Ekonomia i Prawo, nr 1, tom VI*.
15. Marcinkowska, E., Sawicka, J. (2023). CSR initiatives in SMEs: employee perception and their influence on employment decisions. *Central European Management Journal, 31(4),* 495-510. https://doi.org/10.1108/CEMJ-10-2022-0170
16. Mazur-Wierzbicka, E. (2021). Determinants of Employee Loyalty from the Perspective of Employees of Socially Responsible Organizations. *European Research Studies Journal, Vol. XXIV, Iss. 4B*, pp. 713-722.
17. *Raport o stanie sektora małych i średnich przedsiębiorstw w Polsce* (2023). Warszawa: Polska Agencja Rozwoju Przedsiębiorczości.
18. Rok, B. (2004). *Odpowiedzialny biznes w nieodpowiedzialnym świecie*. Warszawa: Akademia Rozwoju Filantropii w Polsce, Forum Odpowiedzialnego Biznesu.

19. Shafique, O., Ahmad, B.S. (2022). Impact of corporate social responsibility on the financial performance of banks in Pakistan: Serial mediation of employee satisfaction and employee loyalty. *Journal of Public Affairs, 22(3),* e2397, https://doi.org/10.1002/pa.2397
20. Singh, A., Lakshmi, N. (2023). A study on the impact of corporate social responsibility effects on employee motivation, job satisfaction and organizational commitment in select Indian companies. *Journal of Research Administration, 5(1),* 435-455. http://journalra.org/index.php/jra/article/view/1384
21. Stojanovic, A., Milosevic, I., Arsic, S., Urosevic, S., Mihaljovic, I. (2020). Corporate Social Responsibility as a Determinant of Employee Loyalty and Business Performance. *Journal of Competitiveness, 12(2),* 149-166, https://doi.org/10.7441/joc.2020.02.09
22. Świątek-Barylska, I. (2013). *Lojalność pracowników współczesnych organizacji. Istota i elementy składowe.* Wydawnictwo Uniwersytetu Łódzkiego, DOI: https://doi.org/10.18778/7525-937-7

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

MAPPING GAMIFICATION THREATS ACCORDING TO GENERATION Z – PILOT STUDY

Karol MAŁECKI[1], Robert SZYDŁO[2*]

[1] Department of Labour Resource Management, Krakow University of Economics; maleckik@uek.krakow.pl, ORCID: 0009-0009-7499-1306
[2] Department of Labour Resource Management, Krakow University of Economics; szydlor@uek.krakow.pl, ORCID: 0000-0003-1411-1687
* Correspondence author

Purpose: The paper examines how members of Generation Z perceive gamification-related threats, with particular attention to the perceived severity and likelihood of negative consequences. It also seeks to identify preliminary patterns linking risk perception with respondents' knowledge of and beliefs about gamification.
Design: The article combines a literature review with a quantitative exploratory pilot survey. Based on the literature, the authors developed an original questionnaire including 23 statements concerning perceptions of gamification and 19 potential threats assessed on a 5-point Likert scale in terms of severity and likelihood of occurrence. Data were collected via Google Forms from 50 Generation Z respondents with prior exposure to gamified activities. The analysis employed descriptive statistics, correlation analysis, reliability analysis, hierarchical cluster analysis, and ANOVA using SPSS and RStudio.
Findings: The results show that respondents generally perceive gamification as important for motivation and engagement, but do not consider its design and implementation easy. The most serious threat identified was unhealthy competition, whereas the most likely threats were excessive focus on game results, reward dependence, and declining motivation after the novelty effect had worn off. Perceived severity and perceived frequency of threats were moderately and significantly correlated. Three preliminary respondent profiles emerged: gamification enthusiasts, cautious realists, and gamification skeptics. The key factor differentiating these groups was awareness of the importance of proper gamification design, planning, and implementation.
Research limitations: The study is limited by its small, non-representative sample and exploratory nature. The authors recommend future research on larger and more diverse samples using confirmatory designs.
Practical implications: The findings suggest that gamification should be treated as a carefully designed process rather than as a simple motivational tool. In HR and education, designers should balance motivational benefits against risks such as unhealthy competition, stress, and overreliance on rewards.
Value: The paper contributes by mapping how Generation Z perceives gamification-related threats and by proposing preliminary attitude profiles that may be useful for further research and practice. It is addressed to researchers, educators, and managers using gamification.
Keywords: gamification, risk perception, Generation Z, motivation, cluster analysis.
Category of the paper: Research paper.

1. Introduction

For nearly two decades, both developing and developed societies have experienced increasing digitalization in work, education, and private life. A growing share of everyday activities is moving online or at least becoming partly dependent on virtual environments. One of the most important contemporary tools used to motivate people, influence employee engagement, and create enjoyment is gamification. Educational and organizational environments increasingly implement game-like mechanisms such as points, rankings, badges, challenges, and levels. These elements can make activities more attractive, especially when they are perceived as routine, trivial, overly difficult, or demanding. However, the growing use of gamification also calls for critical reflection on its effects, which may be both positive and negative.

The literature most often emphasizes the positive effects of gamification, especially its effectiveness in enhancing user motivation, engagement, and interest (Toda et al., 2017). However, insufficient attention has been paid to the risks associated with exposing people—especially young people—to long-term interaction with gamified systems. Recently, growing interest has emerged in studies highlighting the negative aspects of gamification, including unhealthy competition, loss of intrinsic motivation and pleasure in the activity itself, stress and pressure caused by social comparison, excessive focus on points, achievements, and metrics, as well as ethical risks related to user addiction and manipulation (Toda et al., 2017; Hadi Mogavi et al., 2022; Kačerauskas et al., 2023). It is therefore important to ask not only whether gamification works, but also at what cost, for whom, and under what conditions it may lead to negative consequences. Ultimately, it is equally important to ask whether users of gamified solutions are aware of the risks involved.

In this context, the perspective of Generation Z—a group deeply immersed in the digital environment—is particularly important. Members of this cohort constitute one of the main target groups for gamified solutions. On the one hand, this may contribute to their high acceptance of such mechanisms; on the other hand, it does not necessarily imply risk awareness or an accurate assessment of the potential negative consequences of gamification. This creates a need for empirical identification of which gamification-related threats are regarded by Generation Z respondents as the most serious, which are considered the most likely, and why. It should be emphasized, however, that this identification is preliminary and limited to the sample analyzed in this study.

The purpose of this article is to examine how Generation Z perceives threats related to gamification. This is a pilot, exploratory study, and the collected data and subsequent analyses are intended to serve as a basis for developing hypotheses concerning the relationship between Generation Z's assessments of the severity and likelihood of gamification-related threats and other variables that may influence these perceptions. The theoretical section provides a concise

overview of the nature of gamification and presents the key threats identified in the literature. These issues are then related to the specific characteristics of Generation Z. The empirical section presents the results of a questionnaire survey in which respondents assessed threats along two dimensions: severity and likelihood of occurrence. Using a pilot sample, the study examined whether higher perceived severity of gamification threats was associated with higher perceived likelihood and whether there were grounds for formulating hypotheses about how knowledge of and beliefs about gamification influence perceived threat severity and frequency. The proposed approach allows for a preliminary identification not only of the perceived hierarchy of risks, but also of potential relationships between threat-severity assessments and perceptions of their actual frequency. These relationships should be statistically verified in future studies using representative samples. Data on threat perception were compared with respondents' knowledge of and beliefs about gamification, allowing for a preliminary exploration of patterns among individuals who attribute relatively high or low levels of risk and probability to various negative effects of gamification.

2. Generation Z in the context of gamification

Generation Z's strengths include high digital competence, the ability to adapt quickly to new technologies, innovativeness, and the willingness to work in diverse and international teams. At the same time, the literature points to a number of problem areas, such as short attention spans, a tendency toward superficial information processing, deficits in direct interpersonal communication, difficulty coping with routine, and an increased risk of mental health problems (Nowicka, 2020; Jayatissa, 2023). In the organizational context, this means that management tools targeted at this group should both leverage their digital and creative potential and compensate for weaker areas of functioning, particularly concentration, perseverance, and interpersonal relations.

In this context, gamification is particularly relevant because it can address a range of psychological and educational needs associated with Generation Z. These characteristics suggest that gamification mechanisms are well suited to this generation's expectations. They provide immediate feedback, are visual and interactive, and support a sense of agency and autonomy. Point systems, badges, rankings, and other forms of rapid feedback may respond to preferences for ongoing performance evaluation, while interactive scenarios and visual elements may increase cognitive engagement among individuals who prefer diverse learning styles and dislike routine (Dicheva et al., 2015; Huang, Soman, 2013). Furthermore, well-designed gamification systems can enable users to choose action paths and make decisions, which is consistent with the need for self-direction emphasized in relation to Generation Z. Given this generation's high level of digital competence, gamification

mechanisms may also be perceived as intuitive and natural, and therefore may be more readily accepted than traditional forms of communication.

3. Risks associated with the use of gamification – literature analysis

The literature on gamification is dominated by studies examining its benefits. However, a growing body of research also addresses its negative consequences. These risks may create serious problems not only for the individual participating in a gamified activity, but also for the wider social group involved, the immediate environment of the user, and the project that gamification was originally intended to support (Almeida et al., 2021; Toda et al., 2017).

One of the most frequently described threats is an excessive focus on results. People engaged in gamified systems may prioritize scores, rankings, or points over the actual quality of their work, which may reduce diligence and conscientiousness. Moreover, the rewards—both tangible and intangible—that can be obtained through the system may become more important than the gamified activity itself and the quality of the tasks performed (Toda et al., 2017; Hadi Mogavi et al., 2022).

An excessive focus on results and immediate gratification may also lead to the simplification and superficialization of learning processes, encouraging users to treat points, badges, or leaderboard positions as ends in themselves rather than as indicators of competence development, project progress, or valuable experience (Haaranen et al., 2014). In the literature, this phenomenon is often referred to as “shallow gamification” and denotes the dominance of simplified implementations based on the so-called PBL logic (points, badges, leaderboards), which reinforce behaviors that are easily measurable but not necessarily the most valuable (Dah et al., 2025). Toda et al. (2017) identify reduced depth of learning as one of the key negative effects of gamification in education, while Hadi Mogavi et al. (2022) describe numerous cases of simplified learning and behaviors focused on “system satisfaction” rather than on the actual educational goal. These threats are particularly relevant in the context of Generation Z, whose members are both success-oriented and highly responsive to immediate feedback and rapid gratification such as badges or points (Dolot, 2018).

Another important category of risk concerns the impermanence of gamification effects and the frequent decline in motivation once the novelty wears off. The literature often emphasizes that positive effects of gamification, such as increased engagement, tend to be strongest during the early stages of implementation and are often not sustained over time (Toda et al., 2017; Kačerauskas et al., 2023). Hammedi et al. (2021) show that increases in engagement may be short-lived and may weaken after the end of an intense competitive phase, while Toda et al. (2017) identify decreasing effects as one of the most frequently recurring categories in analyses of the negative effects of gamification.

Another widely discussed group of threats includes unhealthy competition and additional stress. Studies often indicate that social comparison is one of the most common sources of stress in gamified activities. Hadi Mogavi et al. (2022) report frequent references to the negative impact of gamification on well-being, and Yang and Li (2021) demonstrate that competitive mechanisms can be significant predictors of technostress and exhaustion. This suggests that although competition may motivate some individuals, it also has the potential to undermine users' well-being. The consequences of social comparison may be particularly important for Generation Z, whose members are often described as reluctant to compete and as valuing autonomy and the possibility of progressing at their own pace, without constant comparison to others (Nowicka, 2020).

Particularly important threats in the context of Generation Z also include addiction to games, rewards, or gamified work, where addiction is understood here as a problematic, compulsive pattern of use (e.g., obsessive maintenance of streaks, excessive attachment to rewards, or difficulty interrupting the activity). Srivastava et al. (2023) show that addiction to gamification elements is one of the strongest predictors of poorer mental well-being, and Hadi Mogavi et al. (2022) describe phenomena resembling an "obsession with streaks", that is, with maintaining days or periods of uninterrupted participation in an activity.

Among the less frequently mentioned but still significant risks associated with gamification is so-called forced play, which manifests itself in a sense of obligation to participate in the game, even though play is by definition voluntary. It may also involve a loss of intrinsic motivation, often replaced by external motivators, and a decline in experienced pleasure and satisfaction derived from the activity (Mollick, Rothbard, 2014; Hanus, Fox, 2015).

A separate but equally important category comprises design flaws, including inappropriate game mechanics, poorly designed rules, and systems that hinder rather than support the achievement of actual educational or organizational goals. Research and implementation literature emphasizes that many undesirable effects of gamification stem not from the very idea of using game elements, but from simplistic design, a lack of grounding in motivational theory, and poor adaptation to users and context. This group of problems also includes unclear or overly complex rules, which may discourage participation (Hanus, Fox, 2015; Almeida et al., 2021).

Ethical issues related to the use of gamification to influence users are also receiving increasing attention in the literature. Kim and Werbach (2016) argue that gamification can cross the line between motivation and manipulation when mechanics are designed around hidden influence, information asymmetry, or the exploitation of users' cognitive vulnerabilities. Similarly, Hadi Mogavi et al. (2022), in their qualitative research, cite specific cases in which users experienced a loss of control over their own behavior while participating in a gamified activity.

Another important group of threats concerns data security and privacy, as digital gamification often relies on activity tracking, progress profiling, and the collection of behavioral data (Algashami et al., 2019; Yang, Li, 2021; Srivastava et al., 2023). Yang and Li

(2021) identify privacy violations as a significant stressor in technological environments, and Srivastava et al. (2023) classify them as an important predictor of reduced well-being. In practice, this means that even if users do not spontaneously identify data security as a primary concern in gamified experiences, the literature consistently treats this area as one of the fundamental dimensions of risk.

The literature also regularly addresses inequalities resulting from unequal access to technology and differences in digital skills, which may affect not only outcomes, but also participants' well-being during gamified experiences. Algashami et al. (2019) indicate that differences in digital proficiency can generate frustration and reduce implementation effectiveness. They emphasize that this problem is particularly visible in age-diverse environments, where technological proficiency provides an additional advantage. Moreover, a systematic literature mapping by Almeida et al. (2021) confirms that individuals lacking digital skills may feel excluded from such activities, which—as Kačerauskas et al. (2023) warn—may permanently reduce satisfaction and self-esteem. This threat appears particularly relevant to Generation Z, a cohort often described as sensitive to equality of opportunity and accessibility. At the same time, it should be noted that in contemporary Polish society, where the present study was conducted, differences in access to technology and opportunities to develop digital skills may be less pronounced than in other contexts.

In summary, the literature consistently points to the multidimensional nature of gamification-related threats: from distortions of goal orientation and declining sustainability of effects, through stress and loss of control, to design flaws, manipulation, privacy concerns, and unequal access to technology. Generation Z's awareness of these threats, their potential consequences, and their likelihood of occurrence may therefore be selective, uneven, and context-dependent. This study aims to empirically examine how Generation Z perceives these threats. Its results may contribute to a better understanding of how young people think about functioning in gamified systems and how strongly they fear particular negative consequences.

4. Methodology

As part of the literature review, a list of 23 characteristics describing perceptions of gamification and a set of 19 threats that may occur in gamification-based processes were compiled. Based on these, the authors developed an original questionnaire in which participants responded on a 5-point Likert scale. Respondents:

- described their perceptions of gamification using 23 statements,
- assessed the severity of 19 gamification-related threats, including:
  - gaming addiction,
  - addiction to gamified work,
  - reward addiction,
  - decline in motivation after the initial fascination with the game,
  - replacement of intrinsic motivation (e.g., enjoyment of performing tasks, sense of fulfillment) with extrinsic motivation (rewards received in the game),
  - prioritizing rewards obtained in the game over the value of the work performed,
  - unhealthy competition between co-workers,
  - manipulation of participants through game mechanics,
  - inequalities resulting from unequal access to technology,
  - feeling compelled to perform the activity,
  - decrease in job satisfaction,
  - excessive focus on game results instead of work,
  - incorrectly selected mechanisms causing user dissatisfaction,
  - poorly planned gamification that hinders goal attainment in practice,
  - overly complicated game rules discouraging participants,
  - threats related to the security of shared data,
  - rapid disappearance of effects,
  - excessive focus on numbers and metrics,
  - additional stress caused by competition,
- and assessed the likelihood of these threats occurring.

Data were collected via Google Forms. The analysis combined descriptive and inferential statistical techniques and was conducted using RStudio and SPSS 30.

The study included 50 individuals (18 men and 31 women, with one participant not reporting gender). Twenty respondents were bachelor's students and 30 were master's students. The study was conducted within a single organization whose members had previously participated in gamification-based activities, which made it possible to include only respondents with at least a basic familiarity with the phenomenon under investigation.

Results

The first stage of the analysis concerned perceptions of gamification (Table 1). The table presents only the highest- and lowest-rated items.

Table 1.
Perceptions of gamification

	Mean	Mod	St. Dev.	Min	Max	Percentiles		
						25	50	75
The impact of gamification depends on the individual characteristics of the people participating in it.	4.74	5	,487	3	5	4.75	5.00	5.00
Gamification influences engagement.	4.60	5	,571	3	5	4.00	5.00	5.00
The effectiveness of gamification depends on its implementation.	4.56	5	,541	3	5	4.00	5.00	5.00
Gamification influences the level of motivation.	4.54	5	,613	3	5	4.00	5.00	5.00
Gamification requires a specialized platform or system.	2.58	2	1,162	1	5	2.00	2.50	4.00
Implementing gamification is easy.	2.08	2	,752	1	4	2.00	2.00	2.25
Designing gamification is easy.	1.92	2	,665	1	4	1.75	2.00	2.00
a. There are multiple modal values. The smallest value is given								

Source: authors' own study.

The results indicate that, in this sample, respondents strongly agreed that the effectiveness of gamification depends on participant characteristics (M = 4.74), that gamification affects engagement (M = 4.60), and that its effectiveness depends on implementation quality (M = 4.56). The lowest scores were assigned to the statements that gamification requires a specialized platform (M = 2.58) and that its implementation and design are easy (M = 2.08 and M = 1.92, respectively). Analyses of perceived threats and their likelihood of occurrence are presented in Tables 2 and 3.

Table 2.
Assessment of gamification threats

	Mean	Mod	St. Dev.	Percentiles		
				25	50	75
Unhealthy competition between co-workers.	4.22	5	,996	4.00	4.50	5.00
Putting the value of the reward in the game above the value of the work being done.	4.02	4	,869	3.75	4.00	5.00
Gaming addiction.	2.90	3	1,074	2.00	3.00	4.00

Source: authors' own study.

The two highest-rated threats were unhealthy competition (M = 4.22) and prioritizing gaming over work (M = 4.02). These were the only threats that, according to the respondents, exceeded an average score of 4. The lowest-rated threat was gaming addiction (M = 2.90). The likelihood of threats occurring was assessed similarly (Table 3).

Table 3.
Assessment of the likelihood of threat occurrence

	Mean	Mod	St. Dev.	Percentiles		
				25	50	75
Excessive focus on game results instead of work	3.88	4	,918	3.00	4.00	5.00
Reward addiction	3.84	3	,934	3.00	4.00	5.00
Loss of motivation after the initial fascination with the game	3.84	4	,866	3.00	4.00	4.25
Putting the value of the reward in the game above the value of the work being done	3.84	4	,934	3.00	4.00	4.25
Unhealthy competition between co-workers	3.82	4	1,044	3.00	4.00	5.00
Gaming addiction	2.78	3	1,183	2.00	3.00	4.00

Cont. table 3.

Inequalities resulting from unequal access to technology	2.60	2	1.125	2.00	2.50	3.00
Threats related to the security of shared data	2.42	2	1,108	2.00	2.00	3.00
a. There are multiple modal values. The smallest value is given						

Source: authors' own study.

The threats considered most likely were excessive focus on game results instead of work (M = 3.88), reward dependence (M = 3.84), and a decline in motivation after the initial fascination stage (M = 3.84). The lowest perceived likelihood of occurrence concerned data security threats (M = 2.42), inequalities resulting from unequal access to technology (M = 2.60), and gaming addiction (M = 2.78). Thus, the threats rated as most likely were seen as relatively probable, whereas the lowest-rated threats were perceived as comparatively unlikely.

In the next step, unsupervised statistical learning methods were used to identify groups representing preliminary profiles of Generation Z respondents characterized by different levels of concern about similar negative consequences of gamification. First, following methodological recommendations in the literature, two aggregate variables were calculated for each participant on the basis of all responses (Hair et al., 2019). The results are presented in Table 4. This approach is further supported by the reliability analysis of both scales measured using Cronbach's alpha. The first aggregate variable was labeled "perceived severity of negative consequences of gamification" ($\alpha = 0.892$), while the second was labeled "perceived frequency of negative consequences of gamification" ($\alpha = 0.908$).

Table 4.
Descriptive statistics and correlations for aggregate variables measuring the perceived severity and frequency of negative consequences of gamification

Synthetic variable	Mean	SD	First quartile	Median	Third quartile	Pearson correlation (p-value)	Spearman correlation (p-value)
Perceived severity of negative effects of gamification	3.6	0.61	3.28	3.66	3.97	0.7 (≈0)	0.65 (≈0)
Perceived frequency of negative effects of gamification	3.35	0.63	2.95	3.39	3.68		

Source: authors' own study.

The aggregate variables representing the perceived severity of gamification-related threats and the perceived frequency of their occurrence were correlated in the study sample. Pearson and Spearman correlation coefficients both indicated a moderately strong and statistically significant relationship between the variables. This suggests that respondents who perceived gamification-related threats as more serious also tended to judge them as more likely to occur. Conversely, threats perceived as less severe were also regarded as less likely. The relationship between perceived severity and perceived likelihood is discussed further in the Discussion section.

Cluster analysis

To determine whether the analyzed sample contained distinct and internally coherent groups of respondents characterized by similar patterns of risk perception related to gamification, exploratory hierarchical cluster analysis was used. The analysis employed Euclidean distance as a measure of similarity between observations and Ward's method for forming clusters. This approach is commonly recommended for continuous or quasi-interval data because Ward's algorithm minimizes increases in within-cluster variance at successive stages of clustering (Ward, 1963).

In the methodological literature, variables measured on a Likert scale are often treated as approximations of interval-level measurement, especially when the scale has at least five categories and all variables are measured using the same response format (Norman, 2010; Boone, Boone, 2012). Under this assumption, the use of Euclidean distance in the exploratory analysis of survey data may be regarded as methodologically justified.

Ward's method was selected because of its ability to produce relatively homogeneous clusters of similar size by minimizing the sum of squared within-cluster deviations at each stage of combining observations (Ward, 1963). This method is widely used in social research based on survey data, including studies involving variables measured on Likert scales.

In the initial phase of the analysis, solutions with different numbers of clusters were compared, and dendrograms were examined in order to select the most appropriate number of clusters for interpretation. The literature suggests that the choice of cluster solution should be guided not only by decision-support statistics, but also by visual inspection of the dendrogram, the interpretability of the resulting groups, and sample size.

Accordingly, taking into account the sample size, the variables included, and the visual assessment of the dendrogram, the authors decided to adopt a three-cluster solution. This decision was justified both by interpretability and by the so-called elbow criterion, the values of which were examined for different numbers of clusters. In Figure 1, observations assigned to particular clusters are marked with colors. The graphical presentation of observations in terms of the aggregate variables and cluster membership illustrates the potential relationship between perceived severity and perceived frequency of gamification-related threats described in the previous section.

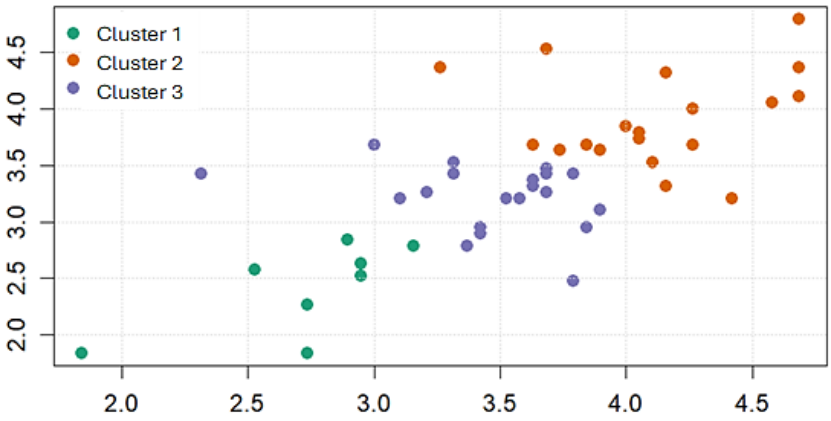


Figure 1. Relationship between perceived severity (X-axis), perceived frequency of threats (Y-axis), and cluster membership.

Source: authors' own study.

The first cluster may be described as gamification enthusiasts. These respondents most often indicated that individual gamification-related threats were not particularly serious and assigned them a relatively low likelihood of occurrence. The second cluster may be described as gamification skeptics. These individuals most often indicated that threats associated with gamification had serious consequences and occurred relatively often or very often. The third cluster was an intermediate one, comprising respondents who assessed both the severity and the frequency of negative consequences of gamification at moderate levels. This group may therefore be described as cautious realists.

The next step was to compare the resulting clusters with the values of synthetic variables representing factors that may have influenced respondents' answers. A one-way analysis of variance was used to identify which factors differentiated the clusters most clearly. The results are presented in Table 5 and include only indicators that met the adopted criteria. The only latent factor that had a clearly statistically significant effect on differences between the groups in terms of perceived threat severity and frequency was attitude toward preparation for the gamification process. Individuals who declared a higher level of understanding of gamification and placed greater emphasis on proper planning and implementation tended, on average, to perceive the negative effects of gamification as both more severe and more frequent. The Discussion section addresses this relationship in greater detail.

Table 5.
Results of one-way analysis of variance for the identified clusters

Factor	**F statistic**	**p-value**	**Mean (Cluster 1)**	**Mean (Cluster 2)**	**Mean (Cluster 3)**
Motivation and engagement (Cronbach's α = 0.874)	*1.4706*	*0.2402*	*4.73*	*4.38*	*4.52*
Efficiency and pleasure (Cronbach's α = 0.828)	*0.6133*	*0.5458*	*4.02*	*3.92*	*4.16*
*Process and preparation*** *(Cronbach's α = 0.663)*	***5.6097***	***0.0065***	***4.75***	***4.27***	***4.61***

Source: authors' own study.

The variable process and its preparation consists of responses to the following statements: the effectiveness of gamification depends on its planning, the effectiveness of gamification depends on its implementation, and I understand what gamification is.

5. Discussion

The results presented in this section come from an exploratory pilot study and should therefore be interpreted with caution.

The findings indicate that, in the analyzed sample, in-depth knowledge of gamification among Generation Z respondents is not as widespread as might be expected in a cohort functioning in a highly digitalized environment. Although respondents rated the influence of gamification on motivation and engagement relatively highly, they also expressed little confidence in the ease of designing and implementing gamification. This may suggest that their understanding of gamification is often intuitive and grounded in user experience rather than in knowledge of the design processes underlying effective implementation. The literature suggests that gamification is sometimes understood in a simplified way, reduced to mechanisms such as points, badges, or rankings, without sufficient attention to the broader design and motivational context (Dicheva et al., 2015; Toda et al., 2017).

Another important result of the study is the identification of three preliminary profiles of attitudes toward gamification: gamification enthusiasts, cautious realists, and gamification skeptics. These profiles should be treated as exploratory rather than as stable population segments. The distinction reflects different interpretations of potential threats arising from the use of game mechanics in work and education settings. Enthusiasts tend to downplay threats and assign them a low probability of occurrence, whereas skeptics perceive them as more severe and more frequent. Between these two positions lies a group of realists who assess both the severity and the probability of threats at a moderate level. This diversity of attitudes is consistent with research on the perception of digital technologies, which points to the coexistence of enthusiastic, skeptical, and moderate attitudes toward new technological solutions (Hammedi et al., 2021; Kim, Werbach, 2016).

One of the key factors differentiating the identified clusters was the importance respondents attached to the gamification design process, including their understanding of the concept itself and the importance they assigned to planning and implementation quality. Respondents declaring a higher level of understanding of gamification were also more likely to perceive potential negative consequences. This may suggest that awareness of gamification-related risks increases with knowledge of its mechanisms. The literature emphasizes that many negative effects of gamification stem not from the idea of using game elements as such, but from

improper design or inadequate adaptation to the user and context (Hanus, Fox, 2015; Almeida et al., 2021).

From a human resource management perspective, these findings suggest the need to design gamification systems in a more balanced manner, taking into account both potential motivational benefits and the risks associated with excessive competition, social pressure, and overemphasis on rewards. This is particularly important in the case of Generation Z, which is simultaneously highly familiar with digital feedback and reward systems and more sensitive to issues of autonomy and psychological well-being (Dolot, 2018; Hammedi et al., 2021).

In practice, this means that gamification should be treated not as a simple set of motivational techniques, but as a complex design process requiring appropriate preparation, analysis of user needs, and conscious management of possible implementation consequences. Careful preparation of the gamification process—including planning, implementation, and communication of how the system operates—may therefore be a crucial factor in reducing the risk of the negative effects described in the literature. The present findings should thus be regarded as a starting point for further research on larger and more diverse samples.

6. Research limitations

The study has several limitations that should be taken into account when interpreting the results. First, the small sample size substantially limits the generalizability of the findings to the broader Generation Z population. The results should therefore be treated as preliminary and exploratory and require verification in larger and more diverse samples.

Another limitation is the use of analytical methods typical of exploratory research, particularly cluster analysis, the results of which—especially with small sample sizes—may be sensitive to data structure and methodological assumptions. For this reason, the identified clusters should be treated as preliminary response profiles that may support hypothesis generation and help identify promising directions for further investigation, rather than as stable and unambiguous segments of the study population. Similarly, the results of comparative analyses (ANOVA) are ancillary and should be interpreted with caution, especially in the context of a small sample. Their primary value lies in supporting theory development and planning subsequent stages of research.

Finally, it should be emphasized that this was a pilot study aimed primarily at identifying potential patterns in the perception of gamification-related risks and at laying the groundwork for further, more advanced analyses. Future studies should therefore involve larger and more diverse samples and adopt a confirmatory approach, including the formulation and testing of research hypotheses.

Acknowledgements

The article presents the results of a project financed from the subsidy granted to the Krakow University of Economics under the "Potencjał" programme, no. 052/ZZS/2025/POT.

References

1. Algashami, A., Vuillier, L., Alrobai, A., Phalp, K., Ali, R. (2019). Gamification risks to enterprise teamwork: Taxonomy, management strategies and modalities of application. *Systems, 7(1)*, 9.
2. Almeida, C., Kalinowski, M., Feijó, B. (2021). *A systematic mapping of negative effects of gamification in education/learning systems.* 2021 47th Euromicro Conference on Software Engineering and Advanced Applications (SEAA) IEEE, pp. 17-24.
3. Boone Jr, H.N., Boone, D.A. (2012). Analyzing likert data. *The Journal of extension, 50*(2), 48.
4. Cilliers, E.J. (2017). The challenge of teaching generation Z. *PEOPLE International Journal of Social Sciences*.
5. Dah, J., Hussin, N., Zaini, M.K., Isaac Helda, L., Senanu Ametefe, D., Adozuka Aliu, A. (2025). Gamification is not working: Why? *Games and Culture, 20*(7), 934-957.
6. Dicheva , D., Dichev , C., Agre, G., & Angelova, G. (2015). Gamification in education: A systematic mapping study. *Journal of educational technology & society, 18*(3), 75-88.
7. Dolot, A. (2018). The characteristics of Generation Z. *E-mentor, 74*(2), 44-50.
8. Haaranen, L., Ihantola, P., Hakulinen, L., Korhonen, A. (2014, March). *How (not) to introduce badges to online exercises.* Proceedings of the 45th ACM technical symposium on Computer science education, pp. 33-38.
9. Hadi Mogavi, R., Guo, B., Zhang, Y., Haq, E.U., Hui, P., Ma, X. (2022, June). *When gamification spoils your learning: A qualitative case study of gamification misuse in a language-learning app*. Proceedings of the ninth ACM conference on learning@ scale, pp. 175-188.
10. Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. (2019). *Multivariate data analysis (8th ed.)*. Boston: Cengage.
11. Hammedi, W., Leclercq, T., Poncin, I., Alkire, L. (2021). Uncovering the dark side of gamification at work: Impacts on engagement and well-being. *Journal of Business Research, 122*, 256-269.

12. Hanus, M.D., Fox, J. (2015). Assessing the effects of gamification in the classroom: A longitudinal study on intrinsic motivation, social comparison, satisfaction, effort, and academic performance. *Computers & education, 80,* 152-161.
13. Huang, W.H.Y., Soman, D. (2013). Gamification of education. *Report Series: Behavioral Economics in Action, 29*(4), 37.
14. Kačerauskas, T. (2023). *Gamification in management: Positive and negative aspects*.
15. Kim, T.W., Werbach , K. (2016). More than just a game: Ethical issues in gamification. *Ethics and information technology, 18*(2), 157-173.
16. Malawi, I., Fajriyah, I. (2026). Integrating Gamification in LMS to Enhance Self-Directed Learning and Learning Outcomes in Social Education. *Journal of Teaching and Learning, 20*(1).
17. McCrindle, M., Fell, A. (2019). *Understanding Generation Z: Recruiting, training and leading the next generation*. McCrindle Research Pty Ltd, 5-17.
18. Mollick, E.R., Rothbard, N. (2014). *Mandatory fun: Consent, gamification and the impact of games at work*. The Wharton School research paper series.
19. Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in health sciences education, 15*(5), 625-632.
20. Nowicka, M. (2020). Young people from Generation Z and Alpha as a task for educators, or the need to "catch the wave". *Fides et Ratio Scientific Quarterly, 44*(4), 164-176.
21. Sakdiyakorn, M., Golubovskaya, M., Solnet, D. (2021). Understanding Generation Z through collective consciousness: Impacts for hospitality work and employment. *International Journal of Hospitality Management, 94*, 102822.
22. Srivastava, G., Bag, S., Rahman, M.S., Pretorius, J.H.C., Gani, M.O. (2023). Examining the dark side of using gamification elements in online community engagement: an application of PLS-SEM and ANN modeling. *Benchmarking: An International Journal, 30*(9), 2921-2947.
23. Świerkosz-Hołysz, M. (2016). Generation Z enters the labor market. Society and Education. *International Humanities Studies, 2(21),* 439-447.
24. Toda, A.M., Valle, P.H., Isotani, S. (2017, March). The dark side of gamification: An overview of negative effects of gamification in education. In: *Researcher links workshop: higher education for all* (pp. 143-156). Cham: Springer International Publishing.
25. Ward Jr, J.H. (1963). Hierarchical grouping to optimize an objective function. *Journal of the American statistical association*, *58*(301), 236-244.
26. Yang, H., Li, D. (2021). Understanding the dark side of gamification health management: A stress perspective. *Information Processing & Management, 58*(5), 102649.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

PROFESSIONALIZATION AND DEVELOPMENT OF COMMUNITIES OF PRACTICE PROVIDING HISTORICAL REENACTMENT SERVICES

Justyna MAŁYSIAK

General Tadeusz Kościuszko Military University of Land Forces, Department of Management, Wrocław;
justyna.malysiak@awl.edu.pl, ORCID: 0000-0002-6015-754X

Purpose: The purpose of this article is to present the concept of professionalization as a key process that shapes the development of communities of practitioners within organizations providing educational-reenactment services.
Design/methodology/approach: The study applied methodological triangulation, combining in-depth interviews with purposive sampling—where the criterion was that respondents belonged to groups with expert knowledge in the area under study with desk research method.
Findings: Historical reenactment communities can be interpreted as a specific type of community of practitioners, in which professionalization is the result of organizational processes based on participation, networked relationships, and the collective development and institutionalization of operational standards.
Research limitations/implications: The data obtained should be regarded as the results of pilot studies aimed at providing a preliminary assessment of the area under analysis. To ensure greater methodological reliability and strengthen the basis for analytical generalization, it is recommended that the research be continued using a larger and more diverse sample.
Practical implications: The collaborative learning model and inter-organizational cooperation promote the transfer of hidden knowledge, the standardization of practices, and continuous improvement, generating tangible organizational and economic benefits, as well as stabilizing organizational culture, all of which can help build a competitive advantage for modern organizations.
Social implications: The active efforts of reenactment groups help to strengthen local identity, social capital, and the intergenerational transmission of values. Thus, the practices under study can serve as a tool to support the long-term preservation of heritage while improving the quality of social life.
Originality/value: The obtained results open new interpretative directions by proposing an interdisciplinary approach to the organization from the perspective of communities of practitioners operating within it, which constitute an informal mechanism of knowledge management and professionalization. The article offers a non-standard conceptualization of the analyzed phenomena, as well as the development of interesting and original conclusions and recommendations.
Keywords: professionalization, organizational development, competencies, communities of practioners.
Category of the paper: Viewpoint, case studies.

1. Introduction

The reality in which today's organizations operate is a world dominated by dynamic technological progress. Automation, digitalization, and the development of AI have radically influenced the growth of their potential on many levels, thereby contributing to increased efficiency, expansion, and enhanced adaptability. At the same time, like any revolution, this technological one has also contributed to the deepening of negative phenomena, which have manifested themselves, among other things, in interpersonal relationships. Organizations operate more efficiently, while people become increasingly alienated. They lose their sense of agency as well as their professional identity. More and more often, teams are connected solely by networks of collaboration, by passing social bonds. And yet, as E. Wenger noted - learning occurs through participation in relationships, not through access to information (Wenger, 1998, p. 215). This problem, linked to the loss of the ability to practically build lasting networks of relationships founded on experience developed through knowledge transfer, commitment, trust, and deepening social interactions is today one of the challenges facing most organizations. It should be added that the principle of these interactions is a topic of significant value to the participants. The attention and time devoted to it contribute to building a community of identity, in which they feel not merely a member of the group through certification, but a full-fledged member—an integral part of group, whose sense of belonging was forged through work on behalf of the team and the relationships that formed, developed, and solidified in the course of that work. This led to the formation of bonds, a strong sense of belonging, and a sense of responsibility for the team, based on the certainty of the importance and significance of one's contribution to the organization's development.

Communities of practitioners – for that is what we are talking about, must undeniably be recognized as one of the key sources of social capital in contemporary organizations and professional communities. We define them as groups of people informally connected by shared skills and interests, which are realized through a common endeavor. These communities exist not only within organizations but also outside them; examples include various thematic groups that jointly carry out tasks within their sphere of interest. These activities are not profit-driven but rather aimed at development or enhancing reputation (Kłak, 2022, p. 44). E. Wenger described them as unstructured groups of people bound by informal ties and a shared passion, which is reflected in their joint activities. By striving to expand their knowledge, these groups bring together people with shared interests, similar or consistent views, who perform similar work, and represent various social groups (Wenger, 2002, pp. 4-5). With regard to organizations, M. Kłak proposed several references to definitions drawn from the literature on the subject; among these, it is worth noting the one he cites from McKinsey & Company, which defines a community of practice as: "a group of people who are informally connected by their engagement with similar problems. Employees typically belong to more than one community of practitioners, both within and outside the organization" (Kłak, 2022, citing: McKinsey & Company).

2. Objective and research gaps

The prevalence of the topic of communities of practitioners in organizations and in academic studies (see, e.g., Lesser, Storck, 2001; Gach, 2007; Choi, Ahn, Jung, Kim, 2020; Bolisani, Scarso, 2014; Meyer et al., 2025; Mierzejewska, 2005) has prompted us to examine the issue from the perspective of providers of educational-reenactment services. These organizations serve as an ideal example of building formal groups from scratch, based on the implementation of a series of activities that support the development of members belonging to reenactment groups, for whom the main catalyst for success is the pursuit of professionalizing their activities. This need stems from the desire to meet the requirements related to the importance of preserving an element of identity through: fidelity to historical sources (many people come from the environment of historians, art historians, archaeologists, etc.); maintaining credibility primarily for the sake of an educational mission (belonging to a specific community entails attention to the ethical issues of the profession and a mission focused on popularizing science); self-fulfillment by transcending the boundaries of a hobby (for many people, reenactment eventually becomes part of their professional and private lives), a sense of community, and adherence to internal norms (mentoring, acceptance, and the formation of emotional bonds). Professionalization is the factor that should be considered key in the process of the evolution of communities of practitioners originating from the reenactment community toward formal organizations, as indicated by the content of studies on this topic; see, e.g., (Wojnarowicz, Małysiak, 2018; Matuszak, 2022; Wypych, 2018; Chańko, Daszyńska, 2006). To date, however, these groups have not been the focus of Polish researchers addressing the topic of communities of practitioners. This is most likely due to the fact that, within the field of management and quality sciences, the topic of historical reconstruction is primarily present in the area of marketing activities, specifically the analysis of tourism marketing tools. The topic of communities of practitioners relevant to the discussed environment has been indirectly addressed in the foreign literature, where authors have highlighted behaviors characteristic of these groups; see, e.g., (Johnson, 2015; McCalman, Pickering, 2004). However, it should be noted, that there is still a lack of publications that focus directly and in a fully analytical manner on the topic discussed in this article. Hence, the idea of utilizing this current research gap to introduce a new interdisciplinary perspective on organizational development, which would allow for the inclusion of social research on providers of educational and reenactment services into the discourse of management and quality sciences, thereby expanding the range of scientific exploration.

The reenactment community in Poland has been active for over three decades it's a period of dynamic change, especially in the area of professionalization in the most general sense. Today, events organized by reenactment groups that take place in public spaces are no longer merely small-scale gatherings intended for the local community or to promote specific historical

sites. The Polish reenactment community can take pride in organizing spectacular historical spectacles that are recognized on the European and international stage, such as the event: Vivat Vasa! Battle of the Two Vases 1626, or that rank among the largest reenactment events in Europe, e.g., the Slavs and Vikings Festival or the Grunwald Days. Reenactment constitutes a significant sector of the events and cultural tourism economy. The community's activities include commercial performances, participation in film productions, the organization of workshops and educational events, and the development of historical crafts. Accurate reenactment contributes to building a strong tourism product – a form of destination marketing—and, as a result, increases the recognition of historic sites, towns, and the region. This recognition, along with the extension of the tourist season due to numerous events, contributes to the creation of new jobs, often making the community one of the region's main employers. In addition, high-budget events that attract large audiences provide an excellent advertising platform for numerous sponsors. Collaboration with them opens up opportunities for business development, often spanning many years, which is very important for local governments, typically operating on limited budgets, in the context of social initiatives aimed at promoting culture and supporting programs that engage local residents.

What is particularly significant is the fact that historical reenactment is a unique social phenomenon, originating in grassroots, spontaneous activities that, for a long time, largely lacked any aspiration to form cohesive, profit-driven business organizations. The driving forces behind their formation into groups are diverse, typically revolving around hobbies, an enthusiasm for history, the search for interesting ways to spend free time, and similar interests. From the very beginning, these groups differ from one another in terms of human capital, expertise, resources, social status, and motivation. This is reflected not only in the direction of their activities but also in their effectiveness, pace of development, flexibility, and ability to commercialize. Combining passion with organizational and marketing competencies holds the potential to transform into a profitable business. However, not every group wants to or is able to utilize the resources it possesses. Despite their business capabilities, many of them remain at the level of organized groups, often operating merely as a hobby for many years after their inception. There are, however, some that evolve into professional business entities, efficiently run organizations that can provide a stable and profitable market for services, despite serving a niche audience.

It is difficult to estimate the exact number of active historical reenactment groups in Poland, as many of them are formed on a seasonal basis, operate informally as hobby groups, and eventually disband after a certain period of time. According to a report prepared by the Question Mark Social Research Bureau, funded by the Ministry of Culture and National Heritage and conducted in 2016, there were 458 active reenactment groups in Poland at that time. However, according to information provided by the report's authors, their actual number could have been twice as high, due to the fact that information about their activities was not posted on websites and social media platforms (Question Mark, 2016, p. 113). Desk research

conducted by the author of this article between March and September 2023 allowed for the collection of data on 524 groups operating throughout Poland. Based on these analyses, it can be assumed that currently, these numbers will oscillate around similar values.

3. Methodology

According to the opinion expressed in the Report by the Question Mark Social Research Office, "the historical reenactment movement is one of the largest social movements to emerge in Poland after 1989" (Question Mark, 2016, p. 3). However, this opinion was not supported by official comparative data on other movements. It must be acknowledged, however, that reenactment is a social movement characterized by durability and dynamic development. Over the past thirty years, it has undergone a visible professionalization, engaging a wide audience, including both participants and visitors. The transformation of groups of enthusiasts into mature organizations is not a homogeneous and constant process. What is monogenic, however, are the beginnings of group formation, which usually arise on the foundation of enthusiasm and shared interests. Based on definitions proposed by authors of scholarly studies on communities of practitioners, such as, among others:

1. „Communities of practitioners form organically and naturally identify their own leaders, who typically possess a combination of social skills and strong professional competence. They also often require support from senior management and financial assistance" (Smith, Kempster, Wenger-Trayner, 2019, pp. 62-88).
2. „The essence of a community of practitioners is mutual learning, the exchange of information, and the sharing of inspiration, best practices, standards, and approaches" (Dach, 2006, p. 4).

it must be acknowledged that, in the process of fostering interest, historical reenactment groups spontaneously trigger a mechanism of social learning. This is clearly evident, for example, in the two phases of the process related to recruiting new members and establishing a development path for them – 1. Admitting a new member to the group, whose marginal participation gradually evolves into a phase of deep involvement, reflected in increasingly frequent attendance at meetings and a strong desire to acquire specialized knowledge (it should be noted here that this specialization often literally means – elite status, through the uniqueness of the specialization, e.g., learning a craft based on standards derived from source materials, an example might be the technique of preparing fabrics based on original iconography, using hand embroidery and materials characterizing a given historical period. Or testing equipment, clothing, and analyzing lifestyle during several days or months of hiking in open terrain, during which only equipment available in that era is used. 2. Professionalization that enables one to meet the standards set by the group, thereby gaining experience and earning the recognition of

both group members and external audiences, and eventually establishing authority within the reenactment community.

Authors of scientific studies in the humanities and social sciences propose, above all, the level of substantive knowledge as a criterion of professionalism (Bogacki, 2010, p. 54). The criteria proposed by the author in a study conducted in 2023 included a number of others, focused not only on the level of knowledge but also on their business potential. The criteria used in the assessment of the professionalization of groups consisted of:

- organizational activities in Poland and abroad (organizing activities and events, particularly those that are well-known, popular, and recognized within the reenactment community),
- participation in events and activities that are well-known, popular, and recognized within the reenactment community,
- the group's recognition among reenactors,
- the group's visibility on social media,
- the group's social media activity, brand building, marketing,
- the group's activities in the field of education,
- the group's entrepreneurial spirit, the uniqueness of its development path, and its ability to assimilate new members,
- the number of active members and their level of preparation,
- initiatives aimed at promoting cultural heritage,
- collaboration with cultural institutions, businesses, and museums,
- external funding secured for business development,

The analysis covered all historical reenactment groups, broken down by province.

These data are not essential to this article; their sole purpose is to provide an overview of the number of active groups in Poland and their level of professionalism. Two administrative units were selected for the sample: the Pomeranian and Lower Silesian voivodships, based on the comparable number of reenactment groups operating within their territorial boundaries. In the Pomeranian Voivodship, out of the 31 groups analyzed, 10 were rated as very advanced, 6 as advanced, 13 as intermediate, and 2 as basic. In the Lower Silesian Voivodship, out of 33 groups analyzed, 3 were rated as very advanced, 10 as advanced, 15 as intermediate, and 5 as basic. When analyzing nationwide data, it was concluded that there is no single dominant factor influencing the development of the potential for professionalization of the groups. This was not determined by the size of the group, its specific characteristics, or its level of expertise. However, attention was drawn to the high level of activity among these groups on social media and online interest groups for reenactors. This observation prompted a more in-depth analysis focused on examining intra-group relationships. The qualitative IDI method was selected as the research tool. The survey was sent to representatives of reenactment groups from across Poland, including:

1. The Legio XXI Rapax Association – one of the largest groups in the world reenacting Roman military units.
2. The Opole Knights Brotherhood – the largest historical reenactment group in the Opole Voivodeship.
3. St. Nicholas Company – the group's activities focus, among other things, on the castle it acquired in Janowiec-Bobrzany.
4. The Excalibur Knights Brotherhood – which includes many members of the Polish Knights' Squad, among whom are medalists from the International Medieval Combat Federation, one of Europe's largest events dedicated to knightly combat.
5. The Knights Brotherhood of Bolków Castle – active since 1995, the oldest in Poland, and a member of the Chapter of Polish Knights – the largest Polish organization bringing together groups involved in historical reenactment.

The interviews were conducted at the turn of 2023-2024. The sample comprised 30 groups representing all provinces in Poland. The study targeted representatives of groups with an advanced or highly advanced level of professionalization. The respondents were group founders or members with very long tenure (minimum 10 years). The interviews focused on issues related to the professionalization of organizations providing educational and reenactment services, as well as topics related to teal management. The interviews addressed issues of competence, organizational development, adaptation and development of group members, responsible leadership, and managing a diverse team. One of the secondary findings was the conclusion regarding the presence of key elements characterizing communities of practice within the studied groups. This prompted the author to supplement the interviews with questions concerning factors influencing the development of the studied organizations, which were based on processes related to relationship building, knowledge transfer within the organization, and the creation of a shared group identity. The groups studied proved to be an ideal setting for research, serving as an example of organisms that naturally form an ecosystem of practitioner communities.

The first research tool consisted of thirty-one open-ended questions. The second tool consisted of seven additional open-ended questions. The interview was structured, based on a pre-prepared set of questions asked of all respondents in a similar order. At the same time, the interview design allowed for extensive, free-flowing responses from the participants, with the aim of obtaining in-depth information by having respondents elaborate on the topics raised. This made it possible to maintain the comparability of the data while capturing the broader context of the participants' experiences and opinions. The interviews were supplemented by participant observation, which involved the researcher's direct participation in selected group activities. Observation allowed for the verification of information obtained during the interviews and for capturing aspects of the community's functioning that are not always explicitly articulated by the respondents.

4. Conclusions

The conclusions drawn from the interviews suggest that reenactors do not view professionalization in terms of business skills, but rather as the ability to gain visibility – that is, recognition within the community – through, among other things: organizing events that bring together the largest groups of reenactors, creating initiatives that promote the community and attract the interest of other groups, and substantive preparation that reflects the most perfect and faithful historical reenactment, expressed through: clothing, makeup, and the depiction of the daily life of a chosen historical figure, taking into account their social status, gender, role, etc., as well as meticulous craftsmanship. For example, members of Legio XXI Rapax use only handmade materials. During organized outdoor marches, they live in tents, cook in camp, and even run a field hospital. They communicate in Latin, using the pronunciation which is as close as possible to original Roman.

In every case, the interlocutors pointed out the need for a high degree of determination among newcomers, which initially involves acquiring substantive knowledge and, subsequently, preparing their first costume and equipment under the guidance of experienced members of the group. In their opinion, two factors influence the level of this commitment: 1. Internal motivation, reflecting a desire to become a professional – the image of a reenactor, combined with an interest in history and a desire to draw the audience into the reenactor's closed-off world, ensures that a person joining the group is highly motivated from the very beginning to perform activities that will bring them closer to this goal. Already during the recruitment interviews, the person is partially informed about the development path and the standards imposed by the group, the fulfillment of which will contribute to long-term cooperation, resulting in the achievement of this goal. Sometimes these standards are very high; for example, they require active engagement in the form of independent analysis of historical sources. According to a source interviewed by Legio XXI Rapax, this high bar helps assess the genuine commitment of newcomers and serves as proof of their actual dedication. 2. Support from group members – this factor should be considered key to ensuring that initial motivation is not only sustained but also developed. The success of new members' adaptation is undoubtedly an indicator of the effectiveness of reenactment group development. It is precisely this human capital, absorbed by the organization, that serves as its primary „fuel", enabling the expansion of its scope of operations. The faster and more efficiently the adaptation process proceeds, the faster the organization gains the necessary resources. All interviewees unanimously stated that this support is not limited to substantive leadership or the sharing of practical knowledge (procedures, best practices, experiences, etc.). Phrases such as „family", „brothers", „bond", „father", and „friendship" appear in the interviews. These communities foster strong, deep social bonds that extend beyond mere social gatherings in one's free time to include organized mutual aid (e.g., fundraisers for the families of group members, support in the fight against cancer, etc.), involving group members in one's personal life, and even integrating one's own life into the group's activities (e.g., by permanently residing at the facility

that serves as the group's headquarters). According to the respondents' statements, it appears that the foundation for building these bonds consists of factors such as: 1. mentoring (within groups, this role is assumed either by the longest-standing members, those assigned this function within the group, or individuals specifically delegated to this task). For example, the Opole Knights Brotherhood assigns a "guide" to each novice—a member of the Brotherhood who helps them adjust. 2. Regular, high-quality communication based on respect and focused on inclusivity (professionalization is based on fostering appropriate attitudes and communication styles). The interviewees noted that the trainees come from diverse backgrounds, represent different values, and have contrasting personalities. Therefore, in their opinion, behaviors based on „openness", „promoting and embracing attitudes that encourage the exchange of views", „collegiality", and „maintaining high personal standards" are important.

Importantly, professionalization takes on another significant dimension: the transfer of these outcomes beyond the internal group. As mentioned earlier, historical reenactment groups learn and develop through practice, the exchange of experiences, and, above all, coexistence. Each group is distinguished by its own internal community, practices, and domain. However, reaching a high level of reenactment requires a communal form of activity. Otherwise, it would be impossible to organize large scale events such as spectacular historical festivals or battle reenactments. It would also be impossible to maintain a high level of historical accuracy without expert consultations and the exchange of experiences among reenactors representing different groups.

The internal group's interactions with external groups are responsible for standardization and quality improvement. Through these interactions, common criteria for authenticity are developed, and a mechanism for learning through criticism and observation is set in motion. It is worth noting that the know-how involved in reenactment is, to some extent, tacit knowledge, refined through practice and feedback. Through participation in major events, visibility in the media and on social media, pro-social activities, or the community's opinion of the group—gained through the purchase of their handcrafted products—reenactors learn about the strengths of their fellow creators and thus learn to emulate best practices. This collaboration has many dimensions. For example, the Saint Nicholas Company, as a group focused on, among other things, the reconstruction of liturgical vestments and liturgical equipment from the medieval era, prepares designs for vestments or fabrics for other reenactors. Another example is the Bolków Castle Knights Brotherhood, whose activities have resulted in the organization of prestigious knightly tournaments held at the Castle, as well as given rise to many new, currently active, reenactment groups in Lower Silesia. This continuous transfer of knowledge between reenactment groups is a process of ongoing improvement through participation in social practice and interaction with other participants in the field. Professionalization therefore takes on a normative and quality oriented character, and its measure is recognition within the profession and a reputation built through the consistent application of high standards.

5. Discussion

The empirical data collected were of a pilot nature and constituted an early stage of exploration of the researched phenomenon. This means that they do not allow for generalizations; therefore, to enhance the reliability of the research, it is advisable to conduct further studies using a larger sample of respondents. The presented results can, however, be considered promising. Perhaps an interdisciplinary perspective will be helpful in deepening our understanding of complex social phenomena, especially when we recognize that organizations function simultaneously as social, cultural, economic, and technological systems. Including the communities of educational and reenactment service providers within the scope of management and quality science will broaden the discipline's research focus, which has primarily centered on formal organizations, to include organizations established primarily through grassroots initiatives. Observing the processes within these organizations has provided insight into an alternative model of professionalization, serving as a valuable research laboratory. Historical reenactment communities can be viewed as a model example of how communities of practitioners function, where professionalization occurs through participation, relationality, and the collective negotiation of standards. This is a promising field for research on this topic, and the findings may open new perspectives for researchers studying contemporary organizations. It should be however noted, that a limitation of this study is the inability to fully and directly apply the findings to formal organizations, primarily because the organizations studied represent groups with specific characteristics. Nevertheless, in the final assessment, it can be concluded that a comprehensive analysis of the phenomenon from a broader representative perspective could lead to the development of broader practical implications than those currently available in the theoretical discourse presented thus far.

6. Summary

In conclusion, the research findings presented here lead to the following findings regarding their potential applications in the field of management:

- the collaborative learning model facilitates the transfer of tacit knowledge, which is difficult to formalize in procedures,
- mentoring and inclusive communication enhance the effectiveness of new members onboarding in organizations,
- inter-organizational collaboration and environmental benchmarking lead to natural standardization and continuous quality improvement through networked learning,

- professionalism can be built through reputation and maintaining quality, rather than solely through formal performance metrics,
- communities of practitioners build strong, deep social bonds, which can be leveraged, for example, in managing diverse teams.

References

1. Biuro Badań Społecznych Question Mark (2016). *Grupy rekonstrukcji historycznych – działania oddolne na rzecz krzewienia kultury narodowej. Raport z badań*. Warsaw. Retrieved from: https://www.nck.pl/ badania/, 10.02.2026.
2. Bogacki, M. (2010). O współczesnym ożywianiu przeszłości – charakterystyka odtwórstwa historycznego. *Turystyka Kulturowa*, *5*, 4-27.
3. Bolisani, E., Scarso, E. (2014). The place of communities of practice in knowledge management studies: A critical review. *Journal of Knowledge Management*, *18*(2), 266-381. https://doi:10.1108/JKM-07-2013-0277
4. Chańko, J., Daszyńska, J.A. (2006). Rekonstrukcja historyczna: hobby, pasja, komercja? *Wiadomości Historyczne*, *6*, 4-16.
5. Choi, H., Ahn, J., Jung, S., Kim, J. (2020). Communities of Practice and Knowledge Management Systems: Effects on Knowledge Management Activities and Innovation Performance. *Knowledge Management Research and Practice*, *18*(1), 53-68. https://doi: 10.1080/ 14778238.2019.1598578
6. Dach, D. (2006). *Tworzenie lokalnej wspólnoty wiedzy*. Management Forum 2020. Nowoczesne koncepcje i metody zarządzania strategicznego, materiały konferencyjne.
7. Gach, D. (2007). Wspólnoty praktyki. In: B. Mikuła, A. Pietruszka-Ortyl, A. Potocki (eds.), *Podstawy zarządzania przedsiębiorstwami w gospodarce opartej na wiedzy* (pp. 149-156). Warsaw: Difin.
8. Johnson, K.M. (2015). Rethinking (re)doing Historical re-enactment and/as historiography. *Rethinking History*, *19*(2), 193-206.
9. Kłak, M. (2022). Wspólnoty praktyków jako styl życia pracowników współczesnych organizacji. *Zarządzanie Zasobami Ludzkimi*, *4*(92), 43-55.
10. Lave, J., Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*, Cambridge: Cambridge University Press, 140.
11. Lesser, E.L., Storck, J. (2001). Communities of Practice and Organizational Performance. *IBM Systems Journal*, *40*(4), 831-841.
12. Matuszak, T. (2022). Rekonstrukcja historyczna – badania oraz promocja dziejów regionu. *Opinie i analizy*, *58*, 1-10.

13. McCalman, I., Pickering, P. (eds.) (2010). *The Reenactment of the Past: Historical Reenactment as a Cultural Form*. London: Palgrave Macmillan, 229.
14. Meyer, N., Oman, L., Edwards, J.S., Garcia-Perez, A., Bedford, D., Kerrigan, P. (2025). *The Knowledge of Communities.* Leeds: Emerald Publishing Limited, 274.
15. Mierzejewska, B. (2005). Społeczności praktyków. Efektywne tworzenie i wykorzystywanie wiedzy w organizacji. *E-mentor*, *1*(8), 52-57.
16. Smith, S., Kempster, S., Wenger-Trayner, E. (2019). Developing a Program Community of Practice for Leadership Development. *Journal of Management Education*, *43*(1), 62-88. doi: 10.1177/1052562918812143
17. Wenger, E., McDermott, R., Snyder, W. (2002). *A Guide to Managing Knowledge. Cultivating Communities of Practice.* Boston: Harvard Business School Press, p. 284.
18. Wojnarowicz, P., Małysiak, J. (2018). Profesjonalizacja ruchu rekonstrukcyjnego na przykładzie okresu „okołogrunwaldzkiego" (początek XV wieku). *Wiadomości Historyczne: czasopismo dla nauczycieli*, *61*(6), 24-28.
19. Wypych, B. (2018). Rozwój rodzimego ruchu rekonstruktorskiego, a kulisy powstania Kapituły Rycerstwa Polskiego. *Studia Elbląskie*, *19*, 193-205.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

CRONYISM IN THE PERCEPTION OF FUTURE MANAGERS – STUDENTS OF MANAGEMENT STUDIES

Joanna M. MOCZYDŁOWSKA

Bialystok University of Technology; j.moczydlowska@pb.edu.pl, ORCID: 0000-0003-1123-2555

Purpose: The purpose of this article is to synthesize existing knowledge on cronyism as a manifestation of pathology in human capital management, and to diagnose the attitudes of management degree students toward this phenomenon and its potential consequences?
Design/methodology/approach: The study covered a group of 200 management degree students representing three universities: two in the Podlaskie and one in the Masovian Voivodeship. The following research problems were formulated: 1. What is the scale of cronyism in enterprises operating in Poland, as assessed by students, who are future managers? 2. How do respondents evaluate the potential consequences of cronyism? 3. What situations, in respondents' assessment, justify cronyism in hiring practice? A questionnaire serving as the research tool.
Findings: Students had difficulty formulating an unambiguous evaluation of the potential consequences of cronyism. The most significant risks associated with cronyism, according to respondents, are the risk of unfair treatment of employees - and consequently a decline in the quality and standards of work - as well as the risk that informal divisions will emerge within the organization between those who are and those who are not within the circle of acquaintances. The risks rated lowest by respondents relate to the potential exclusion of individuals outside the inner circle and the favoritism of colleagues in the promotion process. The majority of study participants exhibited a lack of a clear stance on the issue of hiring someone through personal connections. Students identified a range of circumstances that justify hiring acquaintances and friends.
Research limitations/implications: The limitations of the study stem from the fact that the sample does not meet the criterion of representativeness, as participants were drawn from only two regions. It is therefore advisable to extend the research to students from universities in various regions with more diverse cultural backgrounds.
Originality/value: The originality of this article lies in its subject matter. This is the first study in Poland to examine student attitudes toward the phenomenon of cronyism.
Keywords: cronyism, students, management.
Category of the paper: Research paper.

1. Introduction

Cronyism (also referred to as favoritism) is defined as the granting of privileges to employees on the basis of social and personal connections, rather than on the basis of their competencies or work performance (Khatri, 2017; Zhang, Gill, 2019, pp. 322-344). It involves the favoritism of friends and/or acquaintances in hiring, promotion, or the awarding of other benefits arising from the employment relationship. Cronyism is also defined as a horizontal network of connections among acquaintances (cronies) who, having been placed in their respective positions, sustain or promote one another depending on who currently holds power. Cronyism involves unequal treatment and may occur in organizations in two forms: (a) horizontal cronyism, i.e., favoritism based on relationships at the same level within the organizational structure (e.g., friends, colleagues, classmates, social groups, and trade unions), or (b) vertical cronyism, which involves the favoritism of a subordinate on the basis of factors unrelated to their work performance, thus encompassing the relationship between a leader and a subordinate (Shaheen et al., 2017, pp. 308-323).

Cronyism is a manifestation of relational pathology in organizations, as it entails a range of negative consequences, including reduced job satisfaction, declining organizational commitment, increased destructive stress, and voluntary employee turnover. Despite these serious potential consequences, cronyism in the Polish context remains relatively under-researched, and available research focuses primarily on the public sector and the phenomenon of crony capitalism (Bartnicki, 2019, pp. 65-70). The purpose of this article is therefore to synthesize existing knowledge on cronyism as a manifestation of pathology in human capital management and to diagnose the attitudes of management degree students toward this phenomenon and its potential consequences. The underlying assumption is that students' attitudes toward cronyism in professional relationships indirectly reflect their moral attitudes as future managers, and that the research findings can thus be utilized in the process of improving the management degree curriculum in areas related to ethics in management. The study covered a group of 200 management degree students representing 3 universities (two public, one private) in the Podlaskie and Masovian voivodeships. The following research problems were formulated:

1. What is the scale of cronyism in enterprises operating in Poland, as assessed by students, who are future managers?
2. How do respondents evaluate the potential consequences of cronyism?
3. What situations, in respondents' assessment, justify cronyism in hiring policy?

A survey-based research method was employed, with a questionnaire serving as the research tool.

2. Cronyism as a Manifestation of Pathology in Management – A Literature Review

There is no consensus in the literature as to when the term was first used. Some researchers maintain that this occurred in 1665, when Samuel Pepys first used the word crony in the sense of an original, long-standing friendship or association between individuals in the context of persons connected with the universities of Cambridge and Oxford (school companions). Other sources indicate that the term's first use occurred in 1840, where it was defined as "the skill and inclination to form friendships" (Khatri, Tsang, 2003, pp. 289-303). In its contemporary sense, it gained currency through a New York Times journalist who applied the term cronyism to practices employed by the Truman administration in the early 1950s, involving the appointment of individuals to government offices through personal connections. It has been confirmed that in the public sector, cronyism negatively affects organizational effectiveness (Awaah, 2022; Coco, Lagravinese, 2014, pp. 443-450), heightens the risk of corruption (Roberts, 2010, pp. 1-12), and engenders pathological behaviors among public servants (Arkorfu, 2022, pp. 708-727; Shaheen et al., 2017, pp. 308-317).

A distinction must be drawn between cronyism and crony capitalism. Crony capitalism is an extension of the general concept of cronyism, as it concerns economic entities or other organizations that derive benefits by virtue of their political connections (Reinsberg et al., 2021, pp. 607-626; Rubin, 2016, pp. 105-120; Chekir, Diwan, 2014, pp. 177-180). Crony capitalism is a term describing an economy in which business success depends on close relationships between businesspeople and government officials and politicians. It may manifest in the form of favoritism in the distribution of legal permits and licenses, government subsidies, special tax concessions, grants and loans, or other forms of state interventionism. Such a politicized economic system poses a threat to the free market, as it involves the deliberate and systematic use of policy to manipulate markets in ways that benefit politically connected entities. Crony capitalism cultivates political entrepreneurs while suppressing market entrepreneurs by undermining transparency and competition (Diwan, Keefer, Schiffbauer, 2016). It is a pathological phenomenon in which the relationships between politically connected capitalists and corrupt bureaucrats and politicians perpetuate both petty corruption (bribes in interactions between state officials and social actors) and grand corruption (the abuse of power by political elites to increase the gains of economic elites) (Reinsberg, Kentikelenis, Stubbs, 2021, pp. 607-625). The expansion of networks of privilege generates widespread social frustration and, consequently, crony capitalism can provoke serious social unrest, as occurred, for example, in Egypt and Tunisia (Chekir, Diwan, 2014, pp. 177-198).

Crony capitalism may also take another form: politicians may exploit the public sector or state-owned enterprises to offer attractive positions to associates at the expense of organizational efficiency and general welfare. Research conducted in Portugal, for instance,

demonstrated that public sector employment increases significantly in the months immediately preceding or following a change of government, but only when the incoming government is formed by a different party (or coalition) than its predecessor (Martins, 2020).

Cronyism constitutes an interdisciplinary subject of study primarily within economics and finance, the social sciences, public administration and political science, ethics, and psychology. In management and quality sciences, this phenomenon is treated as one of the key manifestations of organizational pathology, as it leads to numerous negative consequences (Turhan, 2014, pp. 295-308). Employees who are not "cronies" feel they are being treated unfairly, which reduces their organizational loyalty, commitment, and job satisfaction (Mao et al., 2018, pp. 745-756; Christensen-Salem et al., 2021, pp. 619-624), and increases work-related stress and readiness to change employers (Erdem, Karataş, 2015, pp. 55-67; Pearce, 2015, pp. 41-44). Research places particular emphasis on the destructive impact of cronyism on intra-organizational relations and social capital (Shaheen et al., 2020). Cronyism causes informal divisions to form within organizations between those who are and those who are not within the inner circle, as a result of which members of out-groups feel excluded and cut off from key information (Quade, Greenbaum, Petrenko, 2017, pp. 675-689). They experience ostracism and a sense of being ignored (Ferris, Chen, Lim, 2017, pp. 315-325). Excluded out-group members have limited opportunities to contribute to organizational processes and reduced access to organizational resources, including knowledge resources (Bedi, 2021, pp. 861-880). Cronyism significantly diminishes the sense of trust within a divided team, which consequently reduces the quality of communication and leads to destructive conflicts between those favored and those excluded from the privileged personal network (Howard, Cogswell, Smith, 2020, pp. 577-589; Riaz, Zaman, 2018, pp. 831-841). Cronyism is often accompanied by the promotion of a poor work culture, ultimately causing a decline in organizational effectiveness of teams and entire organizations. Placing incompetent individuals in senior positions reduces the quality of management (Ignatowski, Sułkowski, Stopczyński, 2021, p. 59). Furthermore, in accordance with social exchange theory and equity theory, when employees perceive injustice and a lack of correlation between input and outcome, or when they believe they are not being treated in accordance with the principles of fairness and professionalism, they may engage in negative counterproductive or anomic behaviors as a form of "retaliation" against the organization (Kowalewski, Moczydłowska, 2020, pp. 45-50) or quiet quitting (Moczydłowska, 2024, pp. 442-450).

Cronyism is often confused with nepotism (Niemiec, 2024, pp. 475-479). The most important distinction between these two phenomena stems from the degree of kinship between the individuals granting favors and those being favored. On the one hand, there are similarities between cronyism and nepotism, as in both cases privileges, duties, or positions are assigned to individuals on the basis of factors other than merit (Pasamonik, 2024, pp. 3-26). On the other hand, there are also significant differences. In cronyism, the favored individual is not a family member, which is the defining characteristic of nepotism. Cronyism as a term encompassing,

for example, members of a social group, children of friends, and colleagues is a broader concept than nepotism (Kuforiji, 2024, pp. 1-105; Shah et al., 2025, pp. 177-180; Rasheed, Roques, Rashid, 2025, pp. 1-18). The foundation of nepotism is a family relationship, and the favoritism it entails constitutes amoral familism, which often arises from emotions characteristic of family members (e.g., love for relatives, loyalty, and attachment to close ones). In the case of cronyism, the emotional context is also relevant; however, the emotions involved are less intense or more varied, ranging, for example, from affection for a university acquaintance to fear of exclusion from a group (Gusman, 2024, pp. 239-246).

3. Research Methodology and Sample Characteristics

The aim of the study was to explore the opinions of management students regarding the prevalence and potential consequences of cronyism in human resource management within organizations. It was assumed that raising awareness of the occurrence and effects of cronyism constitutes an important element in developing the moral competencies of future managers, thus justifying a diagnostic study in this area. The study encompassed a group of 200 full-time management students representing three universities (two public, one private) in the Podlaskie and Masovian voivodeships. Part-time students were deliberately excluded in order to minimize the influence of respondent age as a variable. The sample consisted of 60% male and 40% female participants. As many as 52.5% of respondents (105 individuals) were currently employed, of whom 34.3% held employment contracts (full- or part-time), while the remaining individuals in this subgroup worked under civil law contracts. The sample was dominated by first-cycle (Bachelor's) students (140 individuals, 70%), reflecting the distribution of first- and second-cycle students within the general population of this field of study. Figure 1 shows the distribution of participants by year of study.

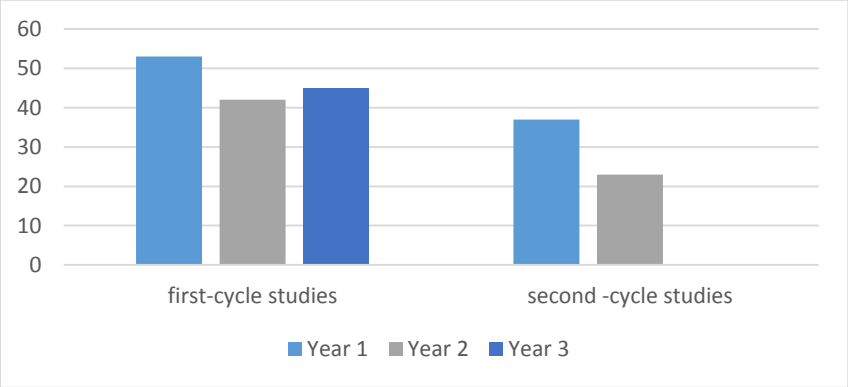


Figure 1. Distribution of participants by year of study.

Source: own work.

The following research questions were formulated:

1. What is the scale of cronyism in enterprises operating in Poland, as assessed by students, who are future managers?
2. How do respondents evaluate the potential consequences of cronyism?
3. What circumstances, in respondents' assessment, justify cronyism in hiring policy?

To address these research questions, the survey-based research method was employed, with a questionnaire as the research tool. It was assumed that students might not be familiar with the term cronyism (kronizm), and therefore the questionnaire used the colloquial Polish expressions kolesiostwo (meaning: networking turned nepotism) and "through personal connections". The study was conducted in January 2026.

4. The Phenomenon of Cronyism as Perceived by Management Students – Research Findings

In the assessment of the large majority of management students, the practice of hiring someone "through personal connections" is widespread in Polish enterprises. Among first-cycle students, 83.5% selected the responses "very often" or "often", while among second-cycle students this figure stood at 88.4% (see figure 2). The gender of respondents, university location, and level of study had no significant effect on the distribution of responses.

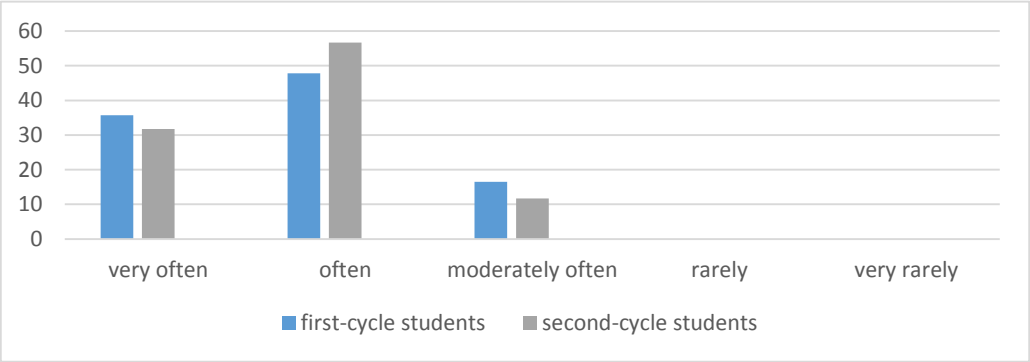


Figure 1. Distribution of participants by year of study.

Source: own work.

When evaluating the potential risks associated with working in a team composed of the owner's or manager's friends and acquaintances, students largely avoided clear-cut extreme assessments. Although the median score on a 1-to-5 scale was 4 (high risk) for most potential risks, the mean scores ranged within the moderate interval of 2.9 to 3.9. According to study participants, the greatest risks arising from cronyism are the risk of unfair treatment of employees and the consequent decline in work quality and standards (mean 3.9, median 4), as well as the risk that informal divisions will emerge within the organization between those who belong and those who do not belong to the manager's personal network, leading to

a deterioration of the workplace atmosphere (mean 3.7, median 4). The greatest dispersion of results occurred in the assessment of the statement "Employees outside the manager's circle of friends and acquaintances often feel excluded" (see Table 1).

Table 1.
Risks associated with cronyism as assessed by management students

Statement	Mean (scale 1-5)	Variance	Standard Deviation	Median
Employees outside the manager's circle of friends and acquaintances often feel disadvantaged, which reduces their job satisfaction.	3.5	0.9857	0.9928	4
Employees outside the manager's circle have limited opportunities for promotion.	2.9	1.1271	1.0617	3
Employees outside the manager's circle of friends and acquaintances often feel excluded.	2.9	1.2846	1.1334	3
Cronyism generates the risk of unfair treatment of employees and, consequently, a decline in work quality and standards.	3.9	0.9275	0.9631	4
Due to cronyism, informal divisions emerge within the organization between insiders and outsiders, leading to a deterioration of the workplace atmosphere.	3.7	1.0537	1.0537	4
Cronyism is a frequent source of destructive conflict within organizations.	3.3	1.2273	1.0314	3
Cronyism generates the risk of employee turnover among those outside the inner circle.	3.6	1.0639	1.0315	4

Source: own work.

An important element of the study was the assessment of students' level of acceptance of cronyism in hiring practices. When evaluating the truthfulness of the statement "I see nothing wrong with hiring friends and acquaintances (e.g., from school or university)", the majority of participants selected the response "I partially agree and partially disagree", which, given the relatively low variance, indirectly indicates an absence of a clear-cut position on the matter and/or a high awareness of the complexity of this phenomenon (see Table 2).

Table 2.
Level of acceptance of cronyism in hiring practices

Statement	Mean (scale 1-5)	Variance	Standard Deviation	Median
I see nothing wrong with hiring friends and acquaintances (e.g., from school or university).	3.3	0.6575	0.8109	3

Source: own work.

A more in-depth diagnosis of students' acceptance of cronyism was enabled by the analysis of responses to the open-ended question: Are there situations in which hiring 'through personal connections' is justified? If so, what are they? (see Table 3).

Table 3.
Situations justifying hiring "through personal connections" as assessed by students

Category of Response	Frequency of Responses (N = 128) - Number/% *
If the person being hired possesses the competencies required by the organization	74 (60.2%)
If it is employment within a family business	23 (18%)
If the person is an outstanding expert in their field	16 (12.5%)
If it constitutes assistance to a friend in a difficult personal situation	15 (11.7%)
If a trusted and proven individual is needed	11 (8.6%)
If there is no time for formal recruitment and an employee is needed immediately	10 (7.8%)
Only if no other candidate can be found	8 (6.2%)
If there is a guarantee of fair and impartial treatment of all employees	8 (6.2%)
If the position does not require specific competencies and it makes no difference who is hired	5 (3.9%)
There are no circumstances that justify hiring "through personal connections"	5 (3.9%)

* Percentages exceed 100% due to multiple responses.

Source: own work.

Of the total sample, 128 respondents chose to answer the open-ended question. Over 60% of this subgroup believe there are no objections to hiring someone "through personal connections" if that person possesses the required competencies. An additional 12.5% of respondents within this subgroup (16 out of 128 students) expressed the view that such hiring is fully justified when the prospective employee is an expert in their field, or when the organization has no time for formal recruitment and needs an employee immediately (10 responses, 7.8%). Notably, as many as 11.7% of students in the open-response subgroup (7.5% of the total sample) believe that a friend's or acquaintance's difficult personal circumstances also fully justify hiring them "through personal connections". For 23 respondents, this form of hiring is equally acceptable in family-owned businesses. Only 5 individuals unequivocally stated that there are no circumstances that justify hiring "through personal connections". It is therefore reasonable to conclude that the majority of management students struggle to adopt an unequivocally negative stance toward a phenomenon that in the academic literature is described as a manifestation of organizational pathology. They relativize this phenomenon by identifying a range of factors that justify offering employment to friends and acquaintances, conditioning such practices on the one hand on the professional competencies of the candidates, and on the other on the needs of the organization.

5. Conclusions

The aim of the study presented in this article was to diagnose the attitudes of management students toward the phenomenon of cronyism. The analysis of the research findings enabled responses to the formulated research questions:

1. What is the scale of cronyism in enterprises operating in Poland, as assessed by students, who are future managers? In the assessment of the vast majority of management students, the practice of hiring someone “through personal connections” is widespread in Polish enterprises.
2. How do respondents evaluate the potential consequences of cronyism? Most students encountered difficulty in formulating a clear-cut assessment of the potential consequences of cronyism, the list of which was developed on the basis of a review of the current state of research on this phenomenon. Although the median score on a 1-to-5 scale was 4 (high risk) for most potential risks, mean scores ranged within the moderate interval of 2.9 to 3.9. According to management students, the greatest risks arising from cronyism are the risk of unfair treatment of employees and the consequent decline in work quality and standards, as well as the risk that informal divisions will emerge within the organization between insiders and outsiders, resulting in a deterioration of the workplace atmosphere. The risks rated lowest by respondents relate to the potential exclusion of individuals outside the inner circle and the favoritism shown to acquaintances in promotion processes.
3. What circumstances, in respondents' assessment, justify cronyism in hiring policy? The majority of study participants demonstrated an absence of a clear-cut position on the issue of hiring “through personal connections”. Management students identified a range of circumstances that justify offering employment to friends and acquaintances. The most prominent among these are high professional competencies of the candidates, the family-owned nature of the business, and the difficult personal circumstances of a friend or acquaintance.

The university's location, as well as variables such as age and gender, had no significant effect on the distribution of respondents' answers.

In the course of the study, a number of limitations were identified. These stem primarily from the fact that the sample does not meet the criterion of representativeness, as study participants came from only two regions. It is therefore advisable to extend the research to universities operating in different regions of the country, thus encompassing respondents with more varied cultural backgrounds. Furthermore, in the author's opinion, it is justified to continue research on attitudes toward cronyism among students of disciplines other than management, which would provide insight into the generational perception of this phenomenon. Given the ambiguous results obtained across many of the examined dimensions, the future use of qualitative research methods appears valuable, as they would allow for a deeper understanding of the nuances associated with future managers' attitudes toward cronyism.

Acknowledgements

The research was conducted as part of Project No. WIZ/WZ-INZ/3/2026 at the Białystok University of Technology and funded by a research grant provided by the minister responsible for science.

References

1. Arkorful, H., Hilton, S.K., Awaah, F. (2022). Community engagement in development projects: government versus private funded projects in Ghana. *Journal of Enterprising Communities: People and Places in the Global Economy, 17*(3), 708-727, https://doi.org/10.1108/JEC-09-2021-0138
2. Awaah, F. (2022). Indigenous – foreign culture fit and public employee performance: the case of Ghana. *Journal of Economic and Administrative Sciences*, https://doi.org/10.1108/JEAS-08-2022-0182
3. Bartnicki, S. (2019). Głosowanie klientelizmem pisane, czyli jak zwiększać szanse reelekcji w wyborach wójtów i burmistrzów. *Studia Socjologiczne*, *232*(1), 65-93, https://doi.org/10.24425/122490
4. Bedi, A. (2021). No herd for black sheep: a meta-analytic review of the predictors and outcomes of workplace ostracism. *Applied Psychology: An International Review, 70*(2), 861-904, https://doi.org/10.1111/apps.12238, https://doi.org/10.1111/apps.12238
5. Chekir, H., Diwan, I. (2014). Crony capitalism in Egypt. *Journal of Globalization and Development, 5*(2), 177-211 https://doi.org/10.1515/jgd-2014-0025
6. Christensen-Salem, A., Walumbwa, F.O., Babalola, M.T., Guo, L., Misati, E. (2021). A multilevel analysis of the relationship between ethical leadership and ostracism: the roles of relational climate, employee mindfulness, and work unit structure. *Journal of Business Ethics, 171,* 619-638, https://doi.org/10.1007/s10551-020-04424-5
7. Coco, G., Lagravinese, R. (2014). Cronyism and education performance. *Economic Modeling, 38,* pp. 443-450, https://doi.org/10.1016/j.econmod.2014.01.027
8. Diwan, I., Keefer, P., Schiffbauer, M. (2016). Pyramid capitalism: Cronyism, regulation and firm productivity in Egypt. *IDB Working Paper Series*, *739.* Washington, DC: Inter-American Development Bank, https://doi.org/10.1007/s11558-018-9327-2
9. Erdem, B., Karataş, A. (2015). The effects of cronyism on job satisfaction and intention to quit the job in hotel enterprises: The case of three, four and five star hotels in Muğla, Turkey. *Journal of Social Studies, 4*(1), 55-74. Retrieved from: http://www.izlik.org/JA23KF77TN

10. Ferris, D.L., Chen, M., Lim, S. (2017). Comparing and contrasting workplace ostracism and incivility. *Annual Review of Organizational Psychology and Organizational Behavior, 4,* 315-338, https://doi.org/10.1146/annurev-orgpsych-032516-113223
11. Gusman, D. (2024). The strong influence of nepotism on corruption on the buying of positions in the reason of government. *Journal of Law, Politic and Humanities, 4*(3), 239-246, https://doi.org/10.38035/jlph.v4i3.352
12. Howard, M.C., Cogswell, J.E., Smith, M.B. (2020). The antecedents and outcomes of workplace ostracism: a meta-analysis. *Journal of Applied Psychology, 105*(6), 577-596, https://doi.org/10.1037/apl0000453
13. Ignatowski, G., Sułkowski, Ł., Stopczyński. B. (2021). Risk of Increased Acceptance for Organizational Nepotism and Cronyism during the COVID-19 Pandemic. *Risks, 9*. https://doi.org/10.3390/risks9040059
14. Khatri, N. (2017). Indian brand od crony capitalism: the cultural underpinnings. *IIMA Institutional Repository*. Retrieved from: http://hdl.handle.net/11718/19109
15. Khatri, N., Tsang, E.W. (2003). Antecedents and consequences of cronyism in organisations. *Journal of Business Ethics, 43*(4), 289-303, https://doi.org/10.1023/A:1023081629529
16. Kowalewski, K., Moczydłowska, J.M. (2020). *Patologie i dysfunkcje w organizacji.* Warszawa: Difin.
17. Kuforiji, A.A. (2024). The Ethical Implications of Nepotism and Corruption in Professional Environments. *AKSU Journal of Administration and Corporate Governance, 4*(3), 101-110, https://doi.org/10.61090/aksujacog.2024.042
18. Mao, Y., Liu, Y., Jiang, C., Zhang (2018). Why am I ostracized and how would I react? A review of workplace ostracism research. *Asia Pacific Journal of Management, 35,* 745-767, https://doi.org/10.1007/s10490-017-9538-8
19. Martins, P.S. (2020). Jobs Cronyism in Public-Sector Firms. *GLO Discussion Paper, 624.*
20. Moczydłowska, J.M. (2024). Quiet quitting as a challenge for human capital management – the results of qualitative research. *Scientific Papers of Silesian University of Technology. Organization and Management Series, 199,* 442-455, https://doi.org/10.29119/1641-3466.2024.199.33
21. Niemiec, M. (2024). Występowanie patologii w organizacjach a ich dobrostan – analiza wyników badań pilotażowych. *Journal of Modern Science, 58*(4), 475-489, doi: 10.13166/jms/192198
22. Pasamonik, B. (2024). (Amoralny) familizm: propozycja rekonceptualizacji z wykorzystaniem psychologii ewolucyjnej i międzykulturowej. *Kultura i Społeczeństwo*, *68*(3), 3-34, https://doi.org/10.35757/KiS.2024.68.3.1
23. Pearce, J.L. (2015). Cronyism and nepotism are bad for everyone. The research evidence. *Industrial and Organizational Psychology, 8,* 41-44, https://doi.org/10.1017/iop.2014.10

24. Quade, M.J., Greenbaum, R.L., Petrenko, O.V. (2017). I don't want to be near you, unless': the interactive effect of unethical behavior and performance onto relationship conflict and workplace ostracism. *Personnel Psychology, 70,* 675-709, https://doi.org/10.1111/peps.12164
25. Rasheed, R., Roques, O., Rashid, A. (2025). Perceived Nepotism and Job Satisfaction: A Moderated Mediated Model of Supervisory Trust, Procedural, and Distributive Injustice. *International Journal of Public Administration*, *49*(2), 97-116, https://doi.org/10.1080/01900692.2025.2459746
26. Reinsberg, B., Kentikelenis, A., Stubbs, T. (2021). Creating crony capitalism: neoliberal globalization and the fueling of corruption. *Socio-Economic Review, 19*(2), 607-634. https://doi.org/10.1093/ser/mwz039
27. Riaz, A., Zaman, S.U. (2018). Impact of ethical leadership on organziational cronyism through mediating role of ethical culture and moderating role of leader member exchange. *Pakistan Journal of Commerce and Social Sciences, 12*(3), 831-850, https://doi.org/10419/193449
28. Roberts, J.M. (2010). Cronyism: undermining economic freedom and prosperity around the world. *Backgrounder, 2447*(9)*,* 1-12.
29. Rubin, P.H. (2016). Crony capitalism. *Supreme Court Economic Review*, *23*(1), 105-120, https://doi.org/10.1086/686474
30. Shah, S.M.A., Qamar, M.R., Ahmed, S., Imran, M. (2025). Nepotism and Favoritism in HR Practices: Implications for Organizational Politics in Pakistan. *Journal of Management & Social Science, 2*(1), 177-194.
31. Shaheen, S., Bashir, S., Khan, A.K. (2017). Examining organisational cronyism as an antecedent of workplace deviance in public sector organisations. *Public Personnel Management*, *46*(3), 308-323, https://doi.org/10.1177/0091026017716655
32. Shaheen, S., Zulfiqar, S., Saleem, S., Shehazadi, G. (2020). Does organizational cronyism lead to lower employee performance? Examining the mediating role of employee engagement and moderating role of islamic work ethics. *Frontiers in Psychology*, *11,* https://doi.org/10.3389/fpsyg.2020.579560
33. Turhan, M. (2014). Organizational cronyism: A scale development and validation from the perspective of teachers. *Journal of Business Ethics*, *123,* 295-308, https://doi.org/10.1007/s10551-013-1839-3
34. Zhang, J., Gill, C. (2019). Leader-follower guanxi: an invisible hand of cronyism in Chinese Management. *Asia Pacific Journal of Human Resources*, *57*(3), 322-344, https://doi.org/10.1111/1744-7941.12191

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

EVOLUTION OF WOMEN'S COMPETENCIES IN BUSINESS

Katarzyna OLEJNICZAK-SZUSTER[1*], Agata KIELESIŃSKA[2]

[1] Marketing and Promotion Center, Czestochowa University of Technology; k.olejniczak-szuster@pcz.pl, ORCID: 0000-0002-7820-4746
[2] Entrepreneurship Center, Czestochowa University of Technology; k.olejniczak-szuster@pcz.pl, ORCID: 0000-0001-9974-7961
* Correspondence author

Purpose: This article aims to provide a comprehensive overview and analysis of existing research on women's competencies in business, with particular emphasis on the evolution of research trends, key thematic areas, and potential directions for future development in this field.
Design/methodology/approach: The study employed a scoping review complemented by bibliometric analysis. The analysis encompassed publications indexed in the Scopus database between 1990 and 2025. Keyword co-occurrence and temporal dynamics analyses were conducted, enabling the identification of thematic clusters and the assessment of developmental trends in research on women's competencies in business.
Findings: The study employed a scoping review complemented by bibliometric analysis. The analysis encompassed publications indexed in the Scopus database between 1990 and 2025. Keyword co-occurrence and temporal dynamics analyses were conducted, enabling the identification of thematic clusters and the assessment of developmental trends in research on women's competencies in business.
Research limitations/implications: This study relies exclusively on data from the Scopus database and on metadata analysis, which may limit its ability to fully capture the diversity of the literature. Future research should expand the analysis to include other databases and apply more in-depth content analysis methods.
Originality/value: The originality of this study lies in the integration of the scoping review approach with bibliometric analysis to comprehensively map the structure and evolution of research on women's competencies in business. The study provides a structured classification of thematic clusters and identifies trends in the development of the literature from a dynamic perspective.
Keywords: competencies; women's entrepreneurship; competency map; bibliometrics.
Category of the paper: Research paper.

1. Introduction

In recent years, the discourse on women in business has gained increasing prominence in both academic literature and public debate (Mitra, Basit, 2021; Adamus et al., 2021; Gonçalves et al., 2025). Existing studies highlight that women constitute a significant pillar of entrepreneurial activity (Aidis, Schillo, 2017; Georgieva, 2022; Mari et al., 2024) and play a crucial role in economic development by generating employment, fostering innovation, and contributing to gross domestic product (Hechevarría et al., 2019; Bahmani-Oskooee et al., 2013). Despite the growing importance of women in the economy, the literature consistently identifies numerous barriers that limit their entrepreneurial activity. The most frequently cited challenges include restricted access to financing, persistent gender stereotypes, institutional inequalities, and difficulties in balancing professional and family responsibilities (Brush et al., 2009; 2018; Batra et al., 2024). Despite numerous challenges, women continue to develop sustainable and successful business models across a wide range of industries (Rejeb et al., 2025). However, the majority of women-owned enterprises remain concentrated in low-value-added and low-technology sectors, such as retail, healthcare, and education (Lindberg et al., 2016; Poggesi et al., 2024). In recent years, there has been a significant increase in scholarly interest in women's entrepreneurship. Researchers have examined the diverse motivations, barriers, and achievements of women in business, often placing particular emphasis on the challenges they encounter (Belingheri et al., 2021; Achtzehn et al., 2023; Gonçalves et al., 2025). A substantial portion of this body of work consists of bibliometric analyses that identify key trends and research gaps within the field. For instance, Prabha et al. (2025) highlight financial constraints, limited social networks, cultural norms and discrimination, as well as the underrepresentation of developing countries in existing research. Rejeb et al. (2025) point to emerging themes such as digitalization, crisis resilience, and the role of institutional conditions. Despite the increasing number of bibliometric studies addressing trends and barriers in women's entrepreneurship, there remains a notable gap in research explicitly focused on the competencies of women entrepreneurs. Existing literature has predominantly concentrated on structural and institutional determinants (House, 2025; Arévalo, 2025), while comparatively little attention has been given to competencies as a key factor influencing the effectiveness and development of women-led businesses (Biea et al., 2024). In response to this gap, the present study seeks to provide a comprehensive mapping and analysis of the academic literature on women's competencies in business. Particular attention is given to the evolution of research trends, the identification of thematic structures, and the exploration of future research directions in this field.

2. Methodology

This study employed a scoping review following the approach outlined by Arksey and O'Malley (2005), extended by the recommendations of Levac, Colquhoun, and O'Brien (2010), and supplemented with the PRISMA-ScR reporting guidelines described by Tricco et al. (2018), further enriched with bibliometric analysis (Rodríguez-Vera et al., 2025). In line with the recommendations of Gavel and Iselid (2008) as well as Cobo and Herrera (2011), the Scopus database was selected for analysis, as it is considered one of the most comprehensive and multidisciplinary sources for indexing scientific publications. The analysis covered publications from 1990 to 2025, identified through search queries conducted in two stages. In the first stage, a general keyword referring to women in business was used, which enabled the inclusion of a broad spectrum of studies addressing this topic. As a result of the initial search in the Scopus database, 29,440 records were identified. In the second stage, additional keywords related to competencies in entrepreneurship, leadership, innovation, and management were applied. Refining the query to this thematic scope resulted in 388 records, which constituted the basis for further analysis. To enhance the transparency of the literature selection process and minimize the risk of systematic errors, the research procedure was conducted in accordance with PRISMA standards (Haddaway et al., 2022) (Figure 1).

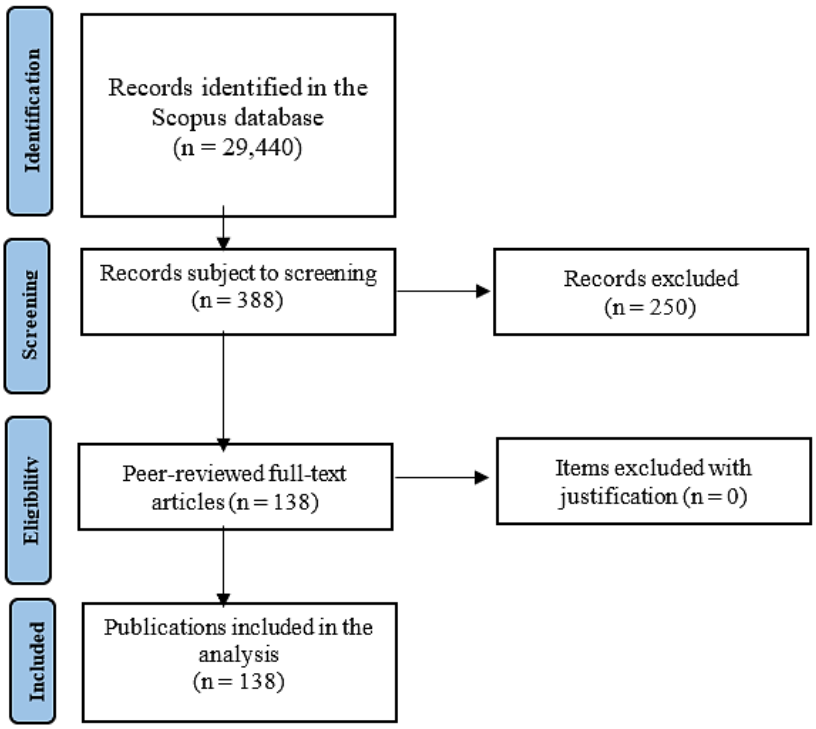


Figure 1. PRISMA Flow Diagram.

Source: own research.

In the next stage of the study, bibliometric analysis was applied to quantitatively assess the scientific literature on women's competencies in business. This method enabled the identification of key thematic areas, authors, journals, and keywords related to the competency dimension of women's entrepreneurship (Verma, Gustafsson, 2020). The VOSviewer tool was used as part of the bibliometric analysis, playing a key role in identifying and visualizing the relationships between research topics concerning women's competencies in business.

3. Research Results and Discussion

The bibliometric analysis conducted on a set of articles indexed in the Scopus database allowed for the identification of six main clusters of competencies attributed to women in business.

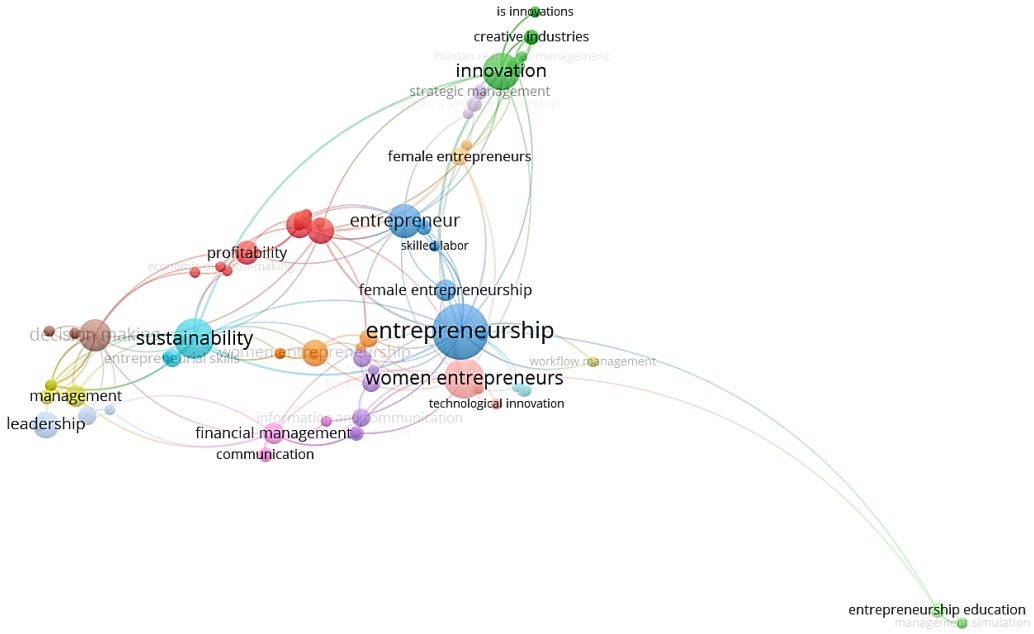


Figure 2. Competency Clusters.

Source: own research.

Research indicates that entrepreneurial competencies (Cluster 1) are crucial, encompassing initiative, the identification of market opportunities, risk management, and sound economic decision-making (Stephan, El-Ganainy, 2007; Adekola, Olawole-Isaac, 2014). The importance of strategic planning, managerial competencies, and innovation for the development and stability of women-owned firms is also emphasized (Hodges et al., 2015; Rantšo, 2016; Poggesi et al., 2024), as well as financial skills and the ability to build a competitive advantage (Fang et al., 2022; Chiplunkar, Goldberg, 2024). More recent studies highlight the role of digital, adaptive, and internationalization competencies in the context of global competition (Fauzi et al., 2020; Sraha, Arthur, 2025; Ssekiziyivu et al., 2025).

Cluster 2 covers women's leadership and managerial competencies. Between 1995 and 2005, management was analyzed primarily in the context of restructuring and organizational change, with the gender dimension largely marginalized (Lewis, 1995; Roh et al., 2008). Between 2007 and 2015, research focused on barriers to promotion, differences in decision-making, the importance of gender diversity, and criticism of androcentric leadership models (Herzlinger, 2007; Apesteguia et al., 2012; Johns, 2013; Bierema, 2016). Between 2017 and 2020, the positive impact of women in leadership on firm performance and the role of strategic competencies were emphasized (Wu, Li, 2017; Jolović, 2019). The most recent studies (2022-2025) examine women's leadership in the context of organizational transformation, HR, and corporate governance, highlighting its importance for profitability and strategic effectiveness (Nur, Darvin, 2023; Dalimunthe et al., 2025; Scheepers, 2025).

Cluster 3 illustrates the evolution of perceptions of women's innovation—from their involvement in creative sectors (Gao, 2004) to a strategic organizational competence. Over time, emphasis has been placed on women's ability to generate new ideas and redefine values in entrepreneurship (Mascarenhas, Veer, 2014; Brydges, Hracs, 2019; Zeb, Ihsan, 2020; Omolekan, Alli, 2020). Subsequently, innovation has been linked to corporate performance and the empowerment of women in business (Jabeen et al., 2015; Chamlou, van Gorp, 2016; Wu, Li, 2017). It has also been integrated into the concept of sustainable value creation (Faridi, Mir, 2022; Sjåfjell et al., 2022). Recent studies frame innovation as a key strategic competence associated with management professionalization, technology, and social capital (Poggesi et al., 2024; Biea et al., 2024; Humaira, Hatammimi, 2026).

An analysis of the technical and ICT competency cluster reveals a shift in research approaches to women in business. Initially, the focus was on barriers to accessing technology and digital exclusion resulting from infrastructural, educational, and cultural constraints (van Gorp, 2006; 2007). Over time, technical competencies began to be viewed as a prerequisite for competitiveness in knowledge-based sectors (Brydges, Hracs, 2019), and subsequently as a key resource supporting knowledge transfer, internationalization, and the development of human capital among women entrepreneurs (Al-Roubaie et al., 2020).

Cluster 5 highlights the growing importance of financial competencies in research on women in business. Initially, these competencies were approached from an institutional perspective without a clear gender context (Nainar, 2000). Since the mid-2010s, they have been analyzed as crucial for the sustainability and success of women-led firms in terms of cost management and resource allocation (Rantšo, 2016), as well as long-term accountability and sustainability (Gavrilut et al., 2021). More recent studies link financial literacy to profitability, crisis resilience, and digital transformation (Chakraborty et al., 2022; Chouksey, Bedarkar, 2022; Nur, Darvin, 2023), as well as to corporate governance and regulations (Scheepers, 2025) and practical financial management in SMEs (Omar et al., 2025).

Cluster 6 illustrates the evolution of approaches to sustainability in research on women's competencies. Initially, the focus was on the economic sustainability of microenterprises and the role of microcredit, emphasizing the importance of managerial competencies for long-term stability (Delgado et al., 2008; Al-Shami et al., 2017; 2019). Since around 2018, sustainability has been integrated with innovation and business models, highlighting the importance of subsidies, gender balance, and sustainable value creation (Varela-Candamio et al., 2018; Kovaleva et al., 2022; Sjåfjell et al., 2022; Faridi, Mir, 2022).

Based on the analysis conducted, it is possible to identify trends in the development of women's business competency clusters from 1990 to 2025, highlighting changes in the level of interest in specific research areas.

Table 1.
Trends in women's competency clusters

Cluster	Competencies	Trend
1	Entrepreneurial	FASTEST growth
2	Leadership and management	Stable growth
3	Innovation	Rapid growth after 2018
4	Technical and ICT	Moderate growth
5	Financial	Moderate growth
6	Sustainable development and responsible management	STRONGEST upward trend

Source: own analysis.

The results indicate a clear increase in the importance of entrepreneurial, innovative, and sustainable development competencies in recent years, which confirms the evolution of the academic narrative toward future-oriented and strategic competencies of women in business (Figure 3).

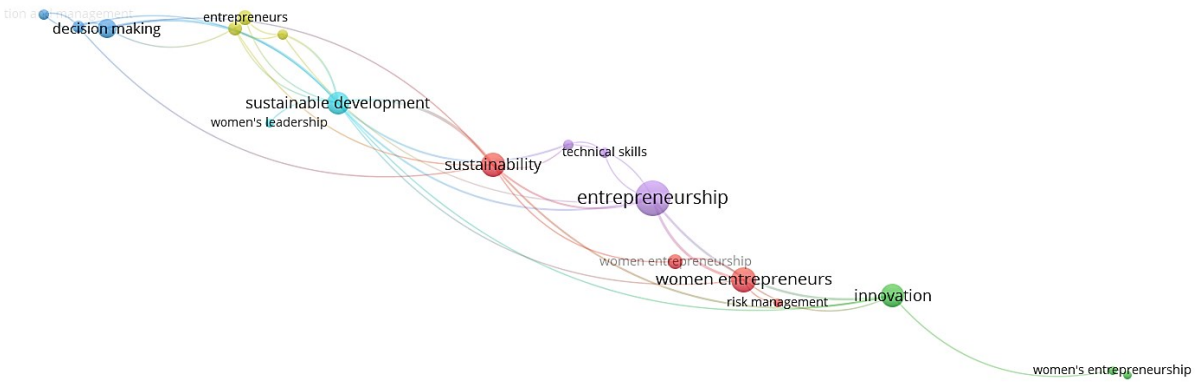


Figure 3. Map of growing competencies.

Source: own research.

An analysis of the map of evolving competencies indicates the emergence of a new competency model for women in business, based on three integrated pillars: entrepreneurship, sustainability, and innovation. A shift is evident from the traditional view of the entrepreneur toward a model that incorporates a gender perspective, social responsibility, and technological competencies. The particularly dynamic growth of competencies related to sustainability and innovation suggests a transition toward a transformative role for women in the economy.

In the context of further research, it is justified to deepen analyses of the integration of entrepreneurial, technological, and sustainability competencies, as well as the role of women as leaders of digital and ecological transformation. Future research should focus on competency models of the future and their impact on the competitiveness and sustainability of organizations.

4. Summary

A literature review and bibliometric analysis indicate an evolution in the discourse on women in business between 1990 and 2025—from gender-neutral perspectives focused on management and entrepreneurship toward an analysis of competencies as a key factor in development. Six competency clusters have been identified, with a clear rise in the importance of entrepreneurial, innovative, and sustainable competencies, reflecting trends in digital and ecological transformation. An integrated model based on three pillars—entrepreneurship, innovation, and sustainability—is taking shape, and women are increasingly viewed as leaders of socio-economic transformation. The literature has shifted its focus from barriers to women's competency potential, pointing to the need for further research on the integration of entrepreneurial, digital, and sustainable competencies in the context of long-term organizational competitiveness.

References

1. Achtzehn, S., Treanor, L., Amess, K. (2023). Do enterprise education competitions have gendered outcomes amongst STEM early-career researchers? *International Small Business Journal: Researching Entrepreneurship*, *41(8),* 801-824. https://doi.org/10.1177/02662426231158281
2. Adamus, M., Čavojová, V., Šrol, J. (2021). The impact of stereotyped perceptions of entrepreneurship and gender-role orientation on Slovak women's entrepreneurial intentions. *Gender in Management: An International Journal*, *36*, 745-61.
3. Adekola, P.O., Olawole-Isaac, A. (2014). Hindrances to women entrepreneurship and development in Nigeria: Eradicating feminization of poverty among Nigerian women. *Vision 2020: Sustainable Growth, Economic Development, and Global Competitiveness – Proceedings of the 23rd IBIMA Conference*.
4. Aidis, R., Schillo, R.S. (2017). Gender, leadership and venture capital: Measuring women's leadership in VC firm portfolios. *Int. J. Gend. Entrepreneurship*, *9*(2), 110-135 https://doi.org/10.1108/IJGE-08-2016-0027

5. Al Shami, S., Majid, I., Rashid, N., Adil, H. (2019). Women micro and small business sustainability in Malaysia through microcredit. *International Journal of Recent Technology and Engineering*.
6. Al-Roubaie, A., Sarea, A., Al Mubarak, M., Hamdan, A. (2020). Contribution of diaspora to entrepreneurship in the Arab world. *Proceedings of the European Conference on Innovation and Entrepreneurship (ECIE).* https://doi.org/10.34190/EIE.20.227
7. Al-Shami, S.A., Muhamad, M.R., Majid, I., Rashid, N., Adil, H., Jawad, A., Ahmed, M. (2017). The effect of microcredit on women micro and small business sustainability in Malaysia. *Advanced Science Letters*. https://doi.org/10.1166/asl.2017.9537
8. Apesteguia, J., Azmat, G., Iriberri, N. (2012). The impact of gender composition on team performance and decision making: Evidence from the field. *Management Science, 58*(1), 78-93. https://doi.org/10.1287/mnsc.1110.1348
9. Arévalo L.E.B. (2025). Gender equity and business performance. *Gender Equity and Economic Development.* https://doi.org/10.1108/978-1-83708-202-520251007
10. Arksey, H., O'Malley, L. (2005). Scoping Studies: Towards a Methodological Framework. *International Journal of Social Research Methodology*, *8*, 19-32. https://doi.org/10.1080/1364557032000119616
11. Bahmani-Oskooee, M., Galindo, M.Á., Méndez, M.T. (2013). Women's entrepreneurship and economic growth: An empirical analysis. *Applied Economics Letters, 20(13),* 1236-1239
12. Batra, S., Gupta, V.K., Kumar, V., Pierce, C.A. (2024). Effects of founder gender and workplace romance status on recruits' evaluations of early-stage ventures. *J. Small Bus. Management*, *62*(4), 2086-2115. https://doi.org/10.1080/00472778.2023.2197028
13. Belingheri, P., Chiarello, F., Colladon, A.F., Rovelli, P. (2021). Twenty years of gender equality research: A scoping review based on a new semantic indicator. *PLoS ONE*, *16*, e0256474.
14. Biea, E.A., Dinu, E., Bunica, A., Jerdea, L. (2024). Recruitment in SMEs: The role of managerial practices, technology and innovation. *European Business Review*. https://doi.org/10.1108/EBR-05-2023-0162
15. Bierema, L.L. (2016). Women's leadership: Troubling notions of the "ideal" (male) leader. *Advances in Developing Human Resources, 18*(1), 119-135. https://doi.org/10.1177/1523422316641398
16. Brush, C.G., de Bruin, A., Welter, F. (2009). A gender-aware framework for women's entrepreneurship. *International Journal of Gender and Entrepreneurship, 1(1),* 8-24. https://doi.org/10.1108/17566260910942318
17. Brush, C., Greene, P., Balachandra, L., Davis, A. (2018). The gender gap in venture capital-progress, problems, and perspectives. *Venture Capital*, *20*(2), 115-136, https://doi.org/10.1080/13691066.2017.1349266

18. Brydges, T., Hracs, B.J. (2019). What motivates millennials? How intersectionality shapes the working lives of female entrepreneurs in Canada's fashion industry. *Gender, Place & Culture*. https://doi.org/10.1080/0966369X.2018.1552558
19. Chamlou, N., van Gorp, D. (2016). Offshoring and the availability of female labor in the MENA region. In: *Women, Work and Welfare in the Middle East and North Africa: The role of socio-demographics, entrepreneurship and public policies*. https://doi.org/10.1142/9781783267347_00015
20. Chiplunkar, G., Goldberg, P.K. (2024). Aggregate implications of barriers to female entrepreneurship. *Econometrica*. https://doi.org/10.3982/ECTA20396
21. Chouksey, M., Bedarkar, M. (2022). *ICT adoption by women entrepreneurs in India: A qualitative study using focus group discussion*. IEEE Technology and Engineering Management Conference (TEMSCON Europe 2022). https://doi.org/10.1109/TEMSCONEUROPE54743.2022.9802069
22. Cobo, M.J., Herrera, F. (2011). Science Mapping Software Tools: Review, Analysis, and Cooperative Study Among Tools. *J. Am. Soc. Inf. Sci. Technol., 62(7),* 1382-1402, https://doi.org/10.1002/asi.21525
23. Dalimunthe, R.F., Lumbanraja, P., Lubis, A.N. (2025). Women and human resource transformation. *Cultures, societies and politics in North Sumatra – Indonesia*.
24. Delgado, C.L., Narrod, C.A., Tiongco, M.M., Barros, G.S., Catelo, M.A., Costales, A., Mehta, R., Naranong, V., Poapongsakorn, N., Sharma, V.P., De Zen, S. (2008). *Determinants and implications of the growing scale of livestock farms in four fast-growing developing countries*. Research Report of the International Food Policy Research Institute.
25. Fang, S., Goh, C., Roberts, M., Gupta, L.C., Zeufack, A. (2022). Female entrepreneurs and productivity around the world: Rule of law, network, culture, and gender equality. *World Development*. https://doi.org/10.1016/j.worlddev.2022.105846
26. Faridi, M.R., Mir, A.J.A. (2022). Artientifique: A case study of transforming used cosmetics into creating wealth of art. *Emerald Emerging Markets Case Studies*. https://doi.org/10.1108/EEMCS-03-2021-0090
27. Fauzi, F., Antoni, D., Suwarni, E. (2020). Women entrepreneurship in the developing country: The effects of financial and digital literacy on SMEs' growth. *Journal of Governance and Regulation*. https://doi.org/10.22495/JGRV9I4ART9
28. Gao, P. (2004). Reaching out. *Taiwan Review*, *54*(12), 4-10.
29. Gavel, Y., Iselid, L. (2008). Web of Science and Scopus: a journal title overlap study. *Online Inf Rev*, *32(1)*. https://doi.org/0.1108/14684520810865958
30. Gavrilut, D., Badulescu, M.C.A., Badulescu, D. (2021). Do gender and age influence entrepreneurs' orientation towards sustainable business? *Proceedings of the European Conference on Innovation and Entrepreneurship (ECIE)*. https://doi.org/10.34190/EIE.21.163
31. Georgieva, S. (2022). Women's entrepreneurship – segmentation and management dimensions. *Polish Journal of Management Studies, 26*(2).

32. Goncalves, M., Ahumada, E.D.L.V. (2025). A bibliometric analysis of women entrepreneurship: Current trends and challenges. *Merits*, *5*(9). https://doi.org/10.3390/merits5020009
33. Haddaway, N.R., Page, M.J., Pritchard, C.C., McGuinness, L.A. (2022). PRISMA2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis. *Campbell Systematic Reviews*, *18*, e1230. https://doi.org/10.1002/cl2.1230
34. Hechevarría, C., Terjesen, S., Ingram, A., Renko, M., Justo, R., Elam, A. (2019). Taking care of business: The impact of culture and gender on entrepreneurs' blended value creation goals. *Small Business Economics*, *53*, 225-257.
35. Herzlinger, R. (2007). Consumerism and controversy: A conversation with Regina Herzlinger. *Health Affairs, 26*(5), w552-w558. https://doi.org/10.1377/hlthaff.26.5.w552
36. Hodges, N., Watchravesringkan, K., Yurchisin, J., Karpova, E., Marcketti, S., Hegland, J., Yan, R.-N., Childs, M. (2015). Women and apparel entrepreneurship: An exploration of small business challenges and strategies in three countries. *International Journal of Gender and Entrepreneurship*. https://doi.org/10.1108/IJGE-07-2014-0021
37. House, J. (2025). *"Reel Women" and "Secret Women's Business": women and maritime structures.* Maritime Studies. https://doi.org/10.1007/s40152-025-00448-7
38. Humaira, H., Hatammimi, J. (2026). The impact of social capital on innovation on women-owned culinary MSMEs in Tasikmalaya City. In: *Studies in Systems, Decision and Control*. https://doi.org/10.1007/978-3-032-07220-7_49
39. Ibrahim, O.A., Alqassabi, M.A., Abdel-Gadir, S.E.M. (2024), Factors influencing sustainability of women entrepreneurship in Oman: challenges and opportunities. *Journal of Ecohumanism, 3(4),* 262-278. https://doi.org/10.62754/joe.v3i4.3519
40. Jabeen, F., Farouk, S., Katsioloudes, M. (2015). Empowering Emirati women through entrepreneurship: Success factors and financial resource acquisition perspective. In: *Proceedings of the 26th International Business Information Management Association Conference (IBIMA)*.
41. Johns, M.L. (2013). Breaking the glass ceiling: Structural, cultural, and organizational barriers preventing women from achieving senior and executive positions. *Perspectives in Health Information Management*.
42. Jolović, I. (2019). Strategic management in women's entrepreneurship. *Journal of Women's Entrepreneurship and Education*, *34*, 53-72. https://doi.org/10.28934/jwee19.34.pp53-72
43. Kovaleva, Y., Happonen, A., Mbogho, A. (2022). *Towards gender balance in modern hackathons: Literature-based approaches for female inclusiveness*. Proceedings of the 3rd Workshop on Gender Equality, Diversity, and Inclusion in Software Engineering (GEICSE 2022). https://doi.org/10.1145/3524501.3527594
44. Lewis, M. (1995). Clothing manufacturing and distribution in France. *Textile Outlook International*.

45. Lindberg, M., Forsberg, L., Karlberg, H. (2016). Gender dimensions in women's networking for social innovation. *Innovation: Eur. J. Social Sci. Res*., *29*(4), 408-421 https://doi.org/10.1080/13511610.2016.1166037
46. Mari, M., Poggesi, S., Abatecola, G., Essers, C. (2024). Women entrepreneurs and innovation: Retrospect and prospect. *Journal of Innovation & Knowledge*, *9*(3), 100519. https://doi.org/10.1016/j.jik.2024.100519
47. Mascarenhas, D.D., Veer, S.V. (2014). Women, innovation, and literature. *Journal of Innovation and Entrepreneurship*, *3, Article 7*. https://doi.org/10.1186/2192-5372-3-7
48. Mitra, J., Basit, A. (2021). Personal networks and growth aspirations: A case study of second-generation, muslim, female entrepreneurs. *Small Bus. Econ.*, *56*(1), 121-143 https://doi.org/10.1007/s11187-019-00211-3
49. Nainar, S.M.H. (2000). Pediatric dental practice: Reconstruction or disintermediation. *Journal of Dentistry for Children*.
50. Nur, T., Darvin, Q. (2023). *Gender diversity and firm profitability, before and during the COVID-19 pandemic.* International Conference on Cyber Management and Engineering (CyMaEn 2023). https://doi.org/10.1109/CyMaEn57228.2023.10051029
51. Omar, F., Pillai, B.S., Othman, O.J., Holland, E., Mashayo, E., Shah, K., Graham, R., Graham, C., Chan, V.F. (2025). What is the Zanzibari craftswomen's experience on eyeglass use, business challenges and solutions? *BMJ Open*. https://doi.org/10.1136/bmjopen-2024-090883
52. Omolekan, O.J., Alli, B. (2020). Relevance of innovation on survival of women-owned business in Nigeria. *Journal of Women's Entrepreneurship and Education*. https://doi.org/10.28934/jwee20.34.pp146-164
53. Poggesi, S., Mari, M., Schilleci, P. (2024). Innovative women entrepreneurs: experiences from Italy. *Int. Entrep. Manag. J., 20*, 309-325. https://doi.org/10.1007/s11365-023-00892-z
54. Poggesi, S., Mari, M., Schilleci, P. (2024). Innovative women entrepreneurs: Experiences from Italy. *International Entrepreneurship and Management Journal*. https://doi.org/10.1007/s11365-023-00892-z
55. Rantšo, T.A. (2016). Factors affecting performance/success of small-scale rural non-farm enterprises in Lesotho. *Journal of Enterprising Communities*. https://doi.org/10.1108/JEC-10-2014-0020
56. Rejeb, A., Rejeb, K. Süle, E. (2025). A systematic review of female entrepreneurship using co-word and main path analyses. *Qual. Quant*. https://doi.org/10.1007/s11135-025-02281-w
57. Rodríguez-Vera, AdP., Rando-Cueto, D., de las Heras Pedrosa, C. (2025). Women's Entrepreneurship in the Tourism Industry: A Bibliometric Study. *Administrative Sciences, 15*(4), 130. https://doi.org/10.3390/admsci15040130

58. Roh, C.-Y., Lee, K.-H., Fottler, M.D. (2008). Determinants of hospital choice of rural hospital patients: The impact of networks, service scopes, and market competition. *Journal of Medical Systems, 32*(5), 343-353. https://doi.org/10.1007/s10916-008-9139-7
59. Scheepers, A. (2025). The effect of corporate board gender diversity on compliance with EU competition law. In: F. Thépot, A. Tzanaki (Eds.), *Research Handbook on Competition and Corporate Law* (pp. 424-448). https://doi.org/10.4337/9781803920559.00034
60. Sjåfjell, B., Tsagas, G., Villiers, C. (2022). Pathways to sustainable value creation. In: *Sustainable value creation in the European Union: Towards pathways to a sustainable future through crises* (pp. 301-314). https://doi.org/10.1017/9781009243841.018
61. Sraha, G., Arthur, E. (2025). Developing an authentic presence in foreign markets: Exploring Ghanaian women entrepreneurs' competitiveness and challenges in foreign markets. In: *The Palgrave Handbook of Decolonising Entrepreneurship* (pp. 379-412). https://doi.org/10.1007/978-3-031-92310-4_15
62. Ssekiziyivu, B., Takwi, F.M., Kabahinda, E. (2025). Challenges facing women entrepreneurship: A developing country perspective. *Journal of Entrepreneurship and Innovation in Emerging Economies*. https://doi.org/10.1177/23939575241277331
63. Stephan, P.E., El-Ganainy, A. (2007). The entrepreneurial puzzle: Explaining the gender gap. *Journal of Technology Transfer*. https://doi.org/10.1007/s10961-007-9033-3
64. van Gorp, A. (2006). Developing country perspective on women's ICT adoption. In: *Encyclopedia of Gender and Information Technology.* https://doi.org/10.4018/978-1-59140-815-4.ch030
65. van Gorp, A. (2007). A developing country perspective on women's ICT adoption. In: *Global Information Technologies: Concepts, Methodologies, Tools, and Applications*, *1-6*. https://doi.org/10.4018/978-1-59904-939-7.ch009
66. Varela-Candamio, L., Calvo, N., Novo-Corti, I. (2018). The role of public subsidies for efficiency and environmental adaptation of farming: A multi-layered business model based on functional foods and rural women. *Journal of Cleaner Production*. https://doi.org/10.1016/j.jclepro.2018.02.109
67. Verma, S., Gustafsson, A. (2020). Investigating the emerging COVID-19 research trends in the field of business and management: a bibliometric analysis approach. *J. Bus. Res.*, *118*, 53-261.
68. Wu, H., Li, Y. (2017). The impacts of female executives on firm performances: Based on principal component analysis (PCA) and data envelopment analysis (DEA). In: *Advances in Intelligent Systems and Computing*. https://doi.org/10.1007/978-981-10-1837-4_20
69. Zeb, A., Ihsan, A. (2020). Innovation and the entrepreneurial performance in women-owned small and medium-sized enterprises in Pakistan. *Women's Studies International Forum*. https://doi.org/10.1016/j.wsif.2020.102342

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

ELEMENTS OF MARKETING COMMUNICATION AND COMMUNICATION CHANNELS CONCERNING SUSTAINABLE PACKAGING IN THE HOUSEHOLD APPLIANCES INDUSTRY

Agata PIETROŃ-PYSZCZEK[1*], Robert GOLEJ[2], Gabriela GAŁAGUZ[3]

[1] Wroclaw University of Economics and Business; agata.pietron-pyszczek@ue.wroc.pl, ORCID: 0000-0002-3861-3609
[2] Wroclaw University of Economics and Business; robert.golej@ue.wroc.pl, ORCID: 0000-0003-4462-7035
[3] Independent researcher; gabrielagalaguz@gmail.com
* Correspondence author

Purpose: The aim of this article is to determine an effective marketing communication channel and marketing message for promoting sustainable packaging in the home appliance industry.
Design/methodology/approach: The analysis is based on quantitative data obtained from 121 respondents via an online survey. The questionnaire consisted of closed-ended questions using a five-point Likert scale, allowing for precise measurement of attitudes. This approach enabled a comprehensive analysis of respondents' preferences regarding the channels and content of advertising messages regarding eco-friendly packaging.
Findings: The most effective element of marketing communication about sustainable packaging in the home appliance industry is an appropriate certificate and a clear and credible message. Regarding the communication channel, the easiest ways to deliver the advertising message are through social media and the manufacturer's website.
Research limitations/implications: Age of respondents; overrepresentation of young people (under 25 years of age). It is worth examining whether engaging consumers in the design of eco-friendly packaging (e.g., on social media) increases brand loyalty and understanding of the principles of the circular economy.
Practical implications: Informing about sustainable packaging policies on a manufacturer's website, in a clear and transparent manner, using appropriate certificates, can contribute to improving the manufacturer's competitive position. Furthermore, shaping the image of an eco-friendly manufacturer requires fostering such an image in social media.
Social implications: Research shows that information policy must take into account demographic differences – for example, maintaining traditional channels (radio, newspapers) for people from smaller towns or with specific educational profiles to prevent informational exclusion regarding ecology.
Originality/value: The main element of originality is embedding the issue of sustainable packaging in the household appliance industry. Most of the available literature focuses on fast-moving consumer goods or food products. Home appliances, as a product sector with high consumer engagement, requires a different communication strategy, which makes our study fill a research gap.
Keywords: ecological packaging, purchasing decisions, green marketing, sustainable development, circular economy.
Category of the paper: Research paper.

1. Introduction

Enterprises are increasingly incorporating the growing interest in eco-friendly consumption into their business models (Ciechomski, 2023, pp. 81, 85). The green consumption trend is most often associated with customers' positive attitudes towards the environment. Increasing environmental awareness is making purchasing decisions more complex. In addition to the classic factors influencing decisions, such as price, functionality, and durability, there are also those related to ecology in the broad sense. One of the issues addressed by the circular economy is not only the product itself, but also its packaging (Wang et al., 2024, pp. 3003-3005). In this case, we are talking about sustainable packaging. Our previous research indicates that the issue of sustainable packaging is widely recognized (74% of respondents). The majority of respondents believe this aspect is important when making purchasing decisions (55%). In our research, we aimed to investigate which communication channels could be used to reach respondents and what marketing message regarding the environmental friendliness of packaging could be used to reach the widest possible group of potential customers. Two research questions can be defined:

- Which marketing communication channels are most effective in promoting sustainable packaging in the household appliance industry?
- To what extent do specific elements of marketing messages influence consumer purchasing decisions regarding sustainable packaging for household appliances?

The aim of this article is to determine an effective marketing communication channel and marketing message for promoting sustainable packaging in the household appliance industry.

The theoretical section discusses the fundamental issues defining sustainable packaging (in the context of the household appliance industry) and the issues surrounding marketing communication channels. The second part of the article presents the results of our empirical research.

2. Sustainable Packaging

Sustainable packaging is a key element of the modern circular economy (Szczech-Pietkiewicz, Czerniak, 2024, pp. 86-88), which aims to minimize the negative impact of economic activity on the environment (Bojewska, 2024, pp. 179-190). In the literature, this concept is defined as the design, production, use, and disposal of packaging in a way that ensures efficient use of resources while reducing emissions and generating the least possible amount of waste (Jerzyk, 2015, pp. 1-8).

Sustainable packaging should meet functional criteria, ensuring safe storage and transport, while minimizing negative environmental impact. The use of renewable or recycled raw materials, designing for reprocessability, and reducing greenhouse gas emissions throughout the product's life cycle (LCA) are key factors (Frommeyer et al., 2024, pp. 105-108). Such packaging should also support consumer education, promoting environmental awareness and responsible attitudes. From an economic perspective, it is crucial to reduce production, transport, and disposal costs while simultaneously creating innovations that strengthen the competitiveness of businesses. All these activities must be aimed at meeting the needs of current and future generations, making sustainable packaging an integral element of responsible environmental and social management (Jerzyk, 2015, pp. 1-8; Zasiek, 2024, pp. 20-21).

In the context of the household appliances industry, sustainable packaging plays a special role due to the large size of products and the risk of generating significant amounts of waste. Examples of actions in this area include the use of biodegradable materials and reusable packaging. It is worth emphasizing that these actions also have an economic dimension, as packaging optimization can allow companies to reduce production and distribution costs and improve their image in the eyes of consumers (Cholewa-Wójcik, Hornicki, 2025; Piracci et al., 2023, p. 21). Markings and symbols informing consumers about the proper way to separate and dispose of packaging are becoming increasingly important in sustainable packaging design (Pawłowska et al., 2024, pp. 6-12). Recycling symbols, information about the type of material, and reuse guidelines play a crucial role in public environmental education. They help consumers understand how to dispose of packaging after use, which promotes the effectiveness of recycling systems.

3. The Multidimensional Role of Packaging in the Home Appliances Sector

Packaging in the home appliances industry serves a number of functions, determining product safety and the purchasing process. Due to its technological advancement and vulnerability to damage, its protective function remains crucial. The use of reinforced cardboard and stabilizing systems minimizes the risk of damage during transport and storage, directly building consumer confidence in the brand's quality.

A contemporary design approach, based on the concept of a circular economy, gives packaging added utility value (Ratajczyk, 2021). Multifunctional solutions are increasingly being implemented, allowing for the reuse of materials as organizers or interior design elements. This strategy not only reduces the amount of waste generated but also represents a significant advantage in the eyes of environmentally conscious buyers (Karwowska, 2021).

Equally important is its informational and educational role. Packaging carries key technical data, instructions, and certifications, facilitating informed purchasing decisions. Additionally, the inclusion of recycling symbols and waste separation guidelines increases users' environmental awareness, emphasizing the manufacturer's social responsibility.

In the areas of consumer experience and logistics, packaging ergonomics are crucial; handles, modular designs, and easy-opening systems significantly improve user comfort and create a positive first impression for the buyer. Process optimization also plays a crucial role, involving the precise adaptation of packaging shapes and dimensions to palletizing standards, allowing for a measurable reduction in transportation costs and CO_2 emissions through more efficient use of cargo space.

In conclusion, packaging in the household appliance industry has evolved from a simple protective measure into a complex marketing communication tool, integrating technical, functional, and environmental aspects.

4. Marketing Communication

Marketing communication is an integral part of a company's operations, enabling effective information transfer, building market relationships, and shaping audience preferences (Pindera, 2023, pp. 82-94). Its main goal is to build brand awareness, create a positive image, and encourage consumers to take specific actions, such as purchases or loyalty to the company.

A key pillar of effective marketing communication is coherence, i.e., the substantive and functional connection of all forms of communication. This approach, known as integrated marketing communication, enables companies to achieve greater effectiveness through synergy between various communication tools and channels (Daszkiewicz, Pukas, 2016, pp. 23-27). Modern consumers expect dialogue, interaction, and the values represented by a brand. That is why companies are increasingly using engaging tools such as storytelling (Bielecka, 2021, pp. 75-81), social campaigns or pro-ecological initiatives, which help establish authentic relationships with recipients and build their loyalty.

5. Marketing Communication Channels Promoting Sustainable Packaging

Contemporary communication among household appliance manufacturers regarding sustainable packaging is based on diversifying communication channels, which allows for optimizing the reach and presentation of presented content. Television advertising, thanks to its combination of image and sound, is the most versatile tool for building a pro-environmental

image through emotional and narrative portrayal of eco-production processes. Trade and general press, in turn, facilitates the distribution of in-depth analyses, reports, and expert articles, positioning the manufacturer as a leader in sustainable development. Radio advertising complements these efforts. Despite visual limitations, its mobility and high frequency effectively reinforce key messages regarding the brand's environmental commitment.

In the digital era, social media platforms such as Instagram, TikTok, and LinkedIn deserve special attention, offering manufacturers extensive opportunities for dynamic and interactive communication with consumers. Publishing visual content allows not only to educate audiences but also to engage them through contests, surveys, and dialogue in comments. These media facilitate building brand loyalty and image among groups that prefer digital forms of communication. A manufacturer's website serves as a central source of information, where consumers can find detailed information about eco-friendly packaging, including descriptions of materials, production processes, and certifications. Multimedia content, videos, and interactive graphics can further enhance the user experience, encouraging them to explore the product offerings further. Email marketing complements online activities, enabling direct communication with customers. Newsletters and promotional messages can be personalized, allowing for precise targeting and building long-term relationships with recipients.

Outdoor advertising, such as billboards, cannot be overlooked either. Strategically placed, they can attract the attention of passersby and drivers. Visual messaging based on simple yet attractive graphics and slogans can effectively increase awareness of campaigns in public spaces. At the same time, participation in industry events and trade shows offers manufacturers the opportunity to directly connect with consumers and business partners. Presenting innovative eco-friendly packaging in such settings builds trust, builds relationships, and highlights a company's commitment to environmental protection. The effectiveness of marketing communications about sustainable packaging is threatened by the phenomenon of greenwashing, which involves creating an unfounded, pro-ecological image of an organization through the use of imprecise messages, lack of evidence of the environmental friendliness of raw materials, and the exaggeration of marginal activities while simultaneously masking real environmental damage (Malec, 2024, pp. 91-109). This results in the erosion of trust in the brand and a debasement of its image. To avoid this, companies must strive for full transparency in marketing communications related to packaging. Reliable information, supported by certificates and data on environmental impact, is the foundation for building an authentic image. Including detailed information on packaging about the production process, the source of raw materials, and recycling options allows consumers to make informed purchasing decisions. Such transparency strengthens brand credibility and long-term customer loyalty.

6. Methodology

The study was quantitative in nature and was conducted using a proprietary survey questionnaire, prepared electronically using Google Forms. A total of 121 respondents participated in the study. The tool enabled data collection through closed-ended questions. Respondents could respond on a five-point Likert scale. This approach allowed us to capture a cross-sectional picture of preferred communication channels and the advertising messages effective in communicating sustainable packaging among the study sample. A web-based survey, or CAWI (Computer-Assisted Web Interview), refers to a computer-assisted interview in which respondents complete an online questionnaire independently. This data collection method utilizes internet technology to ask questions and collect responses. Table 1 identifies the research questions and their corresponding survey questions.

Table 1.
Research questions and survey questions

Research Questions	Survey Questions
Which marketing communication channels are most effective in promoting sustainable household appliance packaging?	Which marketing communication channels do you consider most effective in promoting sustainable packaging? Advertising: • on TV, • in the press, • on radio, • on social media, • on the manufacturer's website, • via email, • on billboards, • at events and trade fairs.
To what extent do specific marketing elements influence consumer purchasing decisions regarding sustainable household appliance packaging?	• Would ecological certifications convince you in a message promoting sustainable household appliance packaging? • Would transparency of information convince you in a message promoting sustainable household appliance packaging? • Would a comparison with competitors convince you in a message promoting sustainable household appliance packaging? • Would the opinions of influencers convince you in a message promoting sustainable household appliance packaging?

Source: Own work.

7. Research Results

The study was conducted in 2025 on a sample of 121 people. 89 people (74%) were familiar with the concept of sustainable packaging, while 32 people (26%) were unfamiliar. Further research results pertain to the group familiar with the concept of sustainable packaging. Table 2 presents the age structure of the respondents; the largest group is those under 25 (58%), followed by those aged 25-40 (29%), meaning the study primarily reflects the perspective of

Generation Z and Millennials. Women constitute the majority in the under-40 age group, while the representation of people over 55 is marginal, amounting to only about 1%.

Table 2.
Sample Age Structure

Gender	Age			
	Under 25 years	**25-40 years**	**41-55 years**	**Over 55 years**
Male	24	8	3	1
Female	28	18	7	0
Total	52	26	10	1
	58,43%	29,21%	11,24%	1,12%

Source: Own work.

Table 3 presents the education structure of respondents. The sample is dominated by individuals with secondary education (47%) and those with higher education (37%). Cross-sectional analysis shows that the largest subgroup consists of individuals under 25 with secondary education (32 individuals), which may suggest that these are individuals currently studying or at the beginning of their professional careers.

Table 3.
Educational structure in the sample

Age	Education			
	Primary	**Vocational**	**Secondary**	**Higher**
Less than 25 years	2	8	32	10
25-40 years	0	3	8	15
41-55 years	0	1	1	8
Over 55 years	0	0	1	0
Total	2	12	42	33
	2,25%	13,48%	47,19%	37,08%

Source: Own work.

Table 4 presents a summary of the preferred communication channels among respondents. The results indicate the primacy of digital channels in environmental communication; advertising on social media and the manufacturer's website holds the strongest position. Television advertising follows (42%). Traditional marketing communication channels such as print and radio are slightly less effective, at 35% and 34%, respectively. Email advertising has a negligible impact on recipients; it received the lowest score (13.48%) and was the only one to receive no “strongly agree” responses, which may indicate its perception as spam.

Table 4.
Marketing communication channels for sustainable packaging

Communication Channel	Response					Positive Responses (%)
	Strongly disagree	**Slightly disagree**	**No opinion**	**Slightly agree**	**Strongly agree**	
TV advertising	14	19	18	21	17	42,70
Press advertising	20	22	16	18	13	34,83
Radio advertising	20	19	20	18	12	33,71
Social media advertising	7	0	12	21	49	78,65

Cont. table 4.

Advertising on the manufacturer's website	0	13	9	27	40	75,28
Email advertising	45	12	20	12	0	13,48
Billboard advertising	19	13	35	22	0	24,72
Advertising at events and trade fairs	3	4	31	30	21	57,30

Source: Own work.

Respondents' opinions regarding the content of marketing messages are summarized in Table 5. We can see that the most important elements building trust in sustainable packaging are ecological certifications and information transparency (70% positive responses each). Consumers expect concrete evidence and clear messages rather than comparisons with competitors (27%). Influencer opinions (25%) have the lowest impact on the perception of packaging's environmental performance, suggesting that in this area, customers are looking for reliable knowledge and facts, not celebrity endorsements. Advertising at events and trade shows is the third most preferred source of information (57% positive responses). It is significant that as many as 31 people declared no opinion on this matter; this is one of the highest values in the "I have no opinion" column. This may be due to the fact that the dominant group in the study, young people, attend trade shows less often, but those who do attend them rate them highly as a source of knowledge about sustainable packaging.

Table 5.
Marketing Message Elements for Sustainable Packaging

Elements	Definitely not	Rather no	Neither yes nor no	Rather yes	Definitely yes	Positive Responses (%)
Eco-certifications	1	7	19	27	35	70
Information Transparency	8	0	19	38	24	70
Competitive Comparison	10	30	25	12	12	27
Influencer Opinions	14	48	5	14	8	25

Source: Own work.

A Pearson correlation analysis was carried out, which identified patterns of attitudes among specific groups of respondents, such as those under the age of 25. The study concluded that:

- The most effective communication channels are social media (79%), advertising on the manufacturer's website (75%), and events and trade fairs (57%).
- The most important means of conveying information about sustainable packaging is a relevant certificate (70%) and a transparent message (70%).
- Print advertising is most effective for people living in smaller towns.
- Radio advertising has the greatest impact on those with lower education.
- Those who prefer radio also prefer print.
- Social media advertising is most effective for young people.
- The most effective advertising message on social media is certification.

- No statistically significant correlation was observed for television advertising, meaning that the effectiveness of this advertising is similar across age, education, and place of residence.
- Similarly, gender does not influence communication channel preferences.
- For those who declare familiarity with the concept of sustainable packaging and attach great importance to this aspect in their purchasing decisions, the most effective communication channel is the manufacturer's website, and the most persuasive advertising message is provided by appropriate certifications.
- Influencers' opinions are not relevant for those who are well-versed in the concept of sustainable packaging.

8. Discussion

Research results indicate the clear dominance of digital communication channels in promoting sustainable packaging in the household appliances industry. The highest effectiveness was recorded for social media (79%) and manufacturer websites (75%). This high score for social media confirms the theses put forward by, among others, Joanna Wyrwisz (2017, p. 48), who sees them as a key instrument for harnessing the potential of market digitization. The paradigm shift towards replacing traditional channels with social media stems from their conversational nature and the possibility of two-way interaction with the buyer (Koszembar-Wiklik, 2016, pp. 256-257; Budzanowska-Drzewiecka, 2021, p. 293; Szuszkiewicz, 2023, p. 21). It should be noted, however, that while social media is most effective among young people, for consumers declaring a high level of familiarity with the concept of sustainable packaging, the manufacturer's website becomes the most important source of information.

This relationship is explained by research by Adam Rudzewicz (2016, p. 382), who points to growing consumer irritation with aggressive online advertising. Internet users prefer to acquire information independently through easily accessible materials such as brochures and catalogs. In the household appliances industry, where the decision-making process is complex, the manufacturer's website meets the needs of so-called rational decision-makers, who, according to Giovanna Piracci and co-authors (2023, p. 4), require detailed data and product lifecycle analysis. This is also confirmed by the fact that influencers' views are not important for those with high environmental competencies.

In terms of marketing content, appropriate certifications (70%) and message transparency (70%) are crucial for respondents. This result aligns with the findings of Dagna Siuda (2023, p. 27), who argues that the environmentally friendly nature of packaging is a significant determinant of purchasing attitudes and positively stimulates purchase intentions. Zuzanna

Zysiek (2024, pp. 21-22) argues that such transparent labeling is essential because modern consumers treat packaging as a foundation of trust and a key indicator of brand quality. Using certificates as a key element of social media messaging can be interpreted as an effective response to the needs of intuitive decision-makers who respond to quick visual stimuli and pictograms.

Analysis of demographic variables in our own research revealed that traditional channels, such as press and radio, retain their effectiveness in specific segments (people from smaller towns or with lower education). These choices, often deviating from the model of complete rationality, align with the paradigm of behavioral economics, which points to the significant influence of social and cultural conditions on consumer decisions (Sanak-Kosmowska, 2023, p. 65). At the same time, the lack of gender influence on communication channel preferences is fully consistent with the research by Mieczysław Adamowicz and Aneta Krasuska (2016, p. 183), who also found no significant differences in this regard in the consumer goods market.

In summary, effective promotion of sustainable packaging in the household appliances industry requires an integrated strategy. On the one hand, it must leverage the reach of social media to build awareness of the "green consumption" trend, and on the other, it must offer in-depth education and transparency on manufacturer websites, which allows for reducing the so-called ecological footprint and building the image of a socially responsible company.

9. Summary

Our research aimed to define an effective communication strategy and media selection for promoting eco-friendly packaging in the household appliance industry. We reached the following conclusions based on our research questions:

- The most effective marketing communication channels are social media and manufacturer websites, which allow for direct consumer outreach and detailed packaging information.
- The influence of marketing communication elements on purchasing decisions is significant. Eco-certifications and information transparency have proven to be the most important factors influencing consumer choices.

Based on our research, we recommend the following actions:

- Building credibility through certification; manufacturers should prioritize obtaining and displaying appropriate eco-certifications.
- Creating a section on the manufacturer's website dedicated to sustainable packaging policies, where information is presented in a clear, unambiguous, and easily accessible manner (transparent messaging on their own channels).
- Investing in a "green image" on social media.

- Segmenting communication channels – to prevent information exclusion, companies should not completely abandon traditional channels (radio, press). We recommend maintaining them when targeting people from smaller towns or with specific educational profiles, adapting the channel to the recipient's demographics.
- Limiting email marketing and influencer marketing.

Because greening is a dynamic trend, it is worth conducting longitudinal research to examine how price sensitivity and environmental competence of household appliance consumers are changing. This would allow us to determine whether the importance of certifications and transparency will increase as the market becomes saturated with pro-environmental information. Given the high effectiveness of social media and its hybrid nature, research on ethical challenges and message consistency seems essential. Future work could focus on how to maintain control over sustainability communication in an environment of user-generated content and AI to avoid accusations of greenwashing. It is also possible to investigate whether consumer involvement in packaging design actually translates into their subsequent brand loyalty and understanding of the idea of a circular economy.

References

1. Adamowicz, M., Krasuska, A. (2016). Komunikacja marketingowa a zachowania nabywców na rynku towarów konsumpcyjnych. *Nierówności Społeczne a Wzrost Gospodarczy, No. 45,* pp. 173-185, https://doi.org/10.15584/nsawg.2016.1.18
2. Bielecka, A. (2021). O sztuce opowiadania historii. Wykorzystanie storytellingu w kampaniach społecznych i reklamach komercyjnych. *Com.press, No. 4(1),* pp. 68-87, doi: 10.51480/compress.2021.4-1.261
3. Bojewska, B. (2024). Innowacje w przedsiębiorstwie zrównoważonym. *Studia i Prace Kolegium Zarządzania i Finansów, No. 197*, pp. 179-190.
4. Cholewa-Wójcik, A., Hornicki, K. (2025). *Ekoprojektowanie opakowań i jego rola w realizacji założeń cyrkularności: uwarunkowania i implikacje dla przedsiębiorstw*. Warszawa: PWE.
5. Ciechomski, W. (2023). Contemporary consumer trends. *Zeszyty Naukowe Politechniki Śląskiej. Organizacja i Zarządzanie, No. 173,* pp.81-91, https://doi.org/10.29119/1641-3466.2023.173.6
6. Daszkiewicz, M., Pukas, A. (2016). Integrated marketing communication – towards a holistic concept, *Nauki o Zarządzaniu. Prace Naukowe Uniwersytetu Ekonomicznego We Wrocławiu, nr 3(28)*, pp. 20-29, https://doi.org/10.15611/noz.2016.3.02

7. Frommeyer, B., Koch, J., Scagnetti, C., Lorenz, M., Schewe, G. (2024). Recycled or reusable. Amulti-method assessment of eco-friendly packaging in online retail. *Journal of Industrial Ecology, No. 28*, pp. 100-115.
8. Jerzyk, E. (2015). Zrównoważone opakowanie jako czynnik procesu podejmowania decyzji zakupowych z perspektywy polskich i francuskich młodych konsumentów. *Journal of Agriculture & Rural Development, No. 3(37),* pp. 1-8.
9. Karwowska, J. (2021). *Opakowanie zgodne z kryteriami środowiskowymi w komunikacji marketingowej przedsiębiorstw.* Warszawa: Oficyna Wydawnicza SGH.
10. Koszembar-Wiklik, M. (2016). Komunikacja marketingowa a komercjalizacja nowych technologii i produktów. *Zeszyty Naukowe Politechniki Śląskiej. Organizacja i Zarządzanie, No. 93*, pp. 251-260.
11. Malec, A. (2024). Zjawisko greenwashingu a decyzje zakupowe pokolenia Z. In: D. Teneta (Ed.), *Zrównoważony rozwój – trendy, wyzwania, kontrowersje* (pp. 91-109). Wrocław: UE we Wrocławiu.
12. Pawłowska, E., Górska, B., Wójcik, K. (2024). Marking of packaging with ecological symbols. *Packaging Review, No. 2*, pp. 6-12, https://doi.org/10.15199/42.2024.2.1
13. Pindera, O. (2023). Komunikacja marketingowa w mediach społecznościowych w kulturach wysoko i niskokontekstowych na przykładzie marki L'Oréal. In: D. Teneta (Ed.), *Zarządzanie różnorodnością w organizacji – istota, znaczenie, wyzwania* (pp. 82-94). Wrocław: UE we Wrocławiu.
14. Piracci, G., Boncinelli, F., Casini, L. (2023). Investigating Consumer Preferences for Sustainable Packaging Through a Different Behavioural Approach: A Random Regret Minimization Application. *Environmental and Resource Economics, No. 86*, pp. 1-27, https://doi.org/10.1007/s10640-023-00785-3
15. Ratajczyk, M. (2021). *Opakowanie jako narzędzie oddziaływania na nabywców. Zarządzanie opakowaniem w przedsiębiorstwie.* Warszawa: PWE.
16. Sanak-Kosmowska, K. (2023). Zniekształcenia i błędy poznawcze a zachowania zakupowe konsumentów – wyniki analizy bibliometrycznej publikacji indeksowanych w bazach Scopus oraz Web of Science. *Studia i Prace Kolegium Zarządzania i Finansów, No. 188*, pp. 63-81, doi: 10.33119/SIP.2023.188.4
17. Siuda, D. (2023). Wpływ proekologicznego charakteru opakowań na intencje zakupowe i wizerunek marki. *Marketing i Rynek, No. 3*, pp. 22-32, doi: 10.33226/1231-7853.2023.3.2
18. Szczech-Pietkiewicz, E., Czerniak, A. (2024). Gospodarka obiegu zamkniętego jako potencjał zrównoważonego rozwoju polskich przedsiębiorstw.. *Studia i Prace Kolegium Zarządzania i Finansów, No. 197*, pp. 85-96, doi: 10.33119/SIP.2024.197.6
19. Szuszkiewicz, A. (2024). Rozwój odpowiedzialnych wzorców konsumpcji jako stymulanta innowacji w marketingu dóbr i usług. *Studia i Prace Kolegium Zarządzania i Finansów, nr 188*, pp. 9-24, doi: 10.33119/SIP.2023.188.1

20. Wang, X., Jiang, J., Gong, X., Wang, J. (2024). Simpler is greener: The impact of packaging visual complexity on products' eco- friendliness perception. *Psychology & Marketing, No. 41(11)*, pp. 2577-2593, doi: 10.1002/mar.22096
21. Wyrwisz, J. (2017). Komunikacja marketingowa wobec digitalizacji procesów rynkowych. *Zeszyty Naukowe Uniwersytetu Przyrodniczo-Humanistycznego w Siedlcach, No. 39(112),* pp. 43-53.
22. Zysiek, Z. (2024). Sustainable packaging – the influence of paper and plastics on the consumer choices. *Packaging Review, No. 4*, pp. 18-22, doi: 10.15199/42.2024.4.2

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

AUDIENCE RELATIONSHIP MANAGEMENT AS A COMPETENCY CHALLENGE FOR CULTURAL SECTOR STAFF

Katarzyna PLEBAŃCZYK

Jagiellonian University, Faculty of Management and Social Communication, Institute of Culture;
katarzyna.plebanczyk@uj.edu.pl, ORCID: 0000-0002-6546-3503

Purpose: The article aims to identify the relationship between audience relationship management and the competencies of cultural sector staff.
Design/methodology/approach: The analysis is based on the assumption that audience relationship management in cultural organisations requires solutions implemented at the level of human resource management. The research model positions the employee—as an internal stakeholder—within a specific HRM system characteristic of a given type of organisation. This system shapes the conditions for developing individual, team and organisational competencies, through which the organisation builds and manages its relationships with audiences. The study was qualitative and exploratory in nature. Interviews were conducted, and the analysis of findings was structured across three levels: individual, team and organisational.
Findings: The results demonstrate the significant role of cultural sector staff competencies in building relationships with audiences. The higher the level of competencies and their organisational support, the greater the institution's capacity to adapt its strategies to environmental expectations. The study identified organisational tensions, competency gaps and the need for systemic support for staff development.
Research limitations/implications: The study was qualitative and based on a purposive sample; therefore, the conclusions are analytical in nature. Future research should consider expanding data sources, applying quantitative methods, and conducting comparative studies across different types of institutions and national contexts.
Practical implications: Effective audience relationship management requires integrating audience development strategies with HRM practices. Investing in staff development is essential for achieving public objectives, while neglecting such investment may lead to employee burnout and a decline in audience experience quality.
Social implications: Strengthening the competencies of cultural sector staff supports increased cultural participation, the development of social capital and the achievement of public policy goals.
Originality/value: The article integrates the perspective of audience development with HRM scholarship and stakeholder theory, offering an analytical framework that incorporates individual, team and organisational levels and providing empirical evidence of their interconnections.
Keywords: human resource management, cultural management, audience development, competencies, stakeholders, audience relationships.
Category of the paper: research paper.

1. Introduction

Achieving public policy objectives presents new challenges for organisations operating in the cultural field. Their activities are increasingly associated with the development of social capital, while the growing importance of participation, accessibility and inclusivity necessitates greater attention to audience relationship management (Kawashima, 2006). This implies changes in how cultural organisations operate: programming, marketing and educational activities not only constitute mutually complementary practices arising from an adopted development strategy, but also emerge through the engagement and competencies of staff, as well as in collaboration with a key stakeholder - the audience.

This raises questions about whether, and to what extent, organisations in the cultural sector are prepared for these changes, and whether the expectations of the external environment are reflected in human resource management processes. The primary aim of the study was therefore to identify the relationship between audience relationship management and the competencies of cultural sector staff, and the findings are presented in this article.

2. The Audience as the Principal Stakeholder

Culture is increasingly viewed within public policy as an integrating factor across various areas of development. It influences the building of social cohesion as well as cultural and social capital, and contributes to the achievement of sustainable development goals (see: Hawkes, 2001; Plebańczyk, 2021). Cultural organisations are ever more frequently expected to serve as spaces for social dialogue, within which diverse interactions occur between different stakeholder groups (Walmsley, 2016). This entails placing greater emphasis on the audience, engaging in dialogue with them, involving them in the design of programmes, and building long-term relationships.

One of the approaches used to describe activities directed towards audiences is the concept of audience development, which - although originating in the 1960s - has been reinterpreted in recent years in the context of achieving sustainable development objectives. Achieving these objectives involves, among other elements, strengthening cultural participation - not merely by increasing attendance, but by deepening relationships with audiences and reducing barriers to access (social, economic, geographical, digital), as well as fostering social inclusion and diversity (Council of the European Union, 2022, 2024). For this reason, audience development is regarded as a strategic tool of public policy rather than simply an organisational initiative (Kawashima, 2006).

Cultural organisations therefore focus on employing tools characteristic of marketing—aimed at understanding their audiences, diagnosing their needs or removing barriers to participation - while also expanding these practices to include tools for audience relationship management, understood as the management of relationships with a key stakeholder (Hadley, 2017). It should be noted, however, that audience relationship management cannot be analysed in isolation from organisational structures and management processes (Bollo et al., 2017; Plebańczyk, 2022). It thus encompasses not only communication tools, but also the work of internal teams (institutional departments), the capacity to learn from feedback, and requires staff to possess appropriate competencies (Laberschek, Kwiatkowska-Chylińska, 2022). The absence of such practices embedded within organisational structures leads to fragmentation of activities and excessive burdens placed on individuals responsible for audience contact (Plebańczyk, 2021).

3. Human Resource Management in Cultural Organisations

Human resource management in organisations operating in the cultural sector constitutes an area of strategic importance, as it is people - their competencies, motivations, attitudes and capacity for collaboration - who determine the quality of mission delivery, relationships with the environment and organisational sustainability (Król, Ludwiczyński, 2014). Strategic human resource management therefore involves linking personnel policy with the organisation's mission and goals, and treating staff as a key developmental asset (Witczak, 2018), which conditions an organisation's ability to adapt and create value (Boxall, Purcell, 2016). Cultural organisations, which operate at the intersection of public mission, autonomy and growing demands for efficiency and accountability, generate staff multitasking (Konior, Pluszyńska, 2022), tensions between autonomy and control, as well as risks related to the overexploitation of employee engagement. These characteristics make the transfer of HRM models developed in the business sector require careful adaptation (Banks, Hesmondhalgh, 2009; Towse, 2010).

A key dimension of human resource management in culture involves competencies, understood as an integrated set of knowledge, skills, attitudes and motivations that enable effective performance in specific contexts (Armstrong, 2014; Witczak, 2018). Candidates for positions in cultural institutions are expected not only to hold formal qualifications but also to possess well-developed interpersonal, organisational and analytical competencies, alongside particular personality traits such as empathy, sensitivity and the ability to work collaboratively (Mizera-Pęczek, Grzesiak, 2022). Increasing attention is also paid to entrepreneurial attitudes and competencies - as factors that enable adaptation to changing conditions, especially in the context of the multitasking nature of work (Poprawski, 2015) and even to a positivist orientation and the capacity to attribute meaning to undertaken tasks (Dziadzia, 2018). A mismatch

between required and actual competencies may result in employee frustration and diminished motivation, which negatively affects the achievement of organisational goals (Turek, 2015).

Employees are not only the addressees of managerial decisions but active participants in organisational processes. When conceptualised as internal stakeholders (based on the classical theories of Freeman or Clarkson), they become primary stakeholders whose competencies, knowledge and adaptive capacity influence the quality of relationships with other stakeholders (Kujala, Sachs, Leinonen, Heikkinen, Laude, 2022). In the cultural sector, this perspective is particularly important, as employees simultaneously perform the roles of task executors, co-creators of value and intermediaries in relationships with audiences. This means that HRM directly affects the organisation's ability to undertake audience development activities and to build sustainable relationships with external stakeholders.

Research on cultural sector staff in Poland indicates the absence of a systemic approach to developing competencies (Konior, Pluszyńska, 2022), which leads to a situation in which audience relationships depend more on the individual engagement and skills of employees than on organisational capacity. From the perspective of audience relationship management, this implies that the challenge does not lie merely in implementing isolated activities (e.g., audience research or training), but in enhancing the organisation's ability to transform knowledge and experience into sustainable practices.

4. Research Methodology

The assumptions outlined in the introduction enabled the construction of a research model in which it was assumed that the employee - as an internal stakeholder - operates within a specific HRM system characteristic of a particular type of organisation. This system shapes the conditions for the development of individual, team and organisational competencies, through which the organisation builds and manages its relationships with audiences.

The model assumes the following sequence of relationships:

Employee ⟶ HRM ⟶ Competencies ⟶ Audience Relationship

Accordingly, the study focused on three levels of analysis:

- Individual level – employee competencies and experiences.
- Team level – interdepartmental collaboration, knowledge sharing, role distribution.
- Organisational level – HRM practices, organisational culture, change management.

Based on these assumptions, the following research questions were formulated:

RQ1. What HRM practices are present in the cultural organisations studied in the context of audience relationship management?

RQ2. What competencies are required of cultural sector staff in the process of building relationships with audiences?

RQ3. How do organisations identify and use knowledge about their audiences?

RQ4. What organisational tensions accompany the implementation of audience development activities?

RQ5. How does human resource management influence relationships with audiences?

The study was qualitative and exploratory in nature. From a broader research project concerning the implementation of audience development in cultural organisations (results currently being prepared for a scholarly monograph), a dedicated component addressing the above issues was extracted. For the purpose of this analysis, semi-structured in-depth interviews were used. These were conducted with representatives of cultural sector staff - senior and middle managers, as well as specialist employees from various organisational departments (50 interviews conducted between 2020 and 2025 and fully coded). The collected material was subjected to thematic analysis.

5. Findings

5.1. Audience at the Centre of Attention

The analysis of the empirical material indicates a clear interest among cultural organisations in building relationships with their audiences. Respondents emphasised that their work is no longer limited to organising events and now includes shaping the audience experience, responding to audience needs and maintaining long-term contact. As the senior manager noted: *In the past, we measured success by attendance. Today, we increasingly ask who comes, why they come and whether they return. This completely changes the way we think about our work.* (R3, management)

The audience has become a reference point for programming, communication and organisational decisions. At the same time, employees observed that:

We are all responsible for the audience, but in reality no one actually has this written into their job description. (R7, programming department)

Audience relationships are built by educators, animators, communication staff and front-of-house employees, who often become "the face of the institution", despite not being formally involved in decision-making processes:

We are on the front line. If something doesn't work, the audience comes to us. But we don't always have influence over how things are designed. (R12, audience services)

Respondents' statements also point to an expanding range of competencies expected of staff. Beyond specialist knowledge, communication skills, empathy, mediation abilities and the capacity to respond to difficult situations are becoming increasingly important. One educator stressed:

You need to be able to read the group and respond to what is happening. It is no longer just about conveying knowledge; it is about building a relationship. (R5, education)

At the same time, respondents highlighted the lack of systemic preparation for such a role. Responsibility for audience relationships is often perceived as a natural extension of duties rather than an area requiring distinct competencies and organisational support:

No one taught us this. We learned on our own, through trial and error. (R9, programme team)

As a result, audience relationships often depend on the individual commitment and experience of employees rather than on a coherent HRM system. In the institutions represented by respondents, professional activities related to analysing audience experience (as described in the concept of customer experience) or spaces for addressing difficult relational situations appeared infrequently. Interviewees pointed to tensions that stem from the simultaneous pressure to deliver programme-related tasks and build relationships. As one project coordinator noted:

On the one hand, we must deliver the project on time and settle the grant; on the other, we should build relationships. Sometimes these logics contradict each other. (R2, project coordination)

Audience relationship management broadens the scope of employee roles, increases competency requirements and generates new tensions, particularly where there is a lack of clear organisational grounding and support for competency development. In the context of the adopted analytical model, this indicates the emergence of the first dimension of the competency challenge.

5.2. Recognising Audience Needs as an Organisational Competence

One of the key areas revealing competency-related challenges among cultural sector staff is the ability to identify and interpret audience needs. Respondents recognised the importance of knowledge about audiences and familiarity with supporting tools, yet the interviews present a picture of rather fragmented practices based primarily on observation, conversation and professional intuition. As one interviewee emphasised:

We know our audiences because we talk to them after events. It is first-hand knowledge, but mostly unwritten. (R4, education)

The intuitive nature of diagnosis is often treated as a natural element of cultural work, particularly in smaller teams where relationships are more direct. However, in the context of rising expectations placed on institutions - regarding the implementation of accessibility, inclusivity and audience diversity standards - such an approach proves insufficient.

Some respondents pointed to a lack of research competencies and a lack of formal data analysis tools:

We don't have anyone responsible for research. Sometimes we run surveys, but we don't really know what to do with them afterwards. (R8, communication)

Audience knowledge is often dispersed across departments and individuals, and its flow is not formalised. Front-of-house staff possess detailed insights into audience reactions, yet mechanisms for passing this knowledge further are not always in place:

We know a lot because we hear comments all the time, but this rarely goes any further. There's no space for it. (R11, audience services)

As a consequence, knowledge about the audience remains at an individual level and does not develop into an organisational competence. Procedures enabling the systematic collection, analysis and use of information in the planning process are lacking, which also indicates the absence of organisational capabilities—understood as repeatable, institutionalised ways of working that allow the organisation to learn and adapt.

What HRM practices operate in the cultural organisations studied.

The statements cited suggest increasing pressure to professionalise audience diagnosis, yet in many cases it remains an individual competence dependent on the experience of particular employees. This implies that the absence of well-developed organisational competencies means that practices continue to rely on individual effort rather than on sustainable organisational capacity.

5.3. Managing Audience Knowledge and Organisational Learning

A key challenge remains the transformation of knowledge into lasting organisational practice. Respondents repeatedly emphasised that knowledge about audiences exists within organisations in a dispersed and unsystematic manner, rarely becoming the subject of collective reflection:

Sometimes after an event we talk among ourselves about what worked and what didn't, but these are rather spontaneous conversations; there is no regular moment for summarising. (R6, programming department)

Many institutions lack regular meetings supporting ongoing research, summary reports regarding audience experience, or procedures for sharing information between departments. Respondents also drew attention to the lack of time and resources dedicated to analysis and reflection, as ongoing project and programme tasks remain the priority:

There is always something that needs to be done immediately. We simply don't have the time or people for calm analysis. (R2, project coordination)

As a result, audience knowledge does not consistently translate into modifications of programme offerings or changes in the institution's operational practices. Changes tend to be incidental and dependent on the initiative of specific individuals:

If someone has the energy and an idea, then something changes. But that's not a system; it's more individual initiative. (R5, education)

This points to a lack of developed organisational competencies, understood as an institution's ability to learn and adapt systematically. It is also important to note that audience relationships rest on the experience of individuals rather than on a systemically designed process. As one respondent commented:

When someone leaves, they take with them an enormous amount of knowledge about our audiences. We don't have it written down anywhere. (R10, communication)

HRM in the organisations studied rarely includes solutions that support knowledge transfer - such as mentoring, formal project debriefings or systematic use of data in decision-making processes. From the perspective of the competency challenge for cultural sector staff, this indicates that the issue does not simply stem from a lack of individual skills, but from the insufficient embedding of knowledge management within organisational practice.

5.4. New Requirements for Staff in the Context of Accessibility and Inclusivity

The findings highlight the growing importance of competencies related to the implementation of accessibility (including that which has been legally regulated in Poland) and the accompanying principle of inclusivity (Dz.U. 2019 poz. 1696). Respondents emphasised that cultural organisations are increasingly required to address the diverse needs of different audience groups, which expands the scope of employee responsibilities—often without adequate preparation:

We attended one training session on accessibility, but it was more of an introduction. In practice, we learn by doing. (R9, programme team)

Many interviewees expressed a sense of uncertainty and a need for support when working with groups requiring heightened communicative sensitivity. As one participant noted:

We want to be open, but sometimes we are afraid of saying the wrong thing. We lack a space to discuss these issues and learn. (R6, animator)

Front-of-house staff play a particularly significant role in delivering inclusive practices. They are the ones who directly confront the diversity of audience needs, respond to difficult situations and mediate between the institution and its visitors. Yet they, too, observed that their preparation for this role is often limited:

We are the first point of contact. If someone has a problem, they come to us. But we don't always have clear guidelines on how to respond in different situations. (R11, audience services)

It is also important to note that tasks related to meeting accessibility requirements are often added to existing responsibilities, increasing staff multitasking without modifying job descriptions or providing additional resources. As one respondent summarised:

Accessibility is another *element we have to take into account, but the project still has to be delivered in the same time frame and with the same team.* (R2, project coordination)

Accessibility functions as an external requirement stemming from legal regulations, and therefore generates changes in management processes and in the preparation of staff for these tasks.

5.5. Change Management

The implementation of activities oriented towards audience development is associated with processes of organisational change. One of the most frequently recurring themes in the interviews was the ambiguity surrounding where responsibility for managing audience relationships is located. This ambiguity affects practice, as it is not always clear who makes decisions and who coordinates activities. Even senior managers observed this issue:
We all say that the audience is the most important, but when it comes to concrete decisions, it is not always clear who is responsible for what. (R3, management)

Respondents - particularly those employed at lower organisational levels - noted that audience development activities often constitute an additional burden, where:
It functions a bit like a side project rather than something that permeates the whole organisation. (R7, programming department)

As a result, tensions emerge between the need to deliver programme tasks and measurable outcomes, and the need to focus on building relationships—an activity that requires time, reflection and flexibility:
We have to deliver the project, settle the grant, achieve the attendance. There isn't always space for building relationships. (R2, project coordination)

Change aimed at strengthening audience relationships also requires leadership competencies. Respondents frequently highlighted the significant role of managers who are able to combine a programme perspective with attention to the audience, and who support staff in adapting to new requirements:
If the management clearly shows that relationships are a priority, it is easier for us to change how we work. If not, we go back to old patterns. (R5, education)

According to respondents, some cultural organisations demonstrate a readiness to experiment, while others show resistance rooted in habit or fear of expanding responsibilities:
Some people say: we've always done it this way and it worked. Change requires extra effort. (R8, communication)

Effective change management requires a coherent alignment of institutional strategy with personnel policy - this includes clearly defined roles, support for competency development and the creation of spaces for internal dialogue. Where such elements were present, respondents more often reported greater consistency in activities and a stronger sense of purpose in undertaken initiatives. The tensions accompanying change are therefore not solely the result of individual resistance but stem from the need to transform the way the institution operates.

6. Conclusions and Discussion

The findings presented allow audience relationship management to be interpreted as a multi-level phenomenon whose effectiveness depends on the alignment of individual, team and organisational factors. In this perspective, audience relationships are the outcome of internal organisational processes - particularly HRM practices and the competencies of cultural sector staff. Accordingly, conclusions may now be formulated in relation to the research questions posed.

RQ1. What HRM practices are present in the cultural organisations studied in the context of audience relationship management?

In the empirical material analysed, responsibility for managing audience relationships is often not clearly assigned to specific positions, resulting in dispersed accountability. Tasks related to audience relationships tend to be added to existing duties, which may lead to excessive workload and a mismatch between required and actual competencies. Knowledge about audiences appears to rely primarily on individual knowledge (accumulated through daily interactions) and is not consistently transformed into organisational competence, as it is rarely documented or systematically analysed.

Respondents' statements also suggest that planned actions aimed at developing relevant staff competencies were infrequent. Learning most commonly occurred through practice, professional experience or individual initiative. This indicates limited utilisation of opportunities in the areas of knowledge management, knowledge transfer between individuals and the organisation, data-informed decision-making and organisational learning.

RQ2. What competencies are required of cultural sector staff in the process of building relationships with audiences?

Of key importance are competencies that support relationship building, whose significance extends beyond the standard competencies formally assigned to job positions, although these remain relevant. In the context of developing relationships with audiences, particular importance is attached to dialogic skills and the ability to adapt communication to different audience groups (especially in roles involving direct contact with audiences), as well as the capacity to observe audience behaviour, respond to expressed needs and interpret them—also in relation to the ability to use marketing tools effectively. The findings further indicate the growing importance of competencies related to working with people with diverse needs (not limited solely to persons with disabilities) and to recognising and accommodating audience diversity.

Individuals working in the cultural sector are also expected to demonstrate a capacity for continuous learning, multitasking and the ability to combine multiple professional roles. Although these competencies are generally not fully defined within formal competency models nor systematically supported by HRM practices, they arise from the specific characteristics of the cultural work environment.

RQ3. How do organisations identify and use knowledge about their audiences?

In the organisations studied, the identification and use of audience knowledge take place along two parallel pathways, with informal approaches predominating. On the one hand, within the work of individual departments in cultural organisations (e.g. programming, education, marketing), data are gathered through formalised activities such as audience research or the collection of various forms of quantitative and qualitative data. However, organisations rarely conduct regular audience studies or in-depth analyses of audience needs; systematic monitoring is uncommon and such activities are not embedded in a permanent management system.

On the other hand, knowledge about audiences often derives from the everyday experience of employees and their direct interactions with audiences. As a result, this knowledge is accumulated and processed intuitively, remains at the individual level and is not aggregated at the organisational level. Consequently, it is used primarily for operational purposes in day-to-day work and only rarely informs strategic decisions or organisational change.

RQ4. What organisational tensions accompany the implementation of audience development activities?

The implementation of audience development activities is accompanied by numerous organisational tensions arising from the misalignment between openness to collaboration with a key stakeholder and existing working conditions and organisational arrangements. These tensions can be identified, inter alia, as tensions between:

- project-based logic and relationship management, where discrepancies arise between the short-term logic of projects (deadlines, indicators, accountability requirements) and the long-term nature of building relationships with audiences;
- expectations and competencies, when growing demands placed on employees are not matched by adequate levels of competency preparation or training support. The lack of tools and procedures not only deepens employees' sense of uncertainty but also limits opportunities for organisational development;
- multitasking and lack of support, when tasks related to audience relationship management are added to existing responsibilities without a corresponding increase in resources and without formal anchoring within the organisational structure, leading to employee overload and a perceived lack of support;

- departmental scope of work and responsibility for relationships, when there are no clearly defined positions responsible for managing audience relationships and multiple departments or individuals undertake such tasks simultaneously. In the absence of mechanisms for cooperation and coordination, responsibility for outcomes becomes dispersed, weakening the effectiveness of audience-oriented activities.

RQ5. How does human resource management influence relationships with audiences?

Human resource management influences relationships with audiences indirectly, by shaping the conditions under which employees carry out their activities. This influence is expressed primarily through the design of professional roles, competency development, work organisation, and the creation of frameworks for collaboration and organisational learning.

In situations where the tensions identified above are present, an organisation's capacity to learn becomes constrained. For example, where there are no clearly defined principles governing work organisation and job roles, responsibility for audience relationships becomes dispersed and uncoordinated, while audience knowledge remains largely at the individual level and is not systematically incorporated into decision-making processes. Moreover, the expansion of employee responsibilities characteristic of cultural organisations—where competencies formally assigned to job positions do not fully reflect actual expectations—leads to staff overload and, ultimately, burnout.

Competencies that do not directly arise from formal job descriptions—such as communication skills—are of particular importance for managing audience relationships. Respondents repeatedly suggested the need for greater organisational support in this area. HRM co-shapes the work environment in which information exchange, interdepartmental collaboration and reflection on audience experience are either enabled or constrained. A culture that supports cooperation strengthens relational activities, while its absence results in fragmentation.

Audience relationships are thus the outcome of specific configurations of HRM practices. Where human resource management is aligned with organisational strategy and recognises the relational nature of organisational activity, relationships with audiences tend to be more coherent and sustainable. Where this alignment is lacking, relationships depend on individual employee initiatives and remain incidental.

A significant challenge for contemporary cultural organisations is, in many cases, the reinterpretation of their established modes of operation. The results of this study can be situated within stakeholder theory, which emphasises that organisations operate within networks of relationships with entities that influence organisational goals and are themselves affected by organisational actions (Freeman, 1984). Cultural organisations that declare audiences to be at the centre of their attention (Plebańczyk, 2021) position them as key external stakeholders—a perspective most clearly reflected in marketing practices.

The adoption of the audience development concept shifts this emphasis further, as it requires strategic change and becomes the outcome of internal organisational processes, including the recognition of employees as internal stakeholders. It is employees who implement strategic assumptions and translate them into operational practice; thus, supporting the development of their competencies becomes a necessary condition for achieving strategic objectives. This approach is consistent with more recent developments in stakeholder theory, which stress the integration of diverse stakeholder interests within a coherent management system (Eskerod, Huemann, Ringhofer, 2015; Kujala et al., 2022).

7. Research Limitations and Implications for Further Analysis

The study was qualitative and exploratory in nature, and the sample was purposively selected. This enabled an in-depth examination of the experiences of cultural sector staff; however, the findings should be interpreted as analytical rather than representative of the sector as a whole. Future research could benefit from expanding data sources, for example by incorporating the perspectives of audiences, institutional organisers, organisational observations or document analysis.

While the qualitative analysis confirmed relationships between employee roles, HRM practices, competencies and audience relationships, future studies could apply quantitative methods to test the strength of these relationships. Comparative research across different types of institutions (such as theatres, museums, cultural centres or non-governmental organisations), as well as cross-national studies, would further enable an examination of how varying cultural and institutional contexts shape HRM practices and audience relationship management.

References

1. Armstrong, M. (2014). *Armstrong's handbook of human resource management practice*. Kogan Page.
2. Banks, M., Hesmondhalgh, D. (2009). Looking for work in creative industries policy. *International Journal of Cultural Policy, 15*(4), 415-430. https://doi.org/10.1080/10286630902923323
3. Bollo, A., Da Milano, C., Gariboldi, A., Torch, C. (2017). *Study on audience development – How to place audiences at the centre of cultural organisations: Final report*. European

Commission, Directorate-General for Education, Youth, Sport and Culture. Publications Office of the European Union. https://doi.org/10.1080/09548963.2017.1345739

4. Boxall, P., Purcell, J. (2016). *Strategy and human resource management*. Palgrave Macmillan.
5. Council of the European Union (2022). Resolution of the Council on the Work Plan for Culture 2023-2026 (2022/C 466/01). *Official Journal of the European Union*, C 466, 1-18. Retrieved from: https://www.consilium.europa.eu/media/60399/st15381-en22.pdf
6. Council of the European Union (2024). Council conclusions on improving and fostering access to culture (C/2024/7446). *Official Journal of the European Union*. Retrieved from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52024XG07446&qid=1769016909752
7. Donaldson, T., Preston, L.E. (1995). The stakeholder theory of the corporation. *Academy of Management Review, 20*(1), 65-91. https://doi.org/10.2307/258887
8. Eskerod, P., Huemann, M., Ringhofer, C. (2015). Stakeholder inclusiveness: Enriching project management with general stakeholder theory. *Project Management Journal, 46*(6), 42-53. https://doi.org/10.1002/pmj.21546
9. Freeman, R.E. (1984). *Strategic management: A stakeholder approach*. Pitman.
10. Hadley, S. (2017). European Commission final report: Study on audience development – How to place audiences at the centre of cultural organisations. *Cultural Trends, 26*(5), 1-4. https://data.europa.eu/doi/10.2766/557971
11. Hawkes, J. (2001). *The fourth pillar of sustainability: Culture's essential role in public planning*. Common Ground.
12. Heidelberg, B.M. (2025). *Human resources in the arts*. Routledge.
13. Juchnowicz, M. (2016). *Elastyczne zarządzanie kapitałem ludzkim z perspektywy interesariuszy*. PWE.
14. Kawashima, N. (2006). Audience development and social inclusion in Britain. *International Journal of Cultural Policy*, *12*(1), 55-2. https://doi.org/10.1080/10286630600613309
15. Kocój, E., Laberschek, M., Kopeć, K., Plebańczyk, K. (Eds). (2022). *Metodologia badań w sektorze kultury i mediów*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
16. Konior, A., Pluszyńska, A. (2022). Kadry kultury – przegląd literatury. *Zarządzanie w kulturze*, *23*(3), 217-236. https://doi.org/10.4467/20843976ZK.22.014.16403
17. Król, H., Ludwiczyński, A. (Eds.) (2014). *Zarządzanie zasobami ludzkimi. Tworzenie kapitału ludzkiego organizacji*. Warszawa: PWN.
18. Kujala, J., Sachs, S., Leinonen, H., Heikkinen, A., Laude, D. (2022). Stakeholder engagement: Past, present, and future. *Business & Society, 61*(5), 1136-1196. https://doi.org/10.1177/00076503211066595
19. Mizera-Pęczek, P., Grzesiak, L. (2022). Wymagania kompetencyjne stawiane kadrom kultury. Analiza ogłoszeń o pracy. *Zarządzanie w kulturze*, 237-254. https://doi.org/10.4467/20843976ZK.22.015.16404

20. Plebańczyk K. (2022). Wybrane narzędzia i techniki wspierające *audience development* w organizacjach kultury. In: Kocój, E., Laberschek, M., Kopeć, K., Plebańczyk, K. (Eds.), *Metodologia badań w sektorze kultury i mediów* (pp. 11-31). Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
21. Plebańczyk, K. (2021). Zrównoważony rozwój w organizacji kultury: kontekst audience development. In: M. Pawleta, A. Marciniak (Eds.), *Dziedzictwo kulturowe w kontekście wyzwań zrównoważonego rozwoju* (pp. 87-113). Kraków: Universitas.
22. Walmsley, B. (2016). From arts marketing to audience enrichment: How digital engagement can deepen and democratize artistic exchange with audiences. *Poetics*, *58*, 66-78. https://doi.org/10.1016/j.poetic.2016.07.001
23. Witczak, H. (2018). *Strategiczne zarządzanie zasobami ludzkimi*. Warszawa: PWE.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

TENSIONS BETWEEN LEADER INTERESTS AND ORGANIZATIONAL LOGIC: EXECUTIVE MOTIVATION AND COMPENSATION

Tomasz ROSIAK[1*], Agnieszka POSTUŁA[2], Piotr PAWLAK[3]

[1] University of Warsaw; tomasz.rosiak@uw.edu.pl, ORCID: 0000-0001-8599-3862
[2] University of Warsaw; apostula@wz.uw.edu.pl, ORCID: 0000-0001-9495-0733
[3] Deloitte; piotr.pawlak@deloittece.com, ORCID: 0009-0002-7116-0821
* Correspondence author

Purpose: This article examines tensions between leaders' individual interests and organizational logic, with a focus on managerial motivation and executive compensation systems. The study conceptualizes the individual–organization relationship as a dynamic field of tensions arising from competing goals, values, and time horizons.
Design/methodology/approach: The study represents a pilot phase of a broader research project and adopts a qualitative design. It is based on in-depth interviews with management board members, chief financial officers, and members and chairs of supervisory boards from public, private, and family-owned companies.
Findings: Thematic analysis identified key sources of tension, including short-term financial performance pressure, formalized KPI-based evaluation systems, constraints on managerial autonomy, and misalignment between intrinsic motivation and financial incentives. Compensation systems may either mitigate or intensify these tensions, depending on their design, ownership context, and the quality of corporate governance.
Research limitations/implications: As a qualitative study, the findings are subject to limited generalizability. The results reveal mechanisms and interpretations but do not indicate the prevalence of the observed phenomena. These limitations point to the need for further quantitative and comparative research.
Practical implications: The findings underscore the importance of designing executive compensation and corporate governance systems that account for the multidimensional nature of managerial motivation and the ownership context of organizations.
Originality/value: The study's originality lies in applying a qualitative perspective of top-level organizational actors in the Polish context, offering an inside view of tensions between leaders' interests and organizational logic. It integrates agency theory with behavioral, institutional, and paradox perspectives to examine real decision-making dilemmas related to executive compensation and corporate governance.
Keywords: individual-organization relationship, management, motivation, compensation systems, organizational tensions, corporate governance.
Category of the paper: Action research.

1. Introduction

The relationship between the individual and the organization has long been a core concern in management sciences. Classical approaches framed it in terms of alignment, control, and coordination, assuming that goal discrepancies could be minimized through appropriate structures and management systems. Contemporary research, however, increasingly departs from equilibrium models in favour of a tension and paradox perspective, emphasizing that organizing involves maintaining a dynamic balance between competing demands rather than achieving stable goal congruence (Smith, Lewis, 2011; Putnam et al., 2016; Schad et al., 2016; Rosiak et al., 2024).

From this perspective, conflicting expectations are not anomalies but enduring features of organizational life, particularly under conditions of stakeholder pluralism, performance pressure, and competing institutional logics. These tensions manifest relationally through processes of sensemaking and meaning negotiation that shape how roles, goals, and responsibilities are understood (Weick et al., 2005).

One key mechanism structuring the leader-organization relationship is the compensation system. In the classical agency view, compensation serves to align interests by linking pay to performance (Jensen, Murphy, 1990). Yet the literature documents significant unintended effects, including short-termism, metric gaming, and the reinforcement of opportunistic behaviour (Bebchuk, Fried, 2003). Motivation research further suggests that strong reliance on external incentives and formalized KPIs may crowd out autonomous motivation and instrumentalize organizational goals (Ryan, Deci, 2000; Strathern, 1997; Pasieczny et al., 2024).

These tensions are also reflected in practitioner reports pointing to declining managerial engagement, increasing role complexity, and the limited explanatory power of traditional performance measures in changing work environments (Gallup; Deloitte; Microsoft & LinkedIn). Despite growing interest in organizational tensions, the relationship between leaders' self-interest and organizational logic remains empirically underexplored in qualitative research, particularly in the Polish context, where studies have focused primarily on formal governance arrangements and quantitative models.

This article addresses this gap by examining how leaders interpret and manage tensions between self-interest and organizational logic through the lens of motivation and compensation systems. It asks: (1) how organizational leaders understand these tensions in the context of compensation systems and board oversight, and (2) how compensation and corporate governance practices shape everyday managerial decisions and coping strategies.

The study draws on qualitative interviews with management board members, CFOs, and supervisory board members from public, private, and family firms. By focusing on lived managerial experiences, the article contributes theoretically by extending the individual-

organization relationship beyond a purely contractual perspective and practically by offering insights for the design of compensation systems and corporate governance mechanisms.

2. Literature review

2.1. The individual-organization relationship and organizational tensions

Contemporary management research increasingly conceptualizes the individual-organization relationship as a dynamic field of tensions rather than a state of equilibrium. Organizations operating under stakeholder pluralism, competing institutional logics, and performance pressures generate conflicting expectations, making tensions a persistent feature of everyday organizing (Smith, Lewis, 2011; Schad et al., 2016; Putnam et al., 2016).

Recent studies emphasize the relational nature of these tensions: they emerge not only from structures or strategies but from ongoing interactions involving meaning-making, identification, and negotiation between individuals and organizations (Weick et al., 2021; Fairhurst et al., 2020). Consequently, the individual-organization relationship becomes a crucial level of analysis for understanding value-related tensions, well-being, and goal conflicts.

2.2. Values, alignment, and competing logics

Organizational values shape the legitimacy of action and the meaning of work, yet research on person-organization fit shows that full value alignment is rare. Instead, relationships are typically characterized by partial and negotiated fit (Kristof-Brown et al., 2023). Tensions are especially salient when organizations simultaneously promote humanistic values (e.g. development, inclusiveness) and instrumental values (e.g. efficiency, control).

From an institutional logics perspective, these tensions arise from the coexistence of different rationalities of action—such as market, professional, or public logics—within the same organizational setting (Besharov, Smith, 2014; Thornton et al., 2018). Individuals often operate at the intersection of these logics, producing axiological ambivalence and normative contradiction. Empirical research links such value tensions to challenges to professional identity and authenticity, leading to reduced identification or selective engagement (Alvesson, Einola, 2019; Knoll et al., 2021). Polish studies highlight the salience of these dynamics in public and academic organizations, where declared values coexist with strong formal and metric-driven pressures (Jemielniak, Pruchniewska, 2020; Postuła, Rosiak, 2024).

2.3. Goal tensions in the individual-organization relationship

Organizational goals coordinate action but often appear to individuals as competing or contradictory demands. In classical agency theory, such tensions stem from the separation of ownership and control and divergent interests between principals and agents (Jensen, Meckling, 1976). Goals and performance systems function as contractual mechanisms designed to limit opportunism through monitoring and incentive alignment (Eisenhardt, 1989; Jensen, Murphy, 1990).

However, the literature shows that increasing goal formalization and metric-based control intensify individual-level tensions. Research on ambidexterity demonstrates that simultaneous pressures for exploration and exploitation generate persistent conflicts requiring continuous balancing (Raisch, Zimmermann, 2017; Papachroni et al., 2016). Within agency theory, this implies that agents face multiple, often incoherent contractual goals, encouraging selective attention to those most visible or rewarded.

Performance-based management systems further privilege measurable outcomes, frequently marginalizing less quantifiable goals such as learning, innovation, or well-being (Franco-Santos, Otley, 2018). Critical agency perspectives argue that excessive focus on financial and short-term metrics fosters behaviours that comply with contractual incentives while undermining broader organizational intentions (Holmström, Milgrom, 1991). When goals are perceived as detached from individual values, the relationship becomes increasingly instrumental, weakening moral responsibility and organizational identification (Kreiner et al., 2019; Knoll, van Dick, 2021).

Polish research underscores that such dynamics are particularly visible in highly formalized organizations, where indicators dominate over axiological dialogue and reflection on work meaning (Kostera, 2020; Jemielniak, 2022). In these contexts, mechanisms associated with agency theory, monitoring, goals, and bonuses, may paradoxically intensify tensions and reinforce short-term orientations.

2.4. Integration: the individual-organization relationship as a system of tensions

Overall, the literature suggests that value and goal tensions form an interconnected system within the individual-organization relationship. Values shape how goals are interpreted, while goal pressures influence daily experience, well-being, and individuals' capacity to cope with inconsistencies. This perspective aligns with recent developments in paradox theory, which emphasize the processual, multi-level, and relational nature of organizational tensions (Smith, Tracey, 2016; Schad et al., 2022).

3. Methodology of the study

The aim of the study was to deepen the understanding of the tensions between the individual interest of the leader and the logic of the organization, analyzed from the perspective of management motivation and the functioning of compensation systems. Due to the interpretative nature of the research problem, referring to the experiences, meanings and ways of understanding managerial decisions, a qualitative approach was used.

The study was designed in an interpretive paradigm, assuming the social construction of organizational reality and the relational nature of individual-organization tensions. In-depth individual interviews (IDI) of a semi-structured nature were adopted as a research strategy, which made it possible to maintain the comparability of topics while exploring emergent threads.

The selection of respondents was deliberate. The inclusion criterion was to perform a function enabling real influence on strategic decisions and direct contact with compensation systems and corporate governance. The study involved five interviewees acting as presidents of management boards, financial directors and members and chairmen of supervisory boards. Respondents represented public companies listed on the Warsaw Stock Exchange, large private companies and family businesses. This design of the sample allowed for the triangulation of organizational roles and ownership contexts, in accordance with the logic of qualitative research aimed at maximizing the diversity of experiences, rather than statistical representativeness.

The interviews were conducted between December 2025 and January 2026 in the form of face-to-face or remote meetings. The interviews lasted from 60 to 120 minutes, were recorded with the consent of the respondents and then transcribed. Full anonymity of participants and organizations was ensured.

The data analysis was reflective and comparative. Triangulation of the researcher, organizational roles and ownership contexts was used, as well as the analysis of contrasting cases (e.g. listed companies and family companies). The interpretations have been consistently embedded in the empirical material through the use of quotations from interviews, which increases the transparency and credibility of the conclusions.

4. Research results

The empirical part presents the results of a qualitative study based on in-depth interviews with organizational leaders, focusing on their experiences related to motivation, compensation systems and the relationship between individual interest and the logic of the organization. The analysis shows the key mechanisms through which these experiences translate into

decision-making practices and reveal tensions present in the daily functioning of the organization.

4.1. The tension between the individual interest of the leader and the logic of the organization - the perspective of the actors

The analysis of interviews shows that management can face enormous, often morally questionable, pressure to achieve financial results, even at the expense of reporting reliability:

> [...] and let's do this EBITDA, if it didn't work out on the shopfloor, we'll do it in accounting, so don't post some reserve, don't post something there or disclose something earlier. But it comes back to haunt you later... [CFO-1]

Meeting such pressure requires a very strong moral backbone, self-confidence and courage. However, as the interlocutor convinces, it pays off in the long run:

> And they felt such a situation that there really is no room to create something in financial numbers, but you have to get down to work. And imagine that in half a year... Suddenly, this company from some average result, the result improved two and a half times [CFO-1]

In this case, the determination of the leader made the team understand that if any bonus is to be implemented in the organization, there is no other way to achieve it than through efficient action (see: Kotarbiński, 2003; Kieżun, 1977), and not manipulation of financial results.

A similar perspective, although in a completely different context, is presented by another interlocutor. He also rejects the short-term focus on financial results:

> I think of the organization as people. My goal has never been just to deliver results, but to develop people so that the organization is stronger. [CFO-2]

Both cases suggest that sustainable financial performance is built not through accounting manoeuvres, but through long-term orientation and operational improvements at its core.

A further illustration comes from a family-owned company, where personal interest is framed in broader terms than financial gain. As the respondent points out, the leader's interest also includes autonomy, the ability to realize one's own vision, and a sense of meaning and agency. As he emphasized, the key motivation is not to maximize compensation, but to make decisions:

> I do it primarily for a sense of freedom. To have the feeling that I am implementing my own ideas, not someone else's. Money is important, but it is not an end in itself. [CEO-1]

In turn, the owner and chairman of the supervisory board of a family company pointed to a strong identification of personal interest with the durability of the organization:

> Money is extremely important, this is the engine. But the goal was never money. The goal was to build a company, a structure that would last. [RN-1]

In this context, the tension between the leader's interest and the logic of the organization is not an open conflict, but rather an internal dilemma in which the leader negotiates between his own ambitions, values, and systemic constraints. Often the axis of tension is the perspective of time.

4.2. Tension between short-term and long-term orientation

Organizations, and above all leaders, operate under constant pressure from stakeholders (public opinion, investors), which is primarily focused on the short term.

> On the stock exchange, every quarter is an evaluation. This makes it very difficult to make decisions that only make sense in a few years. [RN-2]

The aforementioned pressure to "deliver" a good financial result conflicts with a long-term strategic orientation. Often, initiatives that build value in the future require expenditures that are difficult for the organization's stakeholders to accept. They may result, for example, in the non-payment of dividends. From this perspective, it seems that investors would like to eat their cake and have their cake, while the leaders have to decide how to reconcile these conflicting interests. It seems that a slightly easier task is faced by managers managing family organizations. There, long-term orientation is the main strategic goal:

> When you build a company for yourself and for your successors, you are not interested in whether the results this year are perfect. You are interested in whether the company will survive. [RN-1]

Survival gives the team a sense of security and meaning that what they are doing is worth sacrificing their private time. In this way, it can be stated that the convergence of individual goals (often private) with the goals of the organization is achieved – the interest of the individual is consistent with the logic of the organization.

4.3. Compensation systems as a source and regulator of tensions

The compensation system should support the achievement of strategic objectives as an overriding imperative. The organization's long-term vision is expected to be operationalized. In this way, compensation systems are expected to support the long-term survival of the organization. However, many companies face problems in cascading strategic goals to lower levels of the organization and to individual jobs. One of the interlocutors also points out such a problem:

> When everything tries to be closed in KPIs, people stop thinking more broadly. And intelligence and potential cannot be squeezed into a table. [CFO-2]

The above quote captures the negative effect of the over-formalization of rating and bonus systems. In such cases, the compensation system, instead of reinforcing intrinsic motivation, leads to its erosion. This observation aligns with Goodhart's Law, which states that when any indicator begins to be treated as a goal, it ceases to be a good indicator (Strathern, 1997). Especially if the reliability of the selected indicators may be questioned, if only because of the pressure described earlier. This increases the distance between the leader and the organization.

Another interlocutor also pointed to the reorientation of goals:

> People were accounted for with EBITDA, so instead of improving processes, they improved the numbers. It was only when we stopped 'correcting' the result in finances that the company began to improve in real terms. [CFO-1]

In this perspective, the bonus system becomes a tool that institutionalizes short-termism. The respondent pointed out that bonus pressure often leads to situations in which the logic of the organization is subordinated to the individual interest of the manager.

It is worth noting that the interlocutors also point out that the variability of compensation is not a problem in itself - the problem is an overly narrow definition of success, reduced to a single measure.

5. Discussion and Conclusions

This study demonstrates that tensions between leaders' self-interest and organizational logic cannot be reduced to classic principal-agent conflicts but are structural and contextual, embedded in organizational practices, monitoring systems, and dominant institutional and ownership patterns. This finding aligns with the paradox and tension perspective, which treats competing demands as a permanent feature of organizing rather than a deviation from equilibrium (Smith, Lewis, 2011; Putnam et al., 2016; Schad et al., 2016).

While the results partially support agency theory, they also challenge its simplifying assumptions. Consistent with earlier critiques, managerial interests proved to be multidimensional and extended beyond financial rewards to include autonomy, professional identity, and long-term organizational orientation (Jensen, Meckling, 1976; Eisenhardt, 1989; Bebchuk, Fried, 2003). Reducing motivation to monetary incentives therefore risks misdesigning compensation systems. In line with research on unintended consequences of performance management, incentive schemes strongly tied to short-term financial indicators intensified opportunistic behaviour through KPI gaming and goal instrumentalization (Holmström, Milgrom, 1991; Franco-Santos, Otley, 2018; Strathern, 1997).

A key contribution of the study is the empirical confirmation of intrinsic motivation as a moderator of incentive effectiveness. Leaders oriented toward organizational and human development were less susceptible to financial incentives and less prone to short-termism. This finding is consistent with self-determination theory, which suggests that excessive reliance on external controls can crowd out autonomous motivation and weaken responsibility for long-term outcomes (Ryan, Deci, 2000). Conversely, trust-based and transparent governance environments fostered stronger organizational identification, echoing research on values, authenticity, and selective engagement (Alvesson, Einola, 2019; Knoll et al., 2021).

The findings further show that compensation systems function not only as motivational devices but also as institutional mechanisms that signal which logics dominate in practice. In many cases, they reflected external pressures, particularly capital market expectations, rather than declared organizational strategies, reinforcing short-term logics even when these conflicted with long-term objectives. This observation is consistent with institutional logics research, which highlights how governance mechanisms reproduce dominant rationalities within organizational fields (Besharov, Smith, 2014; Thornton et al., 2018).

Ownership context proved to be a critical boundary condition. In private and family firms, managerial and organizational interests were more closely aligned, supporting long-term decision-making and value-based interpretation of goals. In contrast, public companies exhibited stronger short-term pressures and more pronounced tensions, a pattern also noted in Polish research on highly formalized and metric-driven organizations (Kostera, 2020; Jemielniak, 2022; Postuła, Rosiak, 2024).

Taken together, the study contributes theoretically by integrating agency theory with behavioural, institutional, and paradox perspectives on the individual-organization relationship. It shows that tensions between leaders' interests and organizational logic are not merely contractual but are embedded in systems of values, goals, and governance arrangements. From a practical standpoint, the findings point to the need to design compensation and corporate governance systems that recognize the multidimensional nature of managerial motivation, limit short-termism, align incentives with ownership logic, and ensure coherence between strategy, supervision, and everyday decision-making.

The conducted pilot study was carried out on a small sample and constitutes a preliminary step toward a broader research project investigating, among other aspects, tensions between leaders and the organization. Accordingly, the article is subject to typical limitations arising from the selected research sample as well as from the adopted qualitative research methodology. Therefore, the conclusions drawn from this study should not be generalized. Rather, they should serve as a basis and inspiration for further, more in-depth research employing both qualitative and quantitative approaches.

References

1. Alvesson, M., Einola, K. (2019). Warning for excessive positivity: Authentic leadership and other traps in leadership studies. *Journal of Management Studies*, *56*(2), 383-410. https://doi.org/10.1111/joms.12378
2. Bebchuk, L.A., Fried, J.M. (2003). Executive compensation as an agency problem. *Journal of Economic Perspectives*, *17*(3), 71-92. https://doi.org/10.1257/089533003769204362

3. Besharov, M.L., Smith, W.K. (2014). Multiple institutional logics in organizations: Explaining their varied nature and implications. *Academy of Management Review*, *39*(3), 364-381. https://doi.org/10.5465/amr.2011.0431
4. Deloitte (2024). *2024 Global Human Capital Trends: Thriving beyond boundaries*. Deloitte Insights.
5. Eisenhardt, K.M. (1989). Agency theory: An assessment and review. *Academy of Management Review*, *14*(1), 57-74. https://doi.org/10.5465/amr.1989.4279003
6. Fairhurst, G.T., Smith, W.K., Banghart, S., Lewis, M.W., Putnam, L.L., Raisch, S., Schad, J. (2020). Diverging and converging: Integrative insights on a paradox meta-perspective. *Academy of Management Annals*, *14*(1), 173-213.
7. Franco-Santos, M., Otley, D. (2018). Reviewing and theorizing the unintended consequences of performance management systems. *International Journal of Management Reviews*, *20*(3), 696-730. https://doi.org/10.1111/ijmr.12183.
8. Gallup (2024). *State of the Global Workplace: 2024 Report*. Gallup.
9. Holmström, B., Milgrom, P. (1991). Multitask principal–agent analyses: Incentive contracts, asset ownership, and job design. *Journal of Law, Economics, & Organization*, *7(Special Issue),* 24-52.
10. Jemielniak, D. (2022). *Kultura współpracy*. Poltext.
11. Jemielniak, D., Pruchniewska, U. (2020). *Etyka i organizowanie. Moralne wymiary pracy menedżerskiej*. Scholar.
12. Jensen, M.C., Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360. https://doi.org/10.1016/0304-405X(76)90026-X
13. Jensen, M.C., Murphy, K.J. (1990). Performance pay and top-management incentives. *Journal of Political Economy*, *98*(2), 225-264. https://doi.org/10.1086/261677
14. Kieżun, W. (1977). *Sprawne zarządzanie organizacją*. PWN.
15. Knoll, M., van Dick, R. (2021). Do I hear the whistle…? A first attempt to measure four forms of employee silence and their correlates. *Journal of Business Ethics*, *172*(2), 337-353.
16. Knoll, M., Hall, R.J., Weigelt, O. (2021). A longitudinal study of the relationships between organizational identification, value incongruence, and stress. *Journal of Organizational Behavior*, *42*(5), 587-605.
17. Kostera, M. (2020). *Organizacje i archetypy*. Wolters Kluwer.
18. Kotarbiński, T. (2003). *Traktat o dobrej robocie* (wyd. 7). Ossolineum.
19. Kreiner, G.E., Hollensbe, E.C., Sheep, M.L. (2019). Where is the "me" among the "we"? Identity work and the search for optimal balance. *Academy of Management Journal*, *52*(5), 1031-1057.
20. Kristof-Brown, A.L., Zimmerman, R.D., Johnson, E.C. (2023). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group,

and person–supervisor fit. *Annual Review of Organizational Psychology and Organizational Behavior*, *10*, 483-513.

21. Microsoft & LinkedIn (2024). *2024 Work Trend Index Annual Report: AI at work is here. Now comes the hard part*. Microsoft.
22. Papachroni, A., Heracleous, L., Paroutis, S. (2016). Organizational ambidexterity through the lens of paradox theory: Building a novel research agenda. *Journal of Applied Behavioral Science*, *52*(4), 453-478.
23. Pasieczny, J., Postuła, A., Rosiak, T. (2024). Systemic determinants of learning in public administration: A case study of phytosanitary inspection. *Scientific Papers of Silesian University of Technology. Organization and Management Series*, *202*, 461-471. https://doi.org/10.29119/1641-3466.2024.202.28
24. Postuła, A., Rosiak, T. (2024). Employee engagement in the public sector amid unstable systemic solutions. *Scientific Papers of Silesian University of Technology. Organization and Management Series*, *199*, 505-515. https://doi.org/10.29119/1641-3466.2024.199.38
25. Putnam, L.L., Fairhurst, G.T., Banghart, S. (2016). Contradictions, dialectics, and paradoxes in organizations: A constitutive approach. *The Academy of Management Annals*, *10*(1), 65-171. https://doi.org/10.1080/19416520.2016.1162421
26. Raisch, S., Zimmermann, A. (2017). Pathways to ambidexterity: A process perspective on the exploration–exploitation paradox. *Organization Science*, *28*(4), 676-693.
27. Rosiak, T., Pasieczny, J., Postuła, A. (2024). Paradoxes in the operation of public administration: Opportunity or barrier to the sustainable development of organisations? *Administratie si Management Public*, *43*, 172-183. https://doi.org/10.24818/amp/2024.43-10
28. 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. https://doi.org/10.1037/0003-066X.55.1.68
29. Schad, J., Lewis, M.W., Raisch, S., Smith, W.K. (2016). Paradox research in management science: Looking back to move forward. *The Academy of Management Annals, 10(1),* 5-64. https://doi.org/10.1080/19416520.2016.1162422
30. Schad, J., Smith, W.K., Lewis, M.W. (2022). The dynamics of paradoxical tensions: A multilevel perspective. *Organization Studies, 43*(8), 1141-1166.
31. Smith, W.K., Lewis, M.W. (2011). Toward a theory of paradox: A dynamic equilibrium model of organizing. *Academy of Management Review, 36(2),* 381-403. https://doi.org/10.5465/amr.2009.0223
32. Smith, W.K., Tracey, P. (2016). Institutional complexity and paradox theory: Complementarities of competing demands. *Strategic Organization*, *14*(4), 455-466.
33. Strathern, M. (1997). 'Improving ratings': Audit in the British University system. *European Review*, *5*(3), 305-321.

34. Thornton, P.H., Ocasio, W., Lounsbury, M. (2018). *The institutional logics perspective: A new approach to culture, structure, and process*. Oxford University Press.
35. Weick, K.E., Sutcliffe, K.M., Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science*, *16*(4), 409-421. https://doi.org/10.1287/orsc.1050.0133
36. Weick, K.E., Sutcliffe, K.M., Obstfeld, D. (2021). Organizing and the process of sensemaking. *Organization Studies*, *42*(3), 475-497.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

SUSTAINABLE LEADERSHIP IN THE CONTEXT OF CHALLENGES FACING THE POLISH IT SECTOR

Ireneusz RYNDUCH

Uniwersytet Ekonomiczny w Krakowie; rynduchi@uek.krakow.pl, ORCID: 0000-0001-9750-9628

Purpose: The aim of the paper is to identify and conceptualize the role of sustainable leadership as a response to the contemporary challenges of the IT sector in Poland, and to explain the mechanisms through which leadership practices may influence the level of employees' organizational commitment.
Design/methodology/approach: The paper is theoretical and conceptual in nature and is based on a review of the literature in the fields of management and quality sciences, leadership, and human resource management. The analysis adopts an integrative approach combining multiple theoretical frameworks, which allows for a multi-perspective examination of the relationships between leadership practices and the employee–organization relationship in the IT sector.
Findings: Sustainable leadership may constitute a significant factor in strengthening employees' organizational commitment by shaping a work environment based on trust, autonomy, opportunities for development, and social responsibility. This fosters employment stability, reduces employee turnover, and supports the development of long-term organizational effectiveness.
Research limitations/implications: A limitation of the study is its theoretical nature and the lack of empirical verification of the proposed relationships. The analysis is based on a review of the literature and a synthesis of concepts, which requires further validation through quantitative and qualitative research.
Practical implications: Organizations in the IT sector can strengthen employees' commitment by implementing sustainable leadership practices, including fostering a culture of trust, increasing employee autonomy, supporting competence development, and incorporating principles of social responsibility.
Social implications: The adoption of sustainable leadership practices may contribute to improving the quality of the work environment, increasing employment security, and fostering the development of responsible management models in the IT sector. From a broader perspective, this may support labor market stability, enhance employee well-being, and promote sustainable development.
Originality/value: The value of the article lies in integrating the concept of sustainable leadership with an analysis of the specific characteristics of the IT sector in Poland, as well as in synthesizing various theoretical perspectives explaining the mechanisms shaping employees' organizational commitment. The article provides a structured conceptual foundation for future research and advances the discussion on the role of leadership in the long-term management of human capital in organizations.

Keywords: sustainable leadership, organizational commitment, IT sector, human resource management, leadership in organizations.
Category of the paper: Research paper, Conceptual paper.

1. Introduction

Contemporary organizations operate under conditions of dynamic technological change, increasing competition, and evolving employee expectations toward the work environment (Northouse, 2021; Wilkinson, 2023). A particularly illustrative example of these processes is the IT sector in Poland, which is characterized by high knowledge intensity, a project-based nature of work, and significant mobility of specialists (Orzechowski, 2011; Saba et al., 2023). In such conditions, traditional leadership approaches focused primarily on short-term economic efficiency prove insufficient in addressing challenges related to maintaining employment stability, building durable organizational relationships, and strengthening employees' organizational commitment (Kotter, 1990; Meyer, Allen, 1991). Increasing attention is therefore being paid to the concept of sustainable leadership, which integrates the economic, social, and environmental dimensions of organizational functioning (Avery, Bergsteiner, 2011; Di Fabio, Peiró, 2018). This approach assumes a long-term management perspective, the development of human capital, and the creation of an organizational culture based on trust, participation, and responsibility. The aim of this article is to present the role of sustainable leadership as a response to the challenges of the IT sector in Poland. The study is based on a critical review of the relevant literature. The analysis is theoretical and conceptual in nature and seeks to demonstrate how sustainable leadership practices can support the development of technology organizations and strengthen relationships between leaders and employees in the context of the digital economy.

2. The concept of sustainable leadership

Sustainable leadership represents a development of contemporary streams of leadership research, in which the emphasis shifts from short-term economic efficiency toward the long-term creation of value for the organization and its stakeholders (Avery, Bergsteiner, 2011; Di Fabio, Peiró, 2018). In the management sciences literature, it is emphasized that technological changes, increasing organizational complexity, and growing societal expectations toward businesses foster the search for leadership models that integrate economic, social, and environmental dimensions (Hargreaves, Fink, 2012). At the same time, the concept of leadership itself remains ambiguous, being defined as a process of social influence,

a relationship of influence, or a set of competencies enabling the inspiration of others toward achieving shared goals (Yukl, 2013). From this perspective, sustainable leadership does not negate earlier concepts but rather extends them (Northouse, 2021). Contemporary research highlights that leadership effectiveness depends not only on organizational structures but also on the quality of social relationships and the ability to build a shared vision of action (Kotter, 1990). Organizations are increasingly moving away from hierarchical models, which supports viewing leadership as a process co-created by leaders and team members (Rok, 2009). In this context, trust, transparency of decision-making, and the ethical dimension of management gain particular importance (Schein, 2010). The literature indicates that leadership based solely on formal authority does not foster the development of durable relationships or the strengthening of positive employee attitudes (Gupta, Bhaskar, 2016). The evolution of leadership theory has progressed from trait-based approaches, through behavioral and situational models, to concepts emphasizing shared responsibility and participation. Situational models underline the need to adjust leadership style to task characteristics and employee maturity levels (Thompson, Glasø, 2015), while contemporary research streams emphasize the role of dialogue and reflexivity in leadership processes (Wilkinson, 2023). At the intersection of these approaches emerges the concept of sustainable leadership, which assumes the integration of organizational effectiveness with social and environmental responsibility (Avery, Bergsteiner, 2011). In contrast to models focused solely on financial outcomes, sustainable leadership emphasizes the quality of relationships, the development of human capital, and the long-term consequences of managerial decisions (Di Fabio, Peiró, 2018). Its essence lies in integrating three complementary dimensions of organizational functioning. In the economic dimension, leaders strive for stable performance and innovation, treating employee competence development as a strategic investment (Avery, Bergsteiner, 2012). The social dimension refers to creating a work environment based on trust, participation, and high-quality communication, which fosters job satisfaction and a sense of meaning (Dalati et al., 2017). The environmental dimension involves incorporating pro-environmental practices into organizational strategy, reflecting responsibility for the impact of business activities on the natural environment (Lozano, 2023). The literature emphasizes that balancing these three perspectives constitutes the foundation of sustainable organizational value and enhances organizational credibility among stakeholders (Bridoux, Stoelhorst, 2022). The theoretical foundations of sustainable leadership are rooted in broader management concepts that account for the social and institutional context of organizations. Particular importance is attributed to stakeholder theory, which highlights the need to balance the expectations of diverse stakeholder groups (Freeman, 2023), as well as to corporate social responsibility approaches emphasizing the ethical dimension of leadership decisions (Zieliński, 2014). Significant attention is also given to human capital development theories, in which investment in employee competencies is treated as a source of long-term competitive advantage (Becker, 1992). A common denominator across these perspectives is the assumption that organizational success cannot be assessed solely in

terms of financial performance but must also include the quality of social relationships and environmental impact (Hopwood et al., 2005). From a practical perspective, sustainable leadership implies a redefinition of the leader's role - from a controller of processes to a coordinator of relationships and an initiator of organizational change. Leaders oriented toward sustainability focus on supporting employee autonomy, promoting knowledge sharing, and strengthening a culture of responsibility (Senge, 2006). Such an approach fosters the creation of a work environment in which organizational members are better able to identify the meaning of their actions and actively participate in shaping organizational development (Edmondson, 2020). From the perspective of management and quality sciences, sustainable leadership thus emerges as an approach that integrates economic effectiveness with concern for people and the environment, with its importance increasing alongside the growing dynamism of contemporary markets (Liao, 2022).

3. The characteristics and challenges of the IT sector in Poland

The IT sector in Poland is one of the most dynamically developing areas of the economy. Structurally, it primarily encompasses service activities, software development, and the hardware segment, with a dominant role played by companies creating digital solutions and providing programming services (PAIH, 2010). The development of the IT sector in Poland is reflected in the growing number of enterprises—according to industry reports, there are over 37,000 companies, a significant proportion of which are concentrated in major urban centers such as Warsaw, Kraków, and Wrocław (PARP, 2023; SoDA, 2024). At the same time, a gradual diversification of the geographical distribution of technological activities can be observed, fostering the emergence of new IT clusters and strengthening regional innovation ecosystems (PARP, 2023). The specificity of the IT sector also stems from the intangible nature of its services and the high intensity of knowledge, which constitutes the primary source of added value. Digital products, including software, cloud solutions, and analytical systems, require continuous competence development and close collaboration among project teams. The literature indicates that such a model of activity supports the emergence of network organizations and flexible management structures, enabling rapid responses to technological changes and client needs (Orzechowski, 2011). At the same time, the high pace of innovation necessitates continuous investment in technical infrastructure and human capital, thereby increasing competitive pressure among organizations operating in the sector (SoDA, 2024; Bulldogjob, 2023). One of the key challenges of the IT sector in Poland is the shortage of qualified specialists, which affects the pace of project implementation and the ability of enterprises to scale their operations. Institutional reports indicate a significant skills gap in the labor market, leading to rising salaries and increased employee mobility (PARP, 2023;

Pracuj.pl, 2024). High competition for talent also contributes to the development of alternative forms of employment, such as B2B contracts and remote work (Bulldogjob, 2023; SoDA, 2024). From a human resource management perspective, this necessitates the design of more flexible HR strategies. At the macroeconomic level, the IT sector plays a significant role in the digital transformation of the Polish economy, contributing to the growth of technology service exports and increasing the internationalization of enterprises (PAIH, 2010; SoDA, 2024). Indicators such as the share of IT expenditure in GDP, the level of societal digitalization, and the quality of telecommunications infrastructure point to the growing importance of information technologies as a determinant of economic development (Łada, 2021). At the same time, the rapid pace of technological change, the development of artificial intelligence, and the increasing expectations of employees toward the work environment generate new challenges for organizational leaders. These challenges require not only effective project management but also the development of an organizational culture that fosters innovation, collaboration, and long-term team stability (SoDA, 2024; Valueships, 2023). In this context, the IT sector in Poland constitutes a particularly relevant field of analysis for the concept of sustainable leadership, which may support balancing market pressures with the need for human capital development and sustainable organizational effectiveness.

4. Sustainable leadership as a response to the challenges of the IT sector

The IT sector in Poland operates under conditions of a structural skills shortage, high employee mobility, and strong innovation pressure, intensified by project-based work, distributed teams, and rapid technological cycles (SoDA, 2024; PARP, 2023; Bulldogjob, 2023). In such an environment, traditional leadership approaches focused primarily on short-term efficiency and control prove insufficient for strengthening employees' organizational commitment and stabilizing human capital (Kotter, 1990; Northouse, 2021; Wilkinson, 2023). A response to these challenges may be sustainable leadership, understood as an approach that balances economic, social, and environmental goals and is grounded in a long-term perspective (Avery, Bergsteiner, 2011; Di Fabio, Peiró, 2018). Sustainable leadership emphasizes the durability of organizational development through the systematic strengthening of resources rather than their exploitation. According to Hargreaves and Fink (2004), sustainable leaders build organizational learning capacity, ensure succession, distribute responsibility, and promote fairness and inclusiveness in the distribution of benefits. In the context of the IT sector, these principles translate into practices such as competence development, mature team-based work structures, a culture of learning from errors, and the stabilization of processes combined with flexibility in task execution. From the perspective of mechanisms shaping employees' organizational commitment, it is particularly important that sustainable leadership integrates

the logic of social exchange with the logic of resource conservation. Social exchange theory assumes that employee–organization relationships stabilize when individuals experience a fair balance of contributions and benefits, as well as predictability in the partner's behavior (Hyder et al., 2024; Małys, 2011). A sustainable leader strengthens this balance not only through compensation but also through the quality of relationships, transparency, agency, and recognition. This is especially important in the IT sector, where employees have relatively strong bargaining power and readily available market alternatives. In turn, conservation of resources theory highlights that stress and turnover intentions intensify when individual resources are threatened, lost, or not replenished (Hobfoll et al., 2016; Holmgreen et al., 2017). Sustainable leadership mitigates this risk by designing work environments that support well-being, including rational workload management, psychological support, autonomy, and clarity of priorities. Organizational identity and meaning of work also play a significant role. Social identity theory indicates that identification with the organization strengthens the internalization of its goals and values, thereby supporting the durability of employment relationships (Trepte, 2013; Wontorczyk, 2008). In the IT sector, where work is often expert-based and knowledge-intensive, the technological brand alone is insufficient to build identification. Sustainable leadership strengthens the affective component of employees' organizational commitment through value congruence (e.g., ethics of technology, social responsibility, user orientation) and through consistent managerial practices that reinforce declared values. In this sense, the approach is compatible with the perspective of positive organizational scholarship, which emphasizes well-being, trust, quality of relationships, and a culture that enhances organizational resilience (Dutton, 2008; Meyer, 2018; Glińska-Neweś, Glinka, 2019). It is also worth emphasizing that sustainable leadership may be interpreted as a way of integrating the determinants of employees' organizational commitment with the logic of motivation as conceptualized by Herzberg (1968). In the IT sector, hygiene factors (working conditions, job security, remuneration, organizational policies) are necessary for retention but do not necessarily generate strong affective commitment (Herzberg, 1968; Alshmemri et al., 2017). A sustainable leader, in addition to ensuring hygiene factors, strengthens motivators such as recognition, development, responsibility, autonomy, and meaningful work, thereby deepening the employee–organization relationship, particularly among younger generations for whom flexibility, development, and value congruence are essential (Lipińska-Grobelny, Ciesielska, 2018; Czyczerska et al., 2020). From an organizational perspective, this implies a shift from reactive measures (e.g., salary increases, counteroffers) toward a systemic approach focused on designing employee experience and the work environment in a way that stabilizes resources and identification. Consequently, sustainable leadership can be considered an appropriate response to the key challenges of the IT sector, as it combines a long-term perspective with everyday management practices, simultaneously strengthening multiple components of employees' organizational commitment. In order to structure the conducted analysis and provide a synthetic representation

of the relationships between the analyzed variables, an integrated theoretical model of employees' organizational commitment in the IT sector was proposed. The model represents an attempt to combine insights derived from the literature review and industry reports, embedded within the three-component model of organizational commitment proposed by Meyer and Allen (1991). The proposed approach is conceptual in nature and aims to identify key determinants of employees' organizational commitment and to explain the role of sustainable leadership as a factor integrating their effects. The model thus enables a clearer presentation of the relationships between the specific characteristics of the IT sector, managerial practices, and the formation of durable employee–organization relationships.

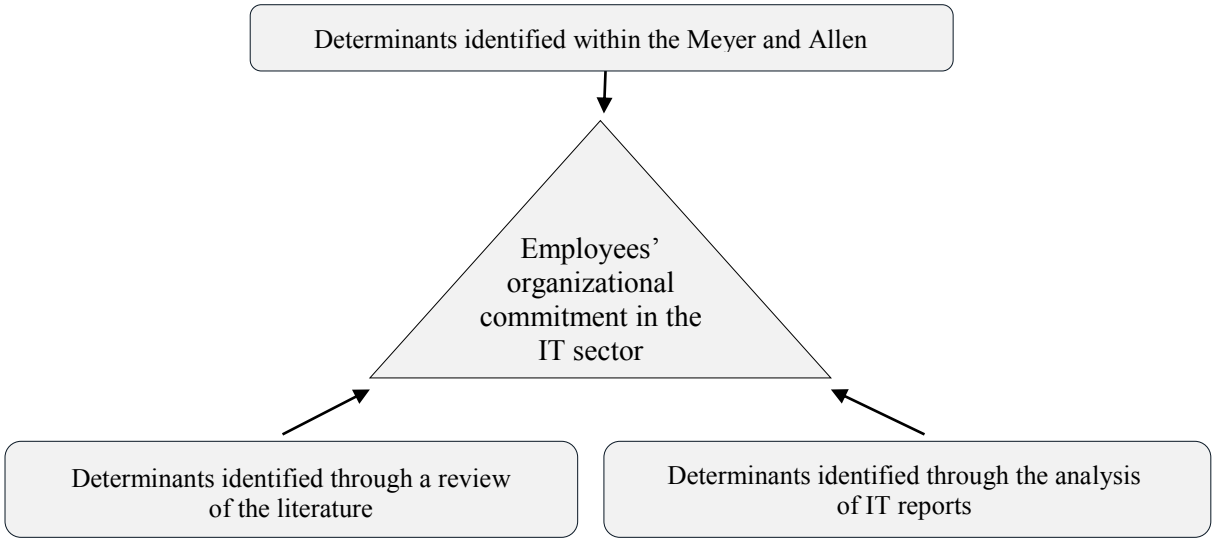


Figure 1. Theoretical model of organizational commitment among employees in the IT sector.
Source: own elaboration.

The proposed theoretical model integrates the determinants of employees' organizational commitment in the IT sector based on the three-component model of Meyer and Allen (1991), encompassing affective, continuance, and normative components. Employees' organizational commitment constitutes the central element of the model and is shaped by two complementary groups of factors. The first group includes determinants identified in the literature, such as job satisfaction, relationships with supervisors, organizational identification, and organizational culture. The second group consists of determinants specific to the IT sector, including remuneration, work flexibility, development opportunities, employment stability, autonomy, leadership quality, and value congruence. The model assumes that both groups of factors influence employees' organizational commitment in parallel, while sustainable leadership acts as an integrating mechanism that strengthens their impact by shaping a work environment based on trust, autonomy, and development.

5. Conclusion and implications

The conducted analysis indicates that sustainable leadership constitutes an appropriate response to the contemporary challenges of the IT sector in Poland, which is characterized by a high pace of technological change, increasing competition for specialists, and evolving employee expectations toward the work environment. The specificity of the technology industry, based on expert knowledge and project-based work, means that traditional management models focused solely on economic efficiency are insufficient to ensure employment stability or to build durable organizational relationships. The adoption of a sustainable approach enables the integration of economic, social, and environmental dimensions, thereby fostering long-term organizational resilience and strengthening human capital. With reference to the aim of the article, it should be emphasized that the key challenges of the IT sector in Poland include a shortage of qualified specialists, high employee mobility, innovation pressure, and the project-based and distributed nature of work. Under such conditions, the role of sustainable leadership lies in providing a long-term managerial response that integrates economic, social, and environmental objectives and goes beyond short-term efficiency. The mechanisms through which this approach influences employees' organizational commitment include, in particular: strengthening social exchange relationships through trust and fairness, protecting and developing employee resources through autonomy and support, fostering organizational identification based on value congruence, and enhancing intrinsic motivators such as responsibility and opportunities for development. Consequently, sustainable leadership contributes to employment stability and reduces employee turnover in the IT sector. The literature review indicates that leadership oriented toward development, participation, and organizational justice can significantly influence the level of employees' organizational commitment, particularly in conditions of high labor mobility. From a human resource management perspective, particular importance should be attached to developing instruments that support autonomy, clarity of goals, high-quality relationships with supervisors, and continuous learning opportunities. The implementation of such practices by leaders fosters a work environment based on trust and shared responsibility, which translates into greater team stability and the organization's ability to execute its strategy under conditions of market uncertainty. It should be emphasized that the effectiveness of sustainable leadership depends on its systemic nature, as it cannot be limited to declarative values but must be reflected in actual organizational practices. In conclusion, sustainable leadership can be regarded as a concept with high practical applicability in the IT sector in Poland. Future empirical research should focus on identifying specific leadership practices that are most effective in the context of Polish technology enterprises, which would allow for a deeper understanding of the relationships between leadership style, organizational culture, and employee behavior in the contemporary economy.

Acknowledgements

The publication/article presents the result of the Project no 052/ZZS/2025/POT financed from the subsidy granted to the Krakow University of Economics.

References

1. Adigüzel, Z., Zehir, C., Özdoğan, O. (2020). The role of leadership and strategic human resource management in organizational commitment. *Journal of Business Research*, *113*, 1-12.
2. Ahmad, R., Latif, K.F., Bilal, A.R., Hai, M. (2023). Social exchange theory and employee outcomes: A systematic literature review. *SAGE Open*, *13(1),* 1-18.
3. Alshmemri, M., Shahwan-Akl, L., Maude, P. (2017). Herzberg's two-factor theory. *Life Science Journal*, *14(5),* 12-16.
4. Avery, G.C., Bergsteiner, H. (2011). Sustainable leadership practices for enhancing business resilience and performance. *Strategy and Leadership, 39(3),* 5-15.
5. Avery, G.C., Bergsteiner, H. (2012). *Sustainable Leadership: Honeybee and Locust Approaches*. Routledge.
6. Becker, G.S. (1992). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. University of Chicago Press.
7. Bexheti, G., Bexheti, S. (2016). An empirical analysis of Herzberg's two-factor theory. *European Journal of Business and Management*, *8(6),* 1-7.
8. Bhatt, P., Sharma, S., Sharma, P. (2022). Work motivation and organizational commitment: Revisiting Herzberg's theory in contemporary workplaces. *Frontiers in Psychology*, *13*, 1-12.
9. Brennan, A., McDonnell, A., Boyle, E. (2024). Resource gain spirals and employee retention: A conservation of resources perspective. *International Journal of Human Resource Management*, *35(2),* 245-268.
10. Bridoux, F., Stoelhorst, J.W. (2022). Stakeholder theory, strategy, and organization: Past, present, and future. *Strategic Organization*, *20(4),* 797-809.
11. Bulldogjob (2023). *Raport społeczności IT 2023*. Bulldogjob.
12. Czyczerska, A., Łukasik, K., Wróbel, M. (2020). Wielopokoleniowość na rynku pracy a oczekiwania wobec pracodawcy. *Zarządzanie Zasobami Ludzkimi*, *6*, 25-41.
13. Dalati, S., Raudeliūnienė, J., Davidavičienė, V. (2017). Sustainable leadership, organizational trust and job satisfaction. *Entrepreneurship and Sustainability Issues*, *4(4),* 511-526.

14. Di Fabio, A., Peiró, J.M. (2018). Human capital sustainability leadership to promote sustainable development and healthy organizations: A new scale. *Sustainability*, *10(7),* 1-19.
15. Dutton, J.E. (2008). *Positive organizational scholarship: Foundations of a new discipline*. Berrett-Koehler.
16. Edmondson, A.C. (2020). *The Fearless Organization: Creating Psychological Safety in the Workplace for Learning, Innovation, and Growth*. Wiley.
17. Freeman, R.E. (2023). *Strategic Management: A Stakeholder Approach* (updated ed.). Cambridge University Press.
18. George, A. (2023). Five-sector model of the economy: An overview and implications for contemporary development. *Journal of Economic Perspectives and Research, 15*(2), 45-60.
19. Glińska-Neweś, A., Glinka, B. (2019). Positive organizational scholarship w badaniach nad organizacją. *Organizacja i Kierowanie*, *3,* 11-26.
20. Gupta, S., Bhaskar, A.U. (2016). Doing business in India: Cross cultural issues in leadership. *Cross Cultural & Strategic Management*, *23(1),* 184-204.
21. GUS (2009). *Społeczeństwo informacyjne w Polsce. Wyniki badań statystycznych z lat 2004-2008*. Główny Urząd Statystyczny.
22. Hargreaves, A., Fink, D. (2004). The seven principles of sustainable leadership. *Educational Leadership, 61*(7), 8-13.
23. Hargreaves, A., Fink, D. (2012). *Sustainable Leadership*. Jossey-Bass.
24. Herzberg, F. (1968). One more time: How do you motivate employees? *Harvard Business Review, 46(1),* 53-62.
25. Hobfoll, S.E., Halbesleben, J., Neveu, J.-P., Westman, M. (2016). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior*, *3*, 103-128.
26. Holmgreen, L., Tirone, V., Gerhart, J., Hobfoll, S.E. (2017). Conservation of resources theory: Resource caravans and resource caravan passageways. In: C. Cooper, J. Quick (Eds.), *The handbook of stress and health* (pp. 443-457). Wiley.
27. Hopwood, B., Mellor, M., O'Brien, G. (2005). Sustainable development: Mapping different approaches. *Sustainable Development*, *13(1),* 38-52.
28. Hyder, S., Malik, M.S., Ahmad, M. (2024). Relational norms, trust, and exchange outcomes: Extending social exchange theory in organizations. *Sustainability*, *16(2),* 1-18.
29. Kotter, J.P. (1990). *A Force for Change: How Leadership Differs from Management*. Free Press.
30. Łada, M. (2021). Technologie informacyjno-komunikacyjne w transformacji cyfrowej przedsiębiorstw. *Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie, 1*(1001), 67-84.
31. Liao, C. (2022). Sustainable leadership: A literature review and prospects. *Sustainability*, *14(9),* 5187.

32. Lipińska-Grobelny, A., Ciesielska, M. (2018). Wartości i oczekiwania pokoleń Y i Z a zarządzanie. *E-mentor*, *2(74),* 19-27.
33. Lozano, R. (2023). Sustainability leadership and organizational transformation. *Journal of Cleaner Production*, *382*, 135214.
34. Małys, Ł. (2011). Teoria wymiany społecznej w zarządzaniu relacjami. *Przegląd Organizacji*, *10*, 19-23.
35. Meyer, J.P., Allen, N.J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review, 1*(1), 61-89.
36. Meyer, M. (2018). Positive organizational scholarship: A systematic review. *Journal of Positive Management*, *9(2),* 3-24.
37. Northouse, P.G. (2021). *Leadership: Theory and practice* (9th ed.). Sage.
38. Orzechowski, A. (2011). Specyfika usług informatycznych i uwarunkowania rozwoju rynku IT w Polsce. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, 168*, 233-244.
39. PAIH (2010). *Sektor IT w Polsce. Charakterystyka rynku i perspektywy rozwoju*. Polska Agencja Inwestycji i Handlu.
40. PARP (2023). *Branża IT/ICT w Polsce – raport sektorowy*. Polska Agencja Rozwoju Przedsiębiorczości.
41. Pracuj.pl (2024). *Rynek pracy IT w Polsce – trendy rekrutacyjne i wynagrodzenia*. Grupa Pracuj.
42. Rok, B. (2009). *Odpowiedzialny biznes w nieodpowiedzialnym świecie*. Akademia Leona Koźmińskiego.
43. Saba, C.S., Kouamé, A.K., N'Zué, F.F. (2023). ICT diffusion and innovation performance: The role of digital infrastructure in knowledge-based economies. *Journal of Innovation and Entrepreneurship, 12*(1), 1-19.
44. Schein, E.H. (2010). *Organizational Culture and Leadership* (4th ed.). Jossey-Bass.
45. Senge, P.M. (2006). *The Fifth Discipline: The Art and Practice of the Learning Organization*. Doubleday.
46. SoDA (2024). *Software Development Association Poland Report 2024*. Software Development Association Poland.
47. Thompson, G., Glasø, L. (2015). Situational leadership theory: A test from three perspectives. *Leadership & Organization Development Journal*, *36(5),* 527-544.
48. Trepte, S. (2013). Social identity theory. In: W. Donsbach (Ed.), *The international encyclopedia of communication* (pp. 1-7). Wiley-Blackwell.
49. Valueships (2023). *Raport IT Community Survey 2023*. Valueships.
50. Wilkinson, A. (2023). Contemporary developments in leadership theory. *Human Resource Management Review, 33*(2), 100932.
51. Wontorczyk, A. (2008). Tożsamość społeczna w organizacjach: Kontekst SIT. *Zarządzanie Zasobami Ludzkimi*, *5*, 45-58.

52. Yukl, G. (2013). *Leadership in Organizations* (8th ed.). Pearson.
53. Zieliński, M. (2014). Społeczna odpowiedzialność przedsiębiorstw jako koncepcja zarządzania. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, *349*, 482-491.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

HIGHER EDUCATION EFFECTS ON THE REGIONAL UNEMPLOYMENT RATE IN POLAND

Viktor SHEVCHUK[1*], Joanna ŻYRA[2]

[1] Cracow University of Technology; viktor.shevchuk@pk.edu.pl, ORCID: 0000-0002-7125-1267
[2] Cracow University of Technology; joanna.zyra@pk.edu.pl, ORCID: 0000-0003-1562-3639
* Correspondence author

Purpose: The main aim of this paper is to provide an empirical assessment of the impact of higher education on regional unemployment rate in Poland.
Design/methodology/approach: Using the fixed effects (FE) estimator, we estimated effects on the unemployment rate by the number of students and university graduates for the panel of annual data for 16 Poland's voivodships over the 2004-2024 period. The model controls for the impact of regional output growth, investment, production structure, wages, and consumer prices.
Findings: It is found that higher levels of human capital are associated with lower unemployment rates in the largest regions, which is broadly consistent with the Nelson–Phelps hypothesis and agglomeration effects. By contrast, in the smaller (peripheral) regions an increase in the number of students (graduates) leads to higher unemployment, while favourable dynamic effects are also observed. Our findings indicate the presence of structural mismatches and a limited capacity of peripheral regions to absorb highly educated labour.
Research limitations/implications: There are a few potential limitations of this study. First, our educational variables do not account for differences in the quality or in the field-of-study composition of higher education. Second, it is difficult to control for the effects of actual mobility of university graduates. Third, the analysis does not address intraregional differences in the higher education effects on unemployment.
Practical implications: For the largest voivodships, strengthening of the relationships between universities, innovations and labour market should be prioritized. For the peripheral regions, policymakers should create a more friendly environment to support local R&D activities.
Social implications: As differentiated higher education effects on unemployment may provide incentives for migration of university graduates to the largest urban agglomerations, a well-designed education policy has a potential to block these processes and provide support for a balanced regional development.
Originality/value: The article contributes to the literature by jointly accounting for unemployment effects of higher education both in levels and first differences across agglomeration and peripheral regions. For Poland, the study provides new evidence on the region-specific higher education effects on the unemployment rate.
Keywords: higher education, unemployment, PVAR model, Poland.
Category of the paper: Research paper.

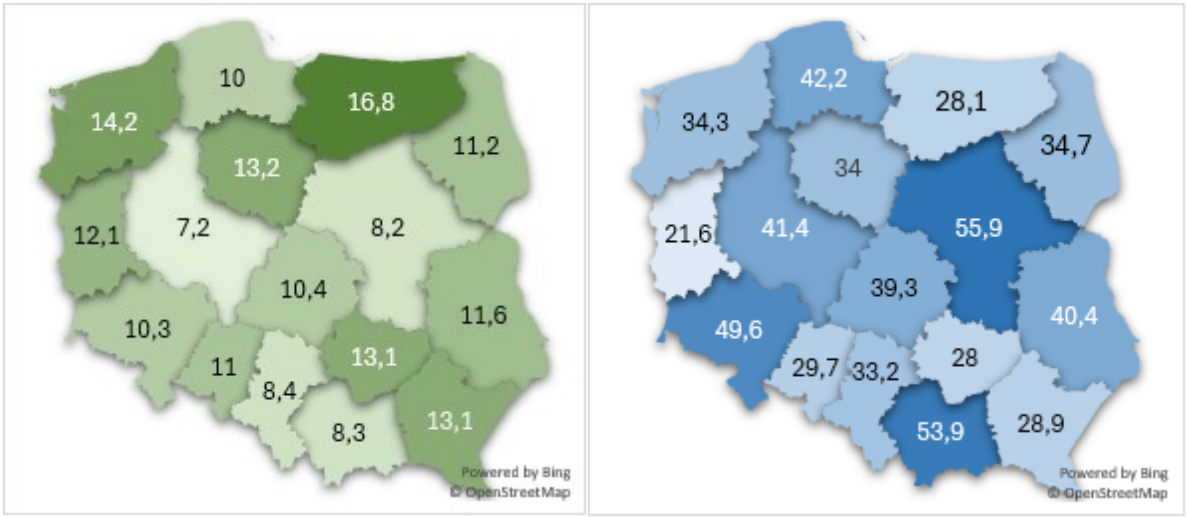
1. Introduction

There are numerous mechanisms of higher education influencing regional unemployment. First of all, it is due to regional output growth, with both demand for labour and supply of labour being influenced by higher education effects. As returns on education are related to agglomeration economy factors (Bolter, Robey, 2020), it creates additional channel of higher education affecting unemployment, with mobility of university graduates shaping regional labour markets to large extent (D'Ingiullo, Quaglione, 2025; Faggian, McCann, 2009). In such a context, factor endowments such as natural resources and local amenities do play a role (Südekum, 2003). Another important mechanism is related to the job search process (Mincer, 2001). Later models of the job matching process account for agglomeration effects, with enough room for the link between higher education and unemployment (Epifani, Gancia, 2003; Zierahn, 2011; Vom Berge, 2013). Besides benefits of sharing and matching, agglomeration economies provide with incentives for educated labour and a skilled labour pool (Bolter, Robey, 2020). Human capital accumulation may be connected to local characteristics such as population density (Combes, Gobillon, 2015). Other explanations for regional differences in the unemployment rate include such factors, as slow wage adjustment, high cost of migration, permanent differences in institutional characteristics etc (Rios, 2017).

Empirical evidence in favour of the inverse relationship between education and regional unemployment is found for European regions (Hermannsson, Scandurra, Graciano, 2021; Huňady, Pisár, 2016; Rios, 2017; Zeilstra, Elhorst, 2014). A better-educated population is associated with a lower regional unemployment rate in Germany (Schubert, Kroll, 2014) and Romania (Herman 2012), as well as in several other Eastern European countries (Jurajda, Terrell, 2007). However, despite strong theoretical arguments, a positive link between the number of university graduates and regional unemployment is found for Turkey (Algül, 2024). For Spain, it is established that peripheral regions suffer from exodus of university graduates and higher unemployment of those who remain at origin (González-Leonardo, 2023), with high seasonal volatility and extreme vulnerability to external crises of the tourist-oriented economy being among the explanations (Rodríguez, Martínez-Roget, Loureiro, 2025).

The unemployment rates in Poland are quite different across regions (Fig. 1a), ranging from 7.2-8.4% in Greater Poland, Masovian, Lesser Poland and Silesian voivodeships to almost twice as much in Subcarpathian, Swietokrzyskie and Kuyavian–Pomeranian voivodeships and as high as 16.8% in the Warmian-Masurian voivodeship. Such outcomes are in line with international evidence that the magnitude of unemployment disparities among regions within countries are not less that disparities among countries (Elhorst, 2003). The same significant regional disparities are observed in the number of students (Fig. 1b). Again, the largest number of students is a distinct feature of Masovian and Lesser Poland voivodeships, while Subcarpathian, Swietokrzyskie and Warmian-Masurian voivodeships being placed at the

bottom of the ranking. It suggests that there is an inverse relationship between the higher education enrolment and regional unemployment, being in support of earlier studies that link variations in skill levels to the pattern of regional unemployment in Poland (Newell, 2006).



a) the unemployment rate (%) b) the number of students per 1000 persons

Note: average values for the 2004-2024 period are presented.

Figure 1. Higher education and unemployment in Poland, 2004-2024.

Source: the GUS Local Data Bank (https://bdl.stat.gov.pl/bdl/start).

This study is aimed at studying higher education effects on the regional unemployment rate in Poland, with a control for regional growth rate, investments in the physical capital, consumer prices, wages and structural features. On the example of Poland, the article addresses a research gap in the literature regarding the potential differences in higher education effects across agglomeration and peripherical regions in the Central and Eastern European countries. It is important for the better design of the region-specific higher education policies aimed at better use of highly educated labour force and thus narrowing regional income disparities. In the remainder of this paper, Section 2 provides with a brief survey of the literature dealing with the higher education effects on regional unemployment. Section 3 presents data and statistical model, with the estimation results discussed in Section 4. Finally, Section 5 concludes.

2. Relevant literature

Earlier models of regional labour market were focused on migration decisions, wage-setting mechanisms and interplay between demand for labour and its supply (Elhorst, 2003). Education effects were not accounted explicitly. For example, Blanchard and Katz (1992) explain higher regional unemployment with a decrease in the labour supply and an increase in both labour

demand and wages. However, modern variants of the Blanchard-Katz model account for education attainment and demographic composition of population (Rios, 2014).

As implied by the Okun Law, the unemployment rate should be reduced by regional output growth, being influenced by education as the most important component of human capital. In such a context, it is important to distinguish between the factor-accumulation channel (applied use of new technologies) and the productivity channel (investments into productivity factors). The former approach implies that it is the stock of educated persons that matters (Nelson, Phelps, 1966), while the latter lays stress on the fact that only changes in the number of students (or university graduates) contribute to economic growth (Lucas, 1988). Modern critics of the human capital theory attract attention to the social context of learning and its external outcomes, such as peer group effects, learning through emulation of experts and co-workers, increasing generality of knowledge and technological know-how, inter-generational effects or even consumption of culture (Auerbach, Green, 2025). For transition economies, regional differences in the unemployment rate can be explained by inherited skill endowments, which condition the ability of regions to attract highly skilled labour as well as foreign direct investment (Jurajda, Terrell, 2007).

In the context of job search, Mincer (2001) relates a major benefit of education to the lower risk of unemployment. In addition to higher wages, better educated workers benefit from greater upward mobility in the workplace and greater employment stability. Technically, the unemployment rate is presented as follows:

$$U = p(S) \cdot p(U/S) \cdot \frac{d_U}{1 - d_O}, \tag{1}$$

where $p(S)$ is the probability of becoming unemployed after separation from the previous job, $p(U/S)$ is the probability of conditional unemployment when separated, d_U and d_O are fractions of time spent in unemployment and out of the labour force for the unemployed persons and by all workers, respectively. Education reduces probability of both separation and conditional unemployment, thus leading to a decrease in the probability of experiencing unemployment, as expressed by the term $p(S) \cdot p(U/S)$. More educated workers are likely to experience lower turnover due to greater learning ability and better job training. For better educated persons, a shorter period of finding a new job is resulting from smaller costs of both on the job and off the job search, greater efficiency in search for a new workplace, and greater intensity of search.

Agglomeration economies also play a significant role in explaining regional disparities. By combining building blocks of new economic geography and wage curve models, Südekum (2003) highlights importance of local preferences and scale economies in explaining how agglomeration effects contribute to regional disparities in unemployment and wages. It is demonstrated that large regions with economies of scale should have low unemployment rates and high wages, whereas the opposite outcomes are attributed to small regions. In the larger regions, wage premium results from the more intense use of technology, scale

economies and efficiency wages, as it is necessary to pay more in order to deter shirking in the low unemployment environment. In the presence of iceberg costs for interregional transportation of intermediate inputs, the degree of agglomeration is larger in regions with (i) stronger returns to scale and (ii) weaker preferences for staying in local community.

Based on empirical verification of several theoretical studies, Sbergami (2002) found for several European countries that agglomeration effects can be strengthened by migration of skilled workers into industrial regions with strong R&D activities. However, it could be a point of concern. Epifani and Gancia (2003) provided with theoretical arguments that inflows of immigrants into the larger regions reduces the unemployment rate in the short run, but it is reversed in the long run. Vom Berge (2012) proposed a model with search frictions for low-skilled immobile workers that predicts a higher unemployment rate in agglomerations due to a downward pressure on nominal wages. Kondo (2014) elaborated a model with negative externalities on the matching efficiency that lead to a higher unemployment in agglomerations with high employment density, even despite a positive relationship between nominal wages and agglomeration. If account for efficiency wages in agglomerations, it is possible to explain a lower unemployment in the periphery region (Zierahn, 2011).

3. Data and statistical model

For the purpose of our study, the panel data sample of annual time series for 16 voivodships over the 2004-2023 period has been used, as obtained from the General Statistical Office of Poland (online resource). Unemployment is measured by the regional unemployment rate, U_{it} (%), where subindex i stands for a region (voivodeship). Educational variable is proxied with the number of students and university graduates per 1000 of population, $STUD_{it}$ and $GRAD_{it}$ respectively. Among other variables used in the study, Y_{it} is the regional product per capita (in zlotys), INV_{it} are investments in physical capital (% of regional product), STR_{it} is the share of industrial production in the regional domestic product, W_{it} is the nominal wage (in zlotys), CPI_{it} is the consumer price level (index, 2002=100).

As shown in Table 1, significant disparities across regions characterize not only the unemployment rate and number of students (graduates), but other variables as well. All Pesaran's tests indicate the strong presence of cross-sectional dependency in the panel set, while several unit root tests, Cross-sectional Augmented Dickey-Fuller (CADF), Cross-sectional Im-Pesaran-Shin (CIPS) and Cross-sectional Levin-Liu-Chu (CLLC), indicate that all panels are stationary in levels (results are available on request).

Table 1.
Descriptive statistics

Statistics	$STUD_{it}$	$GRAD_{it}$	U_{it}	INV_{it}	STR_{it}	ΔY_{it}	ΔW_{it}	ΔCPI_{it}
Mean	37.21	9.28	11.26	14.51	67.72	3.73	2.83	3.34
Std. Dev.	12.53	2.76	5.17	2.20	12.89	3.22	2.28	3.60
Max	68.04	16.68	29.20	23.22	103.58	13.84	7.33	16.10
Min	11.86	2.79	2.80	10.06	29.59	–4.25	–5.02	–1.70

Note. Here and hereafter Δ is the operator of first differences.

Source: Author's own work.

In order to account for both the Nelson-Phelps effect and investment effect of higher education, as assumed in the endogenous growth models, Krueger and Lindahl (2001) proposed to use the education variable simultaneously in levels and first difference. Assuming that higher education effects on unemployment mirror those ones regarding regional output, our baseline model presents as follows:

$$U_{it} = a_0 + a_1 EDU_{it}^k + a_2 \Delta EDU_{it}^k + a_3 \Delta Y_{it-1} + a_4 STR_{it} + \eta_i + \tau_t + \varepsilon_{it}, \quad (2)$$

where EDU_{it}^k is the educational variable ($k = 1,2$), η_i and τ_t are controls for regional and time effects, and ε_{it} is the stochastic factor.

Regardless of underlying motivation, it is expected that higher number of students (graduates) contributes to a decrease in the unemployment rate ($a_1, a_2 < 0$). Based on international evidence, for example Sbergami (2002), a higher share of industry in local output is likely to be favourable for a low unemployment either ($a_4 < 0$). A control for the lagged regional output growth is aimed at capturing unemployment effects in the fashion of the Okun's Law ($a_3 < 0$). In the extended model, investments in physical capital are aimed at capturing demand for labour effect, with a decrease in the unemployment rate to follow. The impact of higher wages is rather ambiguous. As higher wages are supposed to increase the supply of labour (Rios, 2014) and decrease unemployment, their contribution to the cost of production should work in the opposite direction. Consumer price inflation used to reduce purchasing power of workers and thus should increase unemployment via a decrease in both the supply of labour and demand for the labour force, resulting from income losses and stagnation of demand for goods and services in regional markets.

Eq. (2) is estimated for the full sample of 16 voivodships and for two sub-samples including (i) six largest voivodships, with dynamic urban centers such as Warsaw, Cracow, Gdansk, Katowice, Poznan, Wroclaw, and (ii) 10 other voivodships which are characterized on average by lower population density and lower level of regional output per capita. Such a split of the full sample is aimed at capturing potential differences in the higher education effects on unemployment between large regions with agglomeration economies and smaller regions lacking that kind of advantages.

4. Results

Estimation results for the full sample of 16 voivodships are presented in Tables 2 and 3. The fixed effects (FE) estimator is used in all cases, as suggested by the Hausmann test. A growth in the number of students helps to decrease unemployment rate, but this educational variable in levels is of the opposite effect (Table 2). Both outcomes are robust across different specifications of the regression model. Results stay intact if we use the number of graduates as the educational variable (Table 3). The stability of the signs and statistical significance of these parameters across alternative sets of control variables strengthens the credibility of the results obtained. In the analysis, we did not control for the border effect, as it implies the use of a dummy variable for borders in gravity model or accounting for the ratio of internal trade (production minus exports) to international trade, income level in the neighbouring countries or migration flows. In addition, it should be admitted that the available regional data sample is not long enough to allow for more comprehensive estimation strategies. Obviously, it is the challenge for future studies.

Table 2.
Number of students effects on the unemployment rate (all voivodships)

Variables	(1)	(2)	(3)	(4)	(5)
Const	5.701***	7.892***	7.724***	8.122***	6.388***
$STUD_{it}$	0.142***	0.130***	0.130***	0.123***	0.129***
$\Delta STUD_{it}$	–0.169**	–0.149**	–0.151**	–0.156**	–0.152**
ΔY_{it-1}	–0.025	–0.046	–0.047	—	—
STR_{it}	—	–0.021	–0.021	–0.021	–0.021
INV_{it}	—	—	0.010	0.022	0.015
ΔW_{it-1}	—	—	—	–0.157**	—
ΔCPI_{it-1}	—	—	—	—	0.404*
R^2	0.94	0.93	0.94	0.94	0.94

Note. Here and hereafter ***, **, and * mean statistical significance at the 1%, 5% and 10% levels.

Source: Author's own work.

Table 3.
Number of university graduates effects on the unemployment rate (all voivodships)

Variables	(1)	(2)	(3)	(4)	(5)
Const	5.701***	7.892***	7.724***	8.122***	6.388***
$GRAD_{it}$	0.142***	0.130***	0.130***	0.123***	0.129***
$\Delta GRAD_{it}$	–0.169**	–0.149**	–0.151**	–0.156**	–0.152**
ΔY_{it-1}	–0.025	–0.046	–0.047	—	—
STR_{it}	—	–0.021	–0.021	–0.021	–0.021
INV_{it}	—	—	0.010	0.022	0.015
ΔW_{it-1}	—	—	—	–0.157**	—
ΔCPI_{it-1}	—	—	—	—	0.404*
R^2	0.94	0.93	0.94	0.94	0.94

Source: Author's own work.

Regardless of the educational variable used, it is found that both regional output growth (ΔY_{it-1}) and investments in the physical capital (INV_{it}) do not affect the unemployment rate, while consumer prices are associated with higher unemployment. Among differences, wage growth contributes to a lower unemployment in the specification (4) with the number of students. Regions with a higher share of industry (STR_{it}) seems to have a lower unemployment, but only in the estimates with university graduates and control for investments.

As presented in Table 4, there is a positive effect of the number of students on unemployment for the largest voivodships, an outcome in line with the Nelson-Phelps hypothesis claiming that it is the level of human capital that matters most in adopting new technology. Consequently, the unemployment rate declines in the wake of stronger output growth. However, an inverse relationship between $STUD_{it}$ and U_{it} is not confirmed by the estimates with university graduates (Table 5). In both cases, dynamic changes in the educational variable do not have any impact on the unemployment rate. In the smaller regions, both the number of students and the number of graduates in levels are significantly associated with unemployment, whereas their changes exert a strongly negative effect. This implies that short-term increases in human capital reduce unemployment, while its accumulation leads to persistent structural mismatches. Accordingly, the stronger responsiveness of unemployment to both student and graduate numbers in smaller regions explains the asymmetry of educational effects in levels and first differences in the panel estimates for the full sample of regions, as reported in Tables 2 and 3. Only in the largest regions is an adverse relationship observed between consumer prices and unemployment, alongside a contrastingly favourable impact of industrialization and regional output growth.

Table 4.
Number of students effects on the unemployment rate

Variables	Largest voivodships			Other voivodships		
	(1a)	(2a)	(3a)	(1b)	(2b)	(3b)
Const	19.318***	18.971***	16.015***	3.420	3.582	3.045
$STUD_{it}$	–0.109**	–0.120**	–0.118**	0.274***	0.273***	0.275***
$\Delta STUD_{it}$	0.054	0.067	0.046	–0.299***	–0.306***	–0.299***
ΔY_{it-1}	–0.104	—	—	–0.048	—	—
STR_{it}	–0.048*	–0.046	–0.042	0.008	0.008	0.008
INV_{it}	–0.081	–0.059	–0.058	0.009	0.014	0.007
ΔW_{it-1}	—	0.001	—	—	–0.127	—
ΔCPI_{it-1}	—	—	0.888***	—	—	0.071
R^2	0.94	0.94	0.95	0.94	0.94	0.95

Source: Author's own work.

Indirectly, our findings may suggest support for agglomeration theories. Better adaptation of advanced technologies or more intense innovation activities by more educated local populations in the largest voivodships can be explained by such factors as higher mobility of university graduates (D'Ingiullo, Quaglione, 2025; Faggian, McCann, 2009), better pooling (Bolter, Robey, 2020) or job matching (Epifani, Gancia, 2003; Zierahn, 2011; Vom Berge, 2013). For the smaller voivodships, higher unemployment of educated persons can result from

the lack of abovementioned factors. As argued by Südekum (2003), preferences for local amenities can be important either. In such environment, it is important to eliminate obstacles for the long-term gains from higher education. Consequently, policymakers should create a more friendly environment to support R&D activities at the local higher education institutions. For this purpose, incentives for natural and applied fields of study are suggested. It could be helpful in creating such a local pool of educated persons that allows for technology-based regional growth as a prerequisite for low unemployment. Otherwise a present situation when the short-term gains from a higher growth rate in the number of students coincides with the long-term losses may persist.

Table 5.
Number of university graduates effects on the unemployment rate

Variables	Largest voivodships			Other voivodships		
	(1a)	(2a)	(3a)	(1b)	(2b)	(3b)
Const	12.602***	11.707***	8.009***	7.589***	7.914***	6.716***
$GRAD_{it}$	0.081	0.041	0.104	0.756***	0.752***	0.761***
$\Delta GRAD_{it}$	0.006	0.028	–0.005	–0.621***	–0.659***	–0.644***
ΔY_{it-1}	–0.143*	—	—	–0.020	—	—
STR_{it}	–0.040	–0.037	–0.032	–0.011	–0.011	–0.011
INV_{it}	–0.082	–0.051	–0.049	–0.005	0.002	–0.001
ΔW_{it-1}	—	0.031	—	—	–0.150	—
ΔCPI_{it-1}	—	—	0.947***	—	—	0.254
R^2	0.94	0.94	0.94	0.94	0.94	0.95

Source: Author's own work.

5. Conclusions

The empirical analysis confirms that the number of students (in levels) contributes to a reduction in the unemployment rate in the six largest regions of Poland, while the opposite effect is observed in the remaining regions. However, smaller (or peripheral) voivodships benefit from a dynamic educational effect (in first differences), which is a hint on likely educational mismatches. The robustness of the obtained results has been verified by the use of such controls as regional output, investments and wages. Our results imply that the productivity channel prevails in smaller voivodships, while the long-term benefits stemming from better use of new technologies are present in the largest voivodships, in full accordance with the Nelson-Phelps hypothesis. Much more favourable long-term effects of higher education for the largest voivodships can be explained by the combination of several agglomeration factors, such as higher mobility of university graduates, better pooling or job matching. In addition to the lack of abovementioned factors, higher unemployment of educated persons in the smaller voivodships can be explained by stronger preferences for local amenities. In such an environment, it is important to remove barriers to the long-term benefits of higher education

by fostering a more supportive framework for research and development activities within local higher education institutions. To this end, targeted incentives for natural and applied sciences are recommended. More generally, restoring an upward trend in university student enrolment across all regions of Poland, including the largest ones, is essential, while placing a much stronger emphasis on scientifically oriented fields and research activities in smaller voivodships.

There are a few potential limitations of this study. First, the educational variables employed, i.e. number of students and university graduates per 1000 of population, do not account for differences in the quality of education or in the field-of-study composition of higher education offerings at regional public and private higher education institutions. Second, it is difficult to control for the effects of actual mobility of university graduates due to the lack of data. Third, the analysis does not address intraregional differences in the higher education effects on unemployment. Future studies should take into account microeconomic data, fields of study effects and the impact of labour migration on regional economy developments, especially in the context of labour market functioning mechanisms. As mentioned above, a comprehensive study of border effects can be informative as well.

Acknowledgements

The publication was financed by a subsidy from the Ministry of Science and Higher Education for the Cracow University of Technology, for 2026.

References

1. Algül, Y. **(**2024). Higher Education and Unemployment in Turkey: Regional Panel Analysis with Undergraduate, Master's, and PhD Perspectives. *Trends in Business and Economics*, *38*(2), 128-136. https://doi.org/10.16951/trendbusecon.1473077
2. Auerbach, P., Green, F. (2025). Reformulating the Critique of Human Capital Theory. *Journal of Economic Surveys*, *39*(5)*,* 1839-1851. https://doi.org/10.1111/joes.12675
3. Blanchard, O., Katz, L. (1992). Regional Evolutions. *Brookings Papers on Economic Activity*, *23*(1), 1-76. Retrieved from: https://www.brookings.edu/wp-content/uploads/1992/01/1992a_bpea_blanchard_katz_hall_eichengreen.pdf, 14.03.2026.
4. Bolter, K., Robey, J. (2020). *Agglomeration Economies: A Literature Review*. Kalamazoo, MI: The W.E. Upjohn Institute for Employment Research. Retrieved from: https://research.upjohn.org/reports/252, 14.03.2026.

5. Combes, P.-P., Gobillon, L. (2015). The Empirics of Agglomeration Economies. In: G. Duranton, J. Vernon Henderson, W. Strange (Eds.), *Handbook of Regional and Urban Economics* (pp. 248-347). Amsterdam: Elsevier. https://doi.org/10.1016/B978-0-444-59517-1.00005-2
6. D'Ingiullo, D., Quaglione, D. (2025). Social capital and the internal mobility of graduates: a gravity model at the Italian provincial level. *The Annals of Regional Science, 74*(95), 1-27. https://doi.org/10.1007/s00168-025-01425-y
7. Elhorst, J.P. (2003). The mystery of regional unemployment differentials: Theoretical and Empirical Explanations. *Journal of Economic Surveys, 17*(5), 709-748. https://doi.org/10.1046/j.1467-6419.2003.00211.x
8. Epifani, P., Gancia, G. (2003). Trade, Migration and Regional Unemployment. *Regional Science and Urban Economics, 35*(6), 625-644. https://doi.org/10.1016/j.regsciurbeco.2004.09.003
9. Faggian, A., McCann, P. (2009). Universities, Agglomerations and Graduate Human Capital Mobility. *Journal of Economic and Human Geography, 100*(2), 210-223. https://doi.org/10.1111/j.1467-9663.2009.00530.x
10. González-Leonardo, M. (2023). Between leading and lagging: Interregional migration, unemployment and over-education among college graduates in the aftermath of the 2008 recession. *Region*, *10*(1), 147-158. https://doi.org/10.18335/region.v10i1.453
11. Herman, E. (2012). Education's impact on the Romanian labour market in the European context. *Procedia - Social and Behavioral Sciences, 46,* 5563-5567. https://doi.org/10.1016/j.sbspro.2012.06.476
12. Hermannsson, K., Scandurra, R., Graziano, M. (2021). The effect of higher education on youth unemployment in European regions during a period of economic instability. *Journal of Education Finance*, *46*(4), 477-495. https://doi.org/10.1353/jef.2021.a796977
13. Huňady, J., Pisár, P. (2016). Higher education and regional unemployment: Is there any relation between them? In: T. Löster, J. Tomáš, J. Langhamrová, J. Vrabcová (Eds.), *RELIK 2016: Reprodukce lidského kapitálu - vzájemné vazby a souvislosti* (pp. 157-167). Prague: Vysoká škola ekonomická v Praze. Retrieved from: https://www.researchgate.net/publication/310605337_HIGHER_EDUCATION_AND_REGIONAL_UNEMPLOYMENT_IS_THERE_ANY_RELATION_BETWEEN_THEM, 12.03.2025.
14. Jurajda, S., Terrell, K. (2007). *Regional Unemployment and Human Capital in Transition Economies. Discussion Paper, 3176*. Bonn: The Institute for the Study of Labor (IZA). Retrieved from: https://docs.iza.org/dp3176.pdf, 14.03.2026.
15. Kondo, K. (2014). *Regional unemployment rates in an agglomeration economy: A theoretical and empirical analysis*. Kobe: Kobe University. Retrieved from: https://keisukekondokk.github.io/research/doc/RU_AE.pdf, 14.03.2026.
16. Krueger, A., Lindahl, M. (2001). Education for growth: Why and for whom? *Journal of Economic Literature, 39*(4), 1101-1136, https://doi.org/10.1257/jel.39.4.1101

17. Lucas, R. (1988). On the mechanics of economic development. *Journal of Monetary Economics, 22*(1), 3-42. https://doi.org/10.1016/0304-3932(88)90168-7
18. Mincer, J. (2001). *Education and unemployment. Working Paper, 18*. Cambridge, MA: National Bureau of Economic Research. Retrieved from: https://www.nber.org/system/files/working_papers/w3838/w3838.pdf, 14.03.2026.
19. Nelson, R., Phelps, E. (1966). Investment in Humans, Technological Diffusion, and Economic Growth. *The American Economic Review, 56*(1/2), 69-75. Retrieved from: https://www.jstor.org/stable/1821269, 14.03.2026.
20. Newell, A. (2006). Skill Mismatch and Regional Unemployment in Poland, In: F. Caroleo, S. Destefanis (Eds.), *The European Labour Market: Regional Dimensions* (pp. 187-202). Heidelberg; N.Y.: Physica-Verlag. Retrieved from: https://link.springer.com/chapter/10.1007/3-7908-1680-9_9, 14.03.2026.
21. Rios, V. (2014). What Drives Unemployment Disparities in European Regions? A Dynamic Spatial Panel Approach. *Regional Studies, 51*(11), 1599-1611. https://doi.org/10.1080/00343404.2016.1216094
22. Rodríguez, X.A., Martínez-Roget, F., Loureiro, M.L. (2025). Crises and tourism demand in Spain. *Heliyon, 11,* e43612. https://doi.org/10.1016/j.heliyon.2025.e43612
23. Sbergami, F. (2002). Agglomeration and Economic Growth: Some Puzzles. *HEI Working Paper, 2*. Geneva: The Graduate Institute of International Studies. Retrieved from: https://repec.graduateinstitute.ch/pdfs/Working_papers/HEIWP02-2002.pdf, 14.03.2025.
24. Schubert, T., Kroll, H. (2014). Universities' effects on regional GDP and unemployment: The case of Germany. *Papers in Regional Science, 95*(3), 467-490, https://doi.org/10.1111/pirs.12150
25. Südekum, J. (2003). *Agglomeration and Regional Unemployment Disparities*. Frankfurt am Main: Peter Lang.
26. Vom Berge, P. (2013). Search unemployment and New Economic Geography. *The Annals of Regional Science, 50*(3), 731-751. https://doi.org/10.1007/s00168-012-0535-z
27. Zeilstra, A.S., Elhorst, J.P. (2014). Integrated Analysis of Regional and National Unemployment Differentials in the European Union. *Regional Studies, 48*(10), 1739-1755. https://doi.org/10.1080/00343404.2012.708404
28. Zierahn, U. (2011). *Agglomeration, congestion, and regional unemployment disparities*. *Research Paper, 108*. Hamburg: Hamburgisches Welt Wirtschafts Institut (HWWI). Retrieved from: https://www.econstor.eu/bitstream/10419/119972/1/ERSA2011_0303.pdf, 12.03.2026.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

FUTURE COMPETENCIES OF STUDENTS IN THE CONTEXT OF LABOR MARKET EXPECTATIONS

Daria SMARŻEWSKA[1*], Magdalena ZAŁĘSKA[2]

[1] Bialystok University of Technology; d.smarzewska@pb.edu.pl, ORCID: 0000-0003-1527-324X
[2] HR Shield; Magdalena.zaleska@interia.eu, ORCID: 0009-0001-5114-2549
* Correspondence author

Purpose: The purpose of this publication was to identify discrepancies and points of contact between students' perceived competencies and the actual needs of the labor market.
Methodology: The presented research is a pilot study. Quantitative and qualitative methods were used. A proprietary questionnaire and individual in-depth interviews were developed. The research was conducted in two stages. The first stage involved a quantitative survey of 174 students. The second stage involved individual in-depth interviews with 21 representatives of HR departments and entrepreneurs. Basic statistical measures, MaxQDA software, and narrative analysis were used to analyze the collected empirical data.
Findings: The research revealed both areas of agreement and significant discrepancies between students' perceptions of competencies and the expectations of the labor market.
Research limitations: The authors are aware of the small sample size. However, the presented research is a pilot study and was conducted on a smaller sample.
Practical implications: The results indicate that the key is not developing individual skills, but rather integrating them into a coherent professional profile. This provides a premise for changes in educational programs and development systems within organizations, focused on combining technological, cognitive, and social competencies.
Originality/value: The study provides a dual perspective on competence gaps by comparing students' self-perceived competencies with the expectations of HR professionals and entrepreneurs. It highlights the need to develop integrated competence profiles rather than isolated skills, offering implications for educational program design and organizational talent development.
Keywords: competences, labor market, generation Z.
Category of the paper: Research paper.

1. Introduction

Progressive digitization, the automation of production and service processes, and intensifying globalization are leading to profound changes in the contemporary labor market. These changes generate a demand for competencies that enable functioning in conditions of increased uncertainty, dynamic variability, and constant reconfiguration of organizational models (Stachowicz-Stanuch, Aleksander, 2018). Consequently, the importance of adaptability, the ability to engage in lifelong learning, and the ability to flexibly respond to new professional requirements is growing. Currently, preparing students to fulfill professional roles that meet the current and projected needs of employers is particularly important. However, an analysis of the relevant literature indicates that representatives of the business community are increasingly reporting discrepancies between the level of preparedness of university graduates and the realities of business operations. These discrepancies particularly concern social competencies, practical operational skills, and the ability to independently and effectively solve problems (Sarzyńska-Mazurek, 2021). The requirements placed on young labor market participants currently extend beyond the scope of specialized knowledge. They are expected to possess professional experience, teamwork skills, communication skills, critical thinking, and the ability to function in a remote work environment and efficiently utilize technology (Sarzyńska-Mazurek, 2021). At the same time, forecasts regarding labor market development indicate that a significant portion of currently desired competencies may transform in the coming years, reinforcing the importance of developing so-called competencies of the future. According to the literature, the period of study is considered a significant stage in the development of young people's professional potential. Activities such as participation in projects, involvement in student organizations, and taking up paid employment during studies foster the development of competencies valued by employers (Kwiatkowska, 2024). Despite this, a persistent competency gap is observed, justifying the need for in-depth research on this phenomenon.

2. The essence and importance of competences

The concept of competencies is a key concept used in management and quality sciences, pedagogy, and labor economics. Literature emphasizes its complex and multidimensional nature. It is most often defined as an integrated set of knowledge, skills, experiences, attitudes, values, and personality traits that determine an individual's effectiveness in specific professional and social situations (Kwiatkowska, 2024). In another, broader perspective, competencies encompass three basic components: knowledge, practical skills, and attitudes and motivation to act (Brodzińska, Brodziński, 2009).

Contemporarily, it is emphasized that competencies should be viewed as a dynamic resource, the importance of which changes with digital transformation and the increasing unpredictability of the work environment. Current approaches emphasize the importance of so-called transferable competencies, which can be used in various professional contexts and foster mobility in the labor market (OECD, 2021). In the context of a knowledge-based economy, the ability to continuously learn and develop adaptive competencies is also becoming increasingly important. The literature indicates that future workers should be prepared not only to perform specific tasks but also to change professional roles and function in an environment of frequent organizational and technological change (World Economic Forum, 2023).

Research conducted on graduate employability confirms that employers today primarily expect cross-cutting competencies, such as critical thinking, problem-solving, collaboration, independence, and initiative, which are referred to as employability skills (Succi, Canovi, 2020). Digital competencies also remain an important area of research. Technological changes are making technology literacy, data analysis, digital security, and critical thinking essential in most professions (Van Laar et al., 2020). At the same time, the role of psychosocial competencies, such as mental resilience, stress management, emotional intelligence, and the ability to work under uncertainty, is also emphasized (McKinsey Global Institute, 2021). These implications lead to the need to adapt education systems to the changing demands of the labor market. According to Tomlinson, universities should focus more on developing practical and design competencies, which can increase graduates' employability in the future (2021).

In light of the above analysis of the literature, it can be concluded that the contemporary approach to competencies focuses primarily on universality, transferability, and adaptability to both technological and organizational changes.

3. Methodology

The aim of the study was to identify discrepancies and points of contact between students' perceived competencies and the actual needs of the labor market. The following research questions were formulated:

1. Which competencies were identified as key by business representatives and which by students?
2. What discrepancies exist between student competencies and the needs of the labor market?

The following hypotheses were adopted:

1. Digital competencies are the key competencies identified by business representatives.
2. There are significant discrepancies in the assessment of key competencies between students and business representatives.

The study was conducted in two stages. The quantitative stage of the study was conducted using a survey questionnaire administered to students. The research tool was based on a model of six competency areas identified in the catalog of competencies identified in the Future of Jobs Report 2025, developed by the World Economic Forum. The Future of Jobs Report 2025 identifies these competencies as key to individual competitiveness in the face of digital transformation, process automation, and the growing complexity and volatility of the economic environment. Areas covered in the study included: technological proficiency (AI & Big Data), analytical thinking, creativity and flexibility, leadership and social influence, collaboration and resilience, and lifelong learning. Each block included several diagnostic statements relating to specific behaviors and attitudes, and respondents rated their level of agreement with each statement using a five-point Likert scale.

The quantitative study utilized a proprietary survey questionnaire addressed exclusively to students. Purposive sampling was used. A total of 174 students participated in the study. Basic statistical measures were used to analyze the collected empirical data. Cronbach's alpha was used to assess the reliability of the research tool, with a Cronbach's alpha of 0.76 for the developed questionnaire.

In the second stage of the study, individual in-depth interviews were conducted with company representatives. Again, the sample selection was purposive and included senior management, board members, directors, and HR representatives from Polish enterprises. Based on the results obtained from the quantitative research, a custom-designed scenario for an individual in-depth interview was developed. It included questions clarifying the previously obtained results. The qualitative study identified three main research areas:

1. Research Area A: Key competencies of the future in the opinion of company representatives.
2. Research Area B: Competency areas with the greatest gaps among graduates.
3. Research Area C: Ways and methods for developing new competencies.

Table 1.
The coding system and frequency of occurrence used in the qualitative study

Coding System	Frequency
Coding System - General	62
Competency Areas with the Largest Deficiencies Among Graduates	21
Competencies Most Difficult to "Relearn" After Employment	21
Ways to Develop New Competencies	20

Source: own study based on MaxQDA software.

A total of 21 individual in-depth interviews were conducted. Narrative analysis and MaxQDA software were used to analyze the collected material. Three main subcodes were identified and further analyzed (Table 1).

4. Results

Positive responses dominated in the area of technological competences (Figure 1). A total of 77.0% of respondents agreed with the statements regarding the use of digital tools, AI, data interpretation skills, and the ability to learn new technologies – including 45.4% who selected "I tend to agree" and 31.6% who selected "I strongly agree". Neutral responses ("hard to say") accounted for 17.2%, while negative responses totaled 5.7% (3.4% "I tend to disagree" and 2.3% "I strongly disagree"). The average score for this area falls in the upper range of the scale – above 4.0 – indicating relatively high student self-assessment in the use of digital tools, AI, data interpretation skills, and the rapid adoption of new technological solutions.

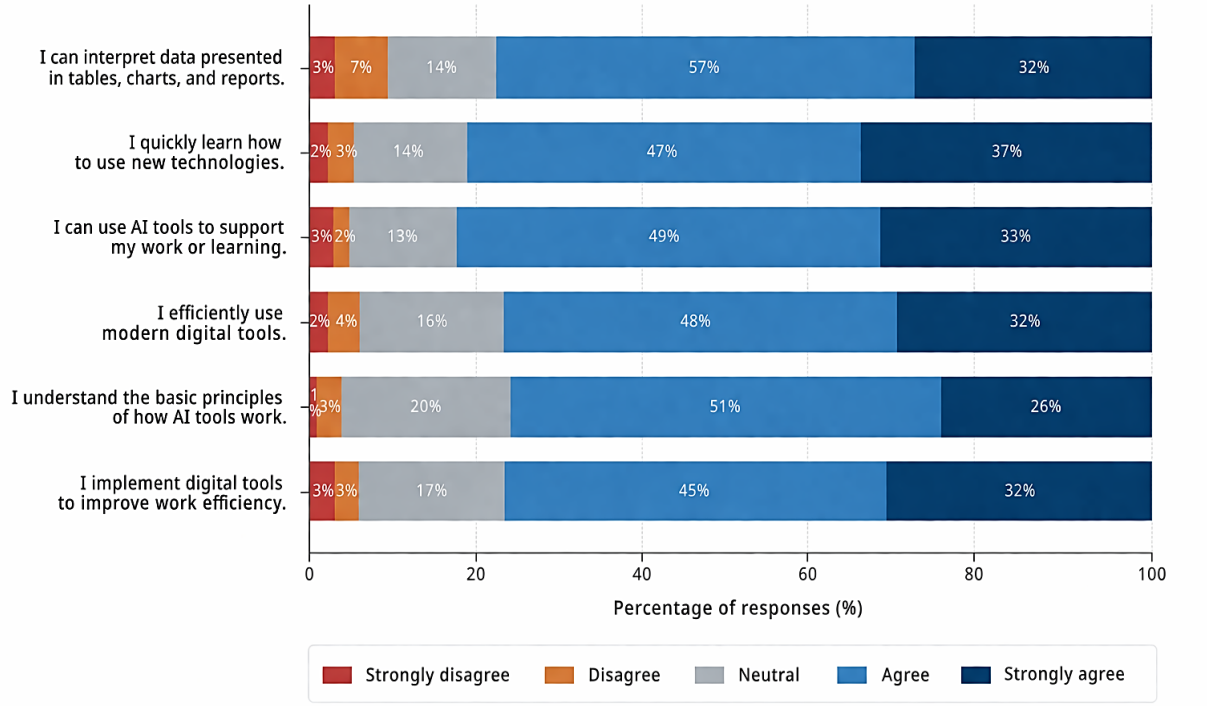


Figure 1. Respondents' self-assessment of technological competences.

Source: own study.

The second area analyzed included competencies related to generating new solutions, combining ideas from various fields, responding to change, and adapting to new conditions (Figure 2). The distribution of responses indicates a clear predominance of positive ratings. A total of 72.5% of respondents selected either "I tend to agree" (48.9%) or "I strongly agree"

(23.6%). Neutral responses ("hard to say") accounted for 19.5%, while negative responses totaled 8.0% (6.3% "I tend to disagree" and 1.7% "I strongly disagree"). The average rating exceeded 4.0 on a five-point scale, indicating a concentration of responses at the upper end of the scale.

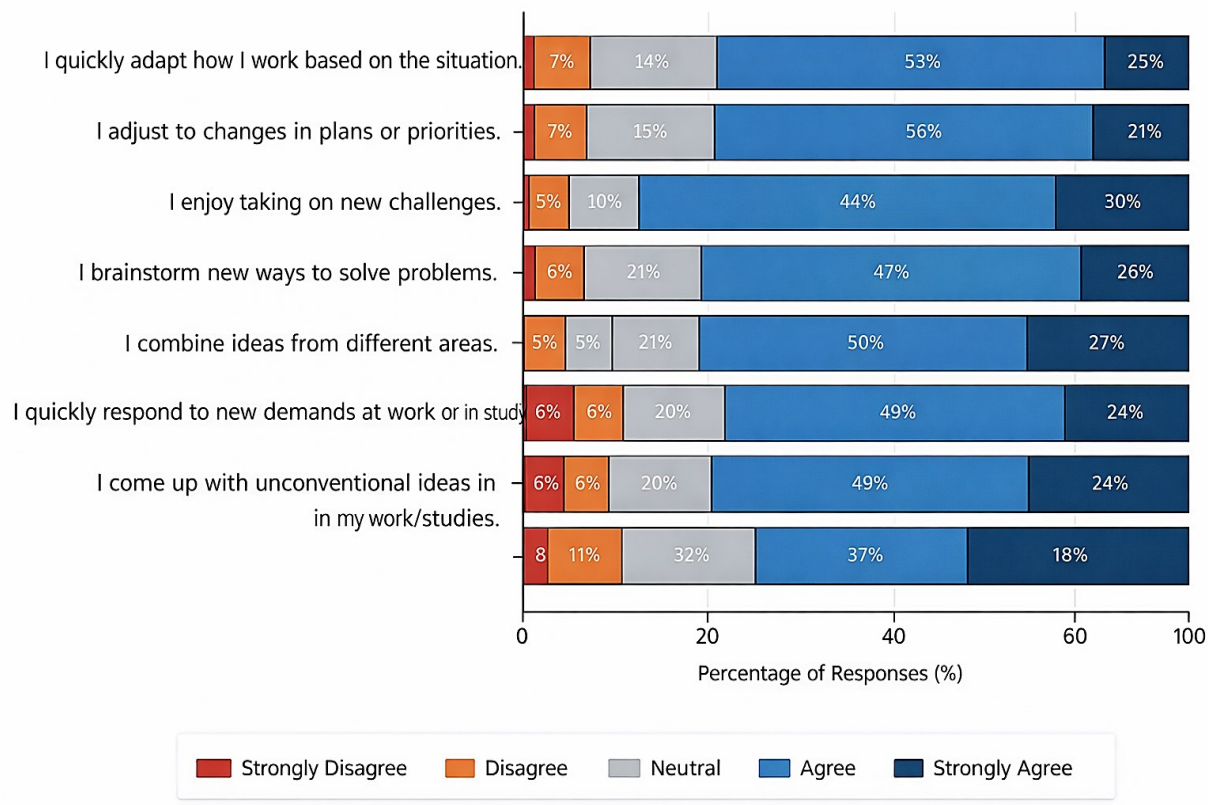


Figure 2. Respondents' self-assessment of competencies in the areas of creativity and flexibility. Source: own study.

In the areas of competencies related to leadership and social influence, the distribution of responses was more diverse than in the case of technological competencies or creativity (Figure 3). A total of 72.5% of respondents selected positive responses – including 39.1% "I tend to agree" and 33.3% "I strongly agree." Neutral responses ("I don't know") accounted for 19.5%, while negative responses totaled 8.0% (6.3% "I tend to disagree" and 1.7% "I strongly disagree").

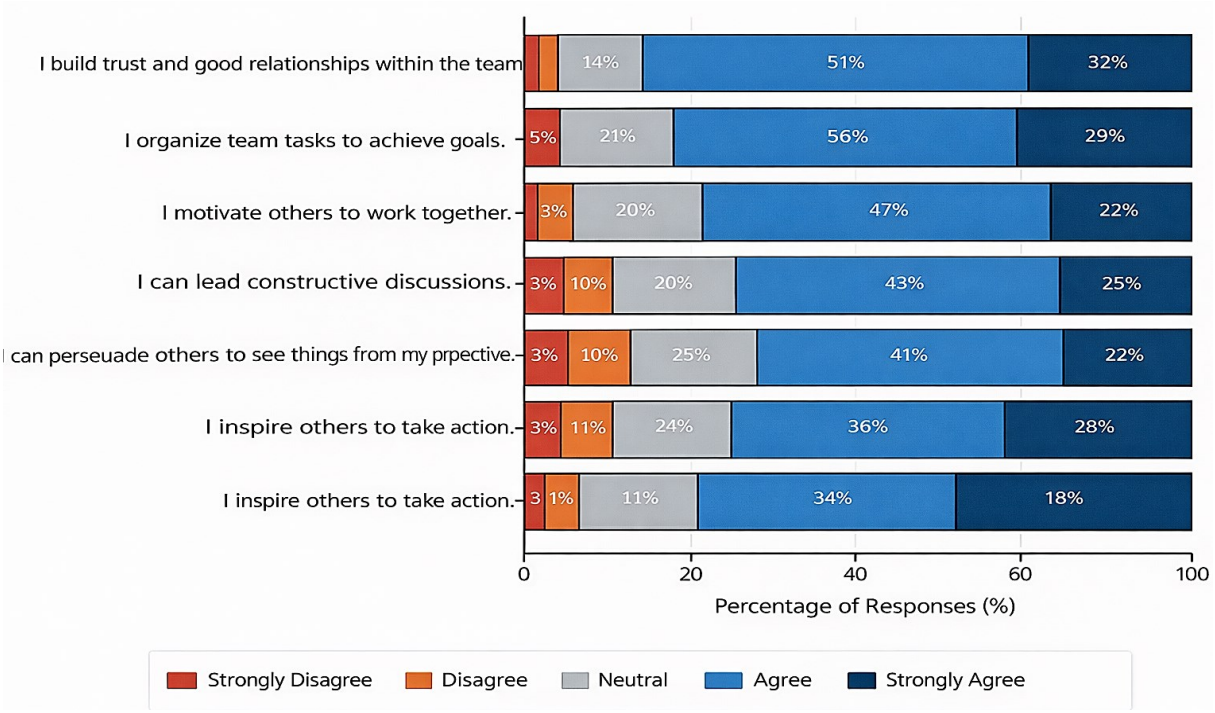


Figure 3. Respondents' self-assessment of competencies in the areas of leadership and social influence.

Source: own study.

Positive responses dominated in the areas of analytical thinking and problem-solving (Figure 4). A total of 77.0% of respondents selected "I tend to agree" (45.4%) or "I strongly agree" (31.6%). Neutral responses ("I don't know") accounted for 17.2%, while negative responses totaled 5.7% (3.4% "I tend to disagree" and 2.3% "I strongly disagree").

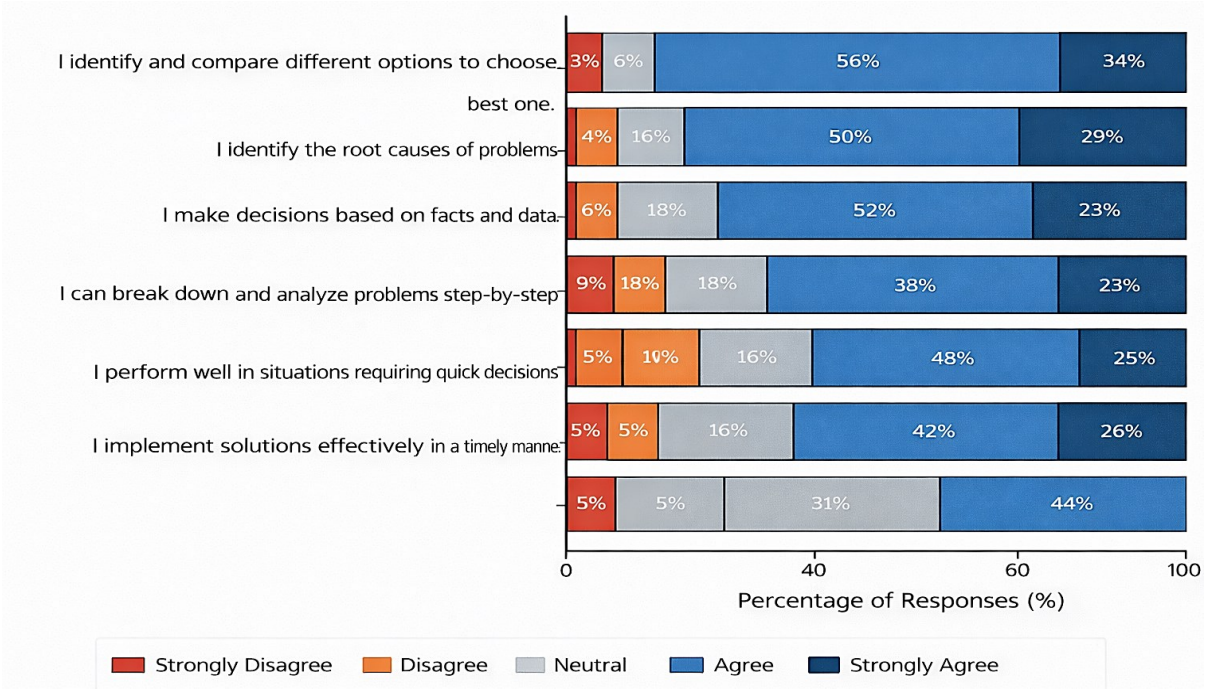


Figure 4. Respondents' Self-Assessment of Competencies in the Area of Analytical Thinking and Problem-Solving.

Source: own study.

Positive responses predominated in the area of collaboration and mental resilience (Figure 5). A total of 72.4% of respondents agreed with the statements regarding teamwork, functioning in online and offline environments, and coping with stressful situations (39.1% "tend to agree" and 33.3% "strongly agree"). Neutral responses accounted for 19.5%, while negative responses totaled 8.0% (6.3% "tend to disagree" and 1.7% "strongly disagree"). The average score exceeds 4.0 on a five-point scale.

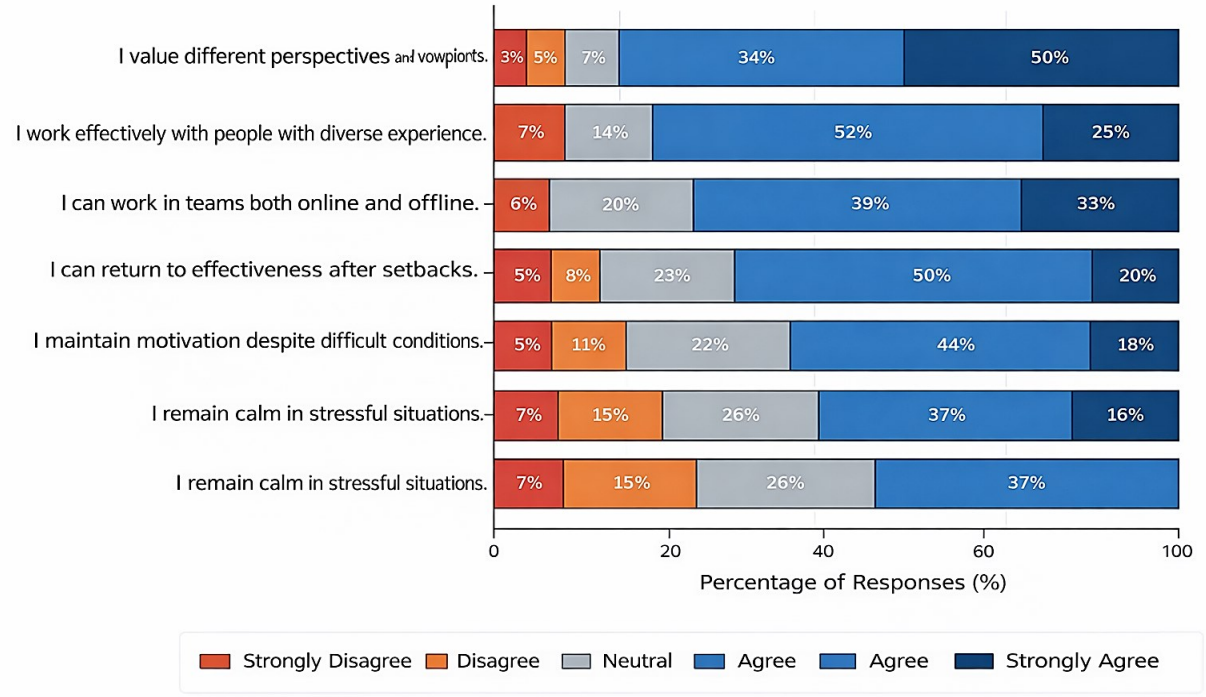


Figure 5. Respondents' Self-Assessment of Competencies in the Area of Collaboration and Resilience. Source: own study.

A detailed analysis of individual statements indicates internal variation within this area. The highest rates of positive responses concern the reported effective collaboration with people with diverse experiences and respect for diverse perspectives. The statement regarding teamwork, both online and offline, also achieved a high level of acceptance. The statement "I remain calm in stressful situations" had a slightly higher proportion of neutral responses than the questions specifically about teamwork.

In the last area analyzed, a high level of positive responses was observed (Figure 6). A total of 77.0% of respondents selected "I tend to agree" (41.4%) or "I strongly agree" (35.6%). Neutral responses accounted for 16.7%, while negative responses totaled 6.3% (4.6% "I tend to disagree" and 1.7% "I strongly disagree"). The average rating exceeds 4.0 on a five-point scale. At the same time, analysis of the distribution of responses at the level of individual statements indicates significant internal variation in this area. The highest rates of positive responses concern issues related to independent learning and updating competencies. A significantly lower percentage of positive responses was recorded for the last statement, regarding o engaging in pro-environmental initiatives.

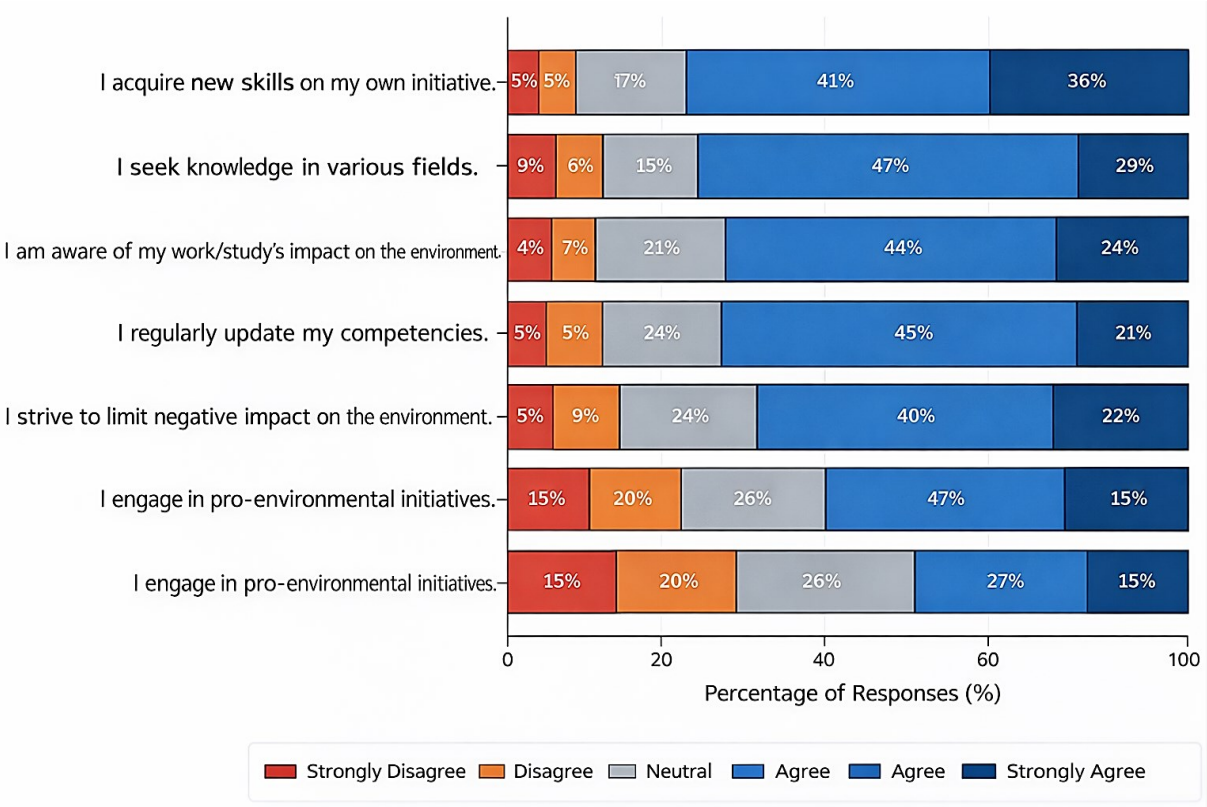


Figure 6. Respondents' self-assessment of competencies in the area of lifelong learning and environmental awareness.

Source: own study.

Another area addressed in the survey questionnaire was the analysis of the importance of each of the analyzed competencies in the context of their significance for the respondents' future careers. The resulting competency profile is clearly hierarchical, as well as the deviation of the arms of the radar chart from its center (Figure 7). The highest rating was given to the competency "Problem-solving" (M = 4.60), whose arm is furthest toward the outer ring of the chart. Competencies with a socio-cognitive profile, such as collaboration (4.47), creativity (4.41), and resilience (4.41), were ranked next.



Figure 7. Importance of competencies for future professional careers according to students.
Source: own study.

To identify points of convergence and divergence, qualitative research was conducted with business representatives. First, we identified which competencies were considered key in the opinion of business representatives (Figure 8). The structure of the single-code model reveals an extensive network of detailed categories centered around the central concept of future competencies. The number of identified subcodes and their equivalent nature suggest that respondents do not limit the meaning of this concept to a single dominant area. The collected responses indicate that future competencies are perceived as a set of complementary skills that complement each other. The lack of a clear hierarchy between subcategories may indicate a belief that professional effectiveness in a changing economic environment does not stem from possessing a single key competency, but from skillfully combining various areas of knowledge, attitudes, and practical skills. This approach indicates a shift from a narrow, specialized understanding of qualifications towards a more holistic approach to the employee profile. In the opinion of business representatives, future competencies are multidimensional, integrated, and dynamic. The expected employee profile is not based on a single specialization, but on the ability to combine cognitive, social, and practical competencies in response to changing market conditions. The most frequently cited competencies were critical thinking,

communication, and adaptability to processes and the organization. This is confirmed by the following statements from respondents: "Ability to communicate effectively, ability to adapt to employer expectations, lack of CV writing and presentation skills during interviews", "Proactivity, logical thinking with application drafting, ownership", and "culture fit / startup environment / cognitive competencies".

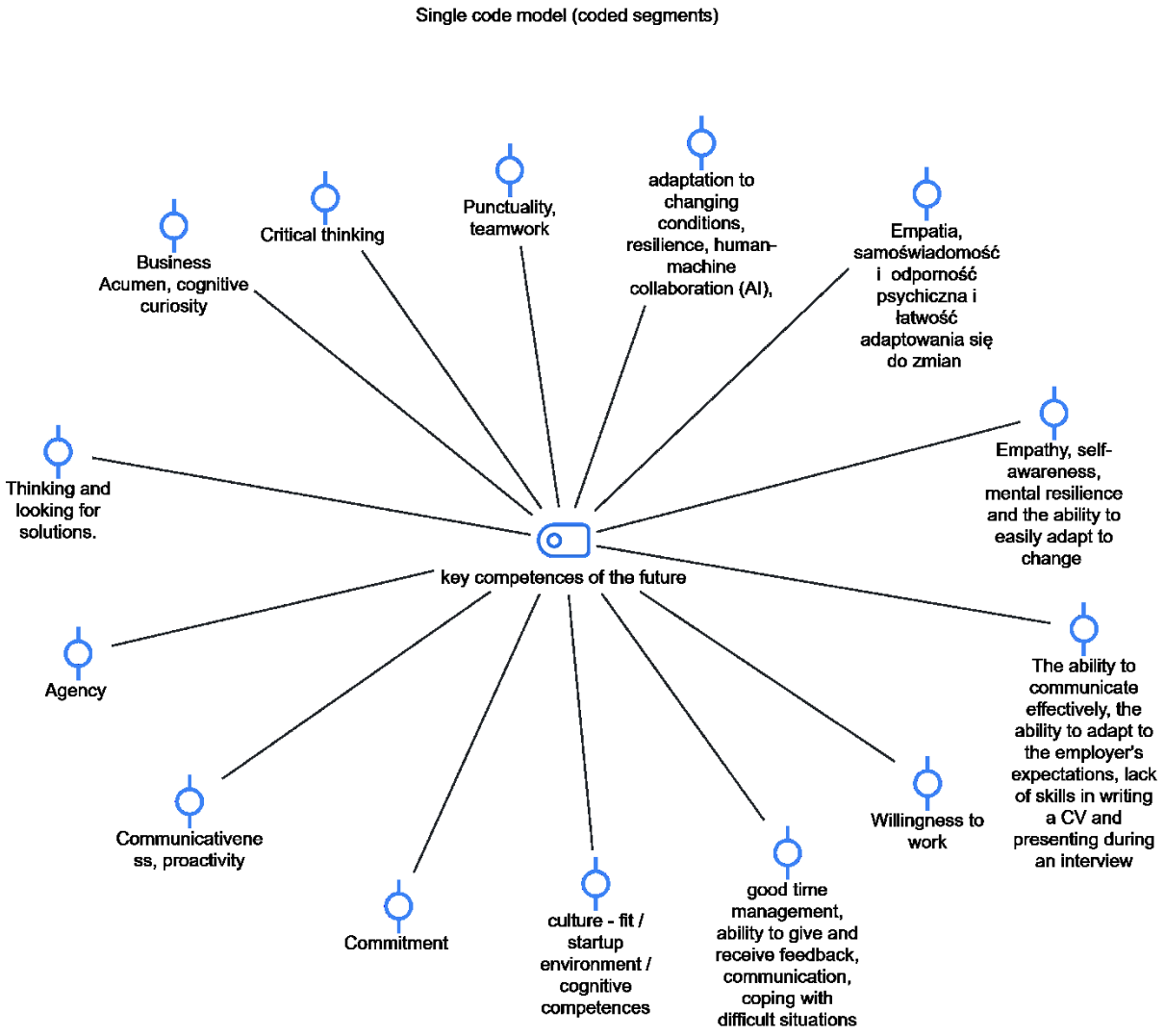


Figure 8. Single-code model for the "key competencies of the future" subcode.

Source: own study based on MaxQDA software.

Analysis of the single-code model for competency areas with the greatest gaps reveals a clearly more concentrated structure than in the case of future competencies (Figure 9). This indicates that company representatives do not perceive competency deficits as a multi-threaded phenomenon to the same extent as they did in the case of expected competencies of the future. Instead of a broad catalog of gaps, there is a clear focus on specific areas that, in the opinion of respondents, are crucial for graduates' functioning in the workplace. Problem-solving, lack of independence, and lack of flexibility were most frequently cited.



Figure 9. Single-code model for the "competency areas with the greatest gaps among graduates" subcode.

Source: own study based on MaxQDA software.

This is confirmed by the statement of one respondent: "Based on my work with interns and young students who formed the teams I managed, I observe the greatest gaps in several competency areas. These most frequently concern: (1) Problem-solving – many young employees expect ready-made solutions instead of independently searching for options and analyzing possible scenarios. (2) Creativity – there is difficulty generating new ideas, thinking outside the box, or proposing alternative solutions. (3) Collaboration – some people prefer to work individually and have difficulty sharing responsibility and accepting feedback within teamwork. (4) Lifelong learning – there is a noticeable lack of cognitive curiosity, a reduced willingness to explore new areas, and limited initiative in independently expanding knowledge".

The final research area in the qualitative studies aimed to identify ways to develop new competencies (Figure 10). Standard training, both internal and external, was the most frequently indicated area. One respondent emphasized the need to develop technological competencies related to artificial intelligence. In addition to standard methods, respondents also indicated: mentoring, functional rotations, and focus groups.

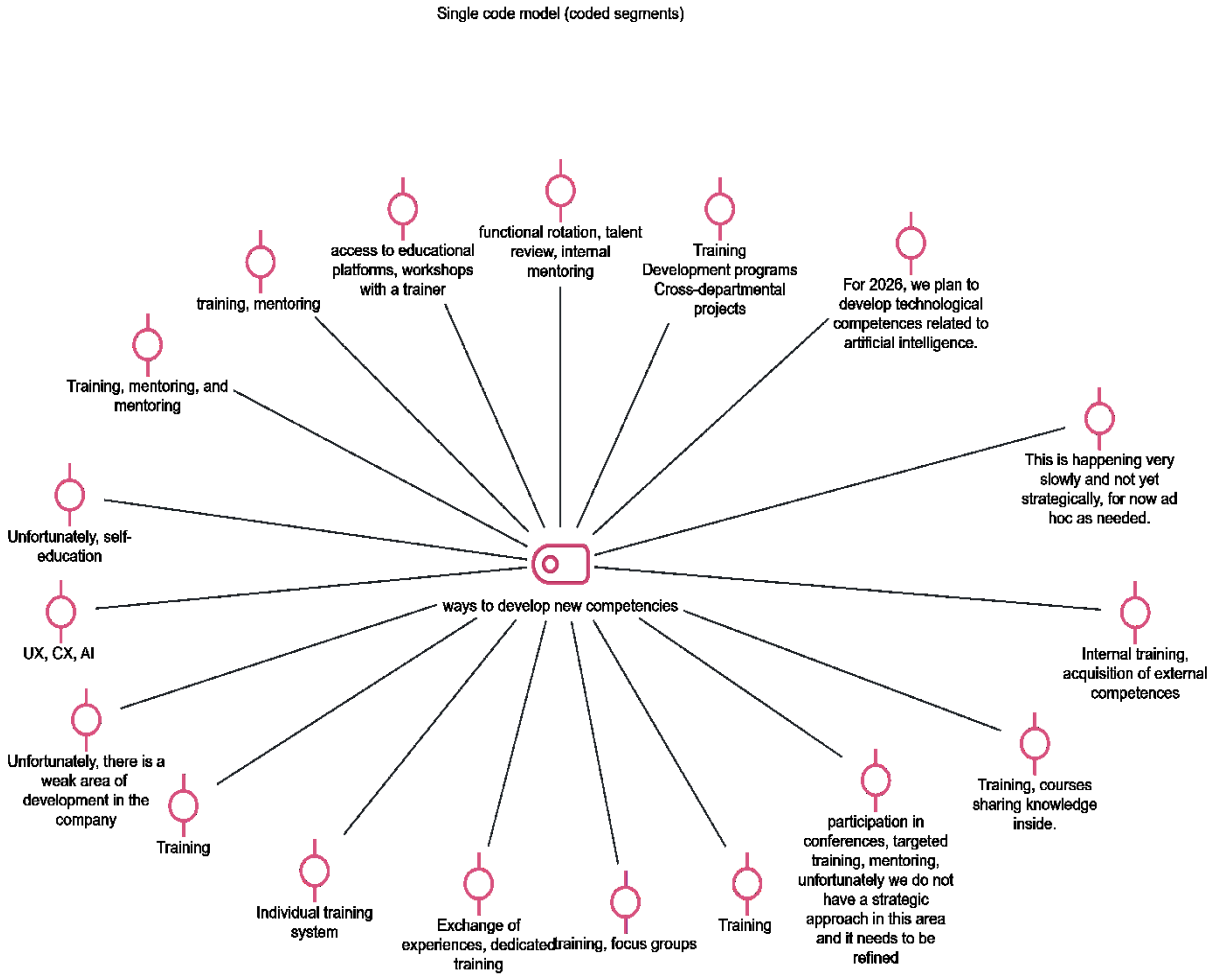


Figure 10. Single-code model for the subcode "ways to develop new competencies".
Source: own study based on MaxQDA software.

Comparing the results of quantitative studies conducted among students with the results of qualitative studies involving business representatives allows us to identify both significant points of contact and significant discrepancies. The quantitative results indicate relatively high student self-assessment in all analyzed competency areas. Average scores exceeding 4.0 on a five-point scale indicate respondents' belief in their good preparation in technological, analytical, and social competencies. Competencies related to problem-solving, collaboration, and creativity received particularly high scores, as they were perceived by students as foundations for future careers. At the same time, technical competencies – including AI & Big Data – although rated positively, were not considered the most important in the hierarchy of future professional success. Environmental awareness ranked lowest in the competency profile.

Business representatives, however, reveal a more complex picture of expectations and mismatches. Declaratively, there is agreement regarding the importance of cognitive and social competencies. Critical thinking, communication, organizational adaptability, and proactivity were among the most frequently cited competencies of the future. However, a significant discrepancy is revealed in the assessment of their level of development. While students declare a high level of readiness in problem-solving, creativity, and collaboration, business representatives identify these areas as lacking. Lack of independence, difficulty generating alternative solutions, limited initiative, and insufficient readiness for lifelong learning were particularly frequently highlighted. This indicates that the competency gap does not relate to awareness of the importance of specific skills, but rather to their practical implementation in the organizational environment. Qualitative research findings also show that employers perceive competencies as an integrated set of abilities functioning within a specific cultural and organizational context, a phenomenon not directly reflected in students' quantitative self-assessments. It can therefore be concluded that the main difference concerns the applied level - students highly evaluate their competences in a declarative sense, while employers conc

5. Summary

Analysis of the six identified competency areas indicates a clear predominance of positive responses across all categories. This indicates that the surveyed students largely identify with the competency profile considered desirable in the modern labor market. The highest rates of positive responses were recorded in the areas of technological competencies, analytical thinking, and lifelong learning. The surveyed students perceive the modern work environment as requiring not only specialized knowledge but, above all, the ability to act in complex situations, teamwork, creative response, and mental resilience. The competency profile derived from the survey participants' responses indicates that cognitive and social competencies are assigned the highest importance, while technical and environmental competencies are complementary. This suggests that, in the respondents' perception, the greatest competitive advantage is gained by individuals capable of independent action, collaboration, and creative and flexible problem-solving, thus equipped with competencies that form the foundation for functioning in a modern, changing labor market. Regarding the hypotheses, it should be noted that the first hypothesis was not confirmed. Digital competencies are considered important, but business representatives equally emphasize the importance of cognitive and psychosocial competencies, such as independence, critical thinking, and adaptability. The second hypothesis was confirmed – the identified competency gap primarily concerns the application level. Students highly value their preparation, while employers indicate difficulties in practically applying the declared competencies, particularly in the areas of independence and initiative.

The study results should be considered in the broader context of labor market transformation, which is redefining the importance of competencies in organizations. According to the Deloitte Global Human Capital Trends 2025 report, companies are increasingly pointing to a structural gap between candidates' declared competency levels and their actual effectiveness in the workplace. Adaptability skills, cross-functional collaboration, and the ability to function in a human-technology collaboration model are becoming particularly important. In this perspective, digital competencies are no longer a distinguishing factor in themselves, becoming a prerequisite that must be supplemented with cognitive and social competencies. These conclusions align with the literature indicating that the future of the labor market relies on the integration of cognitive, technological, and social competencies (Aoun, 2020). The results demonstrate that the problem lies not in a lack of awareness of the importance of future competencies, but rather in the difficulty of applying them in practice. The discrepancy between student declarations and business assessments confirms that the ability to adaptively utilize competencies in real-world organizational settings is crucial. This requires a systematic approach to reskilling in organizations and to the design of university curricula, ensuring that competency development is consistent, continuous, and aligned with labor market needs.

The authors acknowledge several limitations of the presented study. Its pilot nature, the relatively small and purposively selected sample, and the reliance on self-reported competency assessments may reduce the generalizability and explanatory power of the findings. Furthermore, the cross-sectional research design does not fully capture the dynamic and context-dependent character of competency development in the rapidly evolving labor market. Future research should therefore adopt longitudinal and multi-method approaches, include more heterogeneous research populations, and incorporate objective competency assessment tools to provide deeper insight into the mechanisms underlying competency gaps.

Acknowldgements

The research was carried out as part of project no. WIZ/WIZ-INZ/3/2026 at Bialystok University of Technology and was funded by a research subsidy provided by the minister responsible for science.

References

1. Aoun, J.E. (2020). *Robot-Proof: Higher Education in the Age of Artificial Intelligence*. MIT Press.
2. Brodzińska, K., Brodziński, Z. (2009). Kompetencje zawodowe studentów kierunków technicznych. *Zagadnienia Doradztwa Rolniczego, 4,* 107-117.
3. Deloitte (2025). *Global Human Capital Trends 2025*. Deloitte Insights. https://www.deloitte.com/global/en/issues/work/human-capital-trends.html
4. European Commission (2018). *Council recommendation of 22 May 2018 on key competences for lifelong learning (2018/C 189/01)*. Publications Office of the European Union. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018H0604(01)
5. Finch, D.J., Hamilton, L.K., Baldwin, R., Zehner, M. (2013). An exploratory study of factors affecting undergraduate employability. *Education + Training, 55(7),* 681-704.
6. Kapsa, I., Brzeziński, Ł., Kopowski, J., Litwic-Kamińska, K., Błachnio, A. (2025). Czy wykształcenie ma znaczenie? O kompetencjach cyfrowych studentów w dobie społeczeństwa informacyjnego. Athenaeum. *Polskie Studia Politologiczne, 85(1),* 7-23.
7. Kwiatkowska, K. (2023). Wpływ zarządzania projektami na kompetencje studentów. In: A. Prędki, *Narzędzia analityczne – teoria i zastosowania w naukach ekonomicznych*. Kraków: Attyka s.c.
8. McKinsey Global Institute (2021). *The future of work after COVID-19*. McKinsey & Company. https://www.mckinsey.com/mgi/our-research/the-future-of-work-after-covid-19
9. OECD (2021). *OECD Skills Outlook 2021: Learning for life*. OECD Publishing.
10. Stachowicz-Stanusch, A., Aleksander, A. (2018). Kompetencje przyszłości. *Zeszyty Naukowe Politechniki Śląskiej. Organizacja i Zarządzanie, 121*, 485-497.
11. Succi, C., Canovi, M. (2020). Soft skills to enhance graduate employability: Comparing students and employers' perceptions. *Studies in Higher Education, 45(9),* 1834-1847.
12. Tomlinson, M. (2021). Graduate employability and the labour market: Critical reflections on student outcomes and university responsibilities. *Journal of Education and Work, 34(1),* 1-13.
13. Tomlinson, M. (2022). *Student Employability and Career Development in Higher Education*. Routledge.
14. van Laar, E., van Deursen, A.J.A.M., van Dijk, J.A.G.M., de Haan, J. (2017). Determinants of 21st-century digital skills: A large-scale survey among working professionals. *Computers in Human Behavior, 72*, 577-588.
15. World Economic Forum (2023). *The Future of Jobs Report 2023.* World Economic Forum. https://www.weforum.org/reports/the-future-of-jobs-report-2023

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

CREATIVE IDENTITY – HOW GENDER SHAPES LIFE ORIENTATIONS IN A CREATIVE ORGANISATION

Aneta SOKÓŁ

University of Szczecin; aneta.dorota@wp.pl, ORCID: 0000-0002-4675-2182

Purpose: The importance of creativity stems from its impact not only on organisations but also on social development, which translates into quality of life. This study aims to demonstrate the influence of gender on creative life orientations. The presented results are based on survey research. The analyses carried out in the study show that gender does not differ significantly in the development of creative life orientations.
Design/methodology/approach: This article reviews research on the impact of cognitive, theoretical, methodological and empirical issues using Cudowska's (2014) questionnaire to determine the impact of gender on respondents' life orientations. The study illustrates these processes using data from 1,395 respondents representing creative life orientations.
Findings: The results of this study demonstrate the insignificant role of gender and its impact on the development of creativity in organizations.
Research limitations/implications: Despite the author's efforts to ensure that the article is of the highest quality, several basic limitations should be mentioned. First, there is a geographical limitation. The article uses empirical data from a study conducted in the West Pomeranian Province and mainly concerns people with creative lifestyles. The second limitation concerns the research method. The data was obtained using a questionnaire survey. The third limitation is the one-off nature of the study. It would be appropriate to continue further meta-analytical efforts and conduct comparative studies to learn about the views of people with conservative life orientations.
Originality/value: As a result of literature and empirical research, the boundaries of existing knowledge concerning the influence of gender on creative life orientations have been expanded.
Keywords: creativity, creative organisation, creative life orientations.
Category of the paper: Research paper.

1. Introduction

Knowledge about creativity has recently reached critical mass. Unfortunately, it does not form a coherent and systematic system. According to Schmidt, an interdisciplinary approach to creativity should be developed and representatives of various fields should be invited to create a science with them – creatology. Unfortunately, creativity is still not one of the most important

issues in management, although it should be noted that interest in this topic has grown in recent years. This encourages and increases the amount of research conducted on the development of new forms of organisation, including entities that use creativity as a resource. It should be noted that the proper functioning of this category of organisations, and the proper development of creativity within them, depends on whether safe organisational conditions conducive to creativity are created, including the removal of emerging barriers. Therefore, in order to highlight a specific area of research and analyse it, two trends have been identified in this article. The first is cognitive in nature and focuses on the analysis of the literature on the subject. These studies covered foreign and Polish literature, which allowed for a critical analysis and shaped the research framework. They concerned concepts related to the development of ideas about creative organisations and creative life orientations. The second strand—the academic one—focuses on research conducted using a questionnaire developed by Cudowska (2014) based on an analysis of the relevant literature. The research sought to identify correlations between gender and creative life orientations in order to determine whether there are any correlations between them. The conclusion of the research presented in the article is to answer the following questions: How should creative life orientations be interpreted? And what are the correlations between CLO and gender?

2. Creative organisation – an attempt at definition

Creativity is a key factor in innovation, competitiveness and increasing the efficiency of organisations (Mathisen, Einarsen, Jorstad, Brennick, 2004; DiLiello, Houghton, 2006; Slåtten, Svensson, Sværi, 2011; Ibrahim, Haron, 2014; Liu, 2018; Luu, 2019). Creativity in an organisation has no value until it undergoes commercialisation processes and translates into a specific product, service or process offered to the customer. The results of studies presented in the literature on the subject have revealed a statistically significant and direct relationship between organisational creativity and organisational effectiveness, and have emphasised the role of creativity as a key capability of an organisation (Choi, Anderson, Veillette, 2009), drew attention to creativity as a strategically valuable resource and a critical source of competitive advantage (Shin et al, 2012, as cited in Bratnicka-Myśliwiec, 2019). Amabile, one of the most renowned researchers in this field, and her team (2005) also recognised creativity as the key to an organisation's sustainable competitive advantage (Sirková et al, 2014). It is also recognised that creativity has helped to create the most important innovations in human history and solve some of our most complex and significant problems (Johnson, 2014).

In their analysis of the literature on the foundations of contemporary organisational creativity, Zhou and Shalley (2008) and Anderson, Potočnik and Zhou (2014) refer to the interactionism model of Woodman, Sawyer and Griffin (1993), the component model of

Amabile (1988; 1996) and Ford's model (1996). The model by Woodman et al. (1993) was one of the first to truly highlight the multi-level nature of organisational creativity and the various influences that occur at different levels. The author divided these influences into three levels: individual (creative behaviour, cognitive style/abilities, personality, knowledge and intrinsic motivation), group (group composition, group characteristics and group processes, contextual influences) and organisational (organisational design and structure, communication channels and information flows). Another model, Amabile's component model of creativity (1988; 1997), also links individual creativity (i.e. motivation, creative skills and expertise) to the work environment (organisational motivation for innovation, management practices and resources) and thus to organisational creativity. Ford (1996), inspired by Csikszentmihalyi's systemic model (1988; 1997), according to which creativity occurs through the dynamic action of 'a system consisting of three elements: a culture containing symbolic rules, a person who brings novelty to the domain, and a field of experts', proposed a model of individual creative action (which results from a combination of meaning-making, goals, motivation, knowledge and ability, as well as emotions and beliefs about sensitivity and ability, relating to an individual's beliefs about their own creative capabilities and tasks and potential responses in this area), which is influenced by many social domains (Blomberg, 2016).

In view of the above, it should be noted that, given the various research concepts and different ways of understanding them, modelling and defining a creative organisation is difficult and ambiguous. This state of affairs also stems from the fact that the diversity of entities operating in the creative sectors highlights how different creative organisations can be from one another. Some will be small entities with only a few employees (e.g. entities operating in the field of advertising), while others will be large entities that will require multi-tasking, complex organisational structures (e.g. research institutes, universities). Taking into account the aspects highlighted above, this article adopts the author's proposal for understanding this term, namely that organisational creativity is an entity whose systemic operation is based on the use of tangible and intangible resources in order to effectively utilise individual mental activities towards integrating them into collective processes, striving to achieve a higher-order creative process at various levels of organisation and management. The most important resource determining the creative process in an organisation is the appropriate intellectual capital potential, including creatively active human capital. The aim of such an enterprise is to dynamically achieve growth in value, including competitiveness, with a view to achieving economic, social, cultural and prestigious goals. The products of such entities are ideas, products or creative services covered by copyright.

The effectiveness of a creative organisation consists of many coexisting and interrelated factors. Researchers of this phenomenon refer to the role of creative resources (creative employees and teams), including their knowledge, creative leaders, the creative environment of the organisation, including appropriate and consistent management of creativity and knowledge, It should be emphasised that these two aspects are inseparable, as what is new is

usually based on what is old, and many useful innovations would not have been created without specialist knowledge (cf. Cook, Wall, 1980; Nonaka, Takeuchi, 1995; Gurteen, 1998; Andriopoulos, 2000; Martins, Terblanche, 2003; Amar, Juneja, 2011; Frankova, 2011; Ma et al., 2013). According to research findings, in a creative organisation, the team of employees should consist not only of people with expert knowledge (Choi, Thompson, 2005) and other competences, but above all of people with creative life orientations. Such people are highly desirable members of creative organisations and contribute significantly to the achievement of the set goal. However, research shows that creative organisations are primarily concerned with people with high creative absorption abilities, as it is this ability that allows them to generate new creative ideas (Cohen, Levinthal, 1990).

3. Material and methods

The subject matter discussed in this article required a review of the source literature. Articles were identified concerning the potential for creative organisation, the scope of its functioning, and the creative life orientations of employees working in these organisations. The concept of creative life orientations presented here was developed by A. Cudowska (2004). Therefore, in the rest of the article, all the assumptions she made will be adopted so that this concept can be used in practice. The author of the work assumed that the semantic scope of creative life orientations is very broad and, at the same time, diverse. The assumption regarding diversity does not treat it disjunctively, but conjunctively, constituting a kind of unity in diversity. Furthermore, it was assumed that "the creation of a life orientation takes place through experiencing reality and adopting an axiologically saturated ethical attitude towards it. Life orientation in its creative dimension is particularly diverse and dynamic, and can be shaped and developed throughout a person's life. This is all the more so because in contemporary societies we are dealing with many varieties of creation, corresponding to the diversity of areas and dimensions of an individual's functioning" (Cudowska, 2004). At the same time, it is difficult to clearly define how much one needs to ‘experience the old’ in order to ‘create the new’. This understanding of creativity creates a new space for understanding this issue and points to another assumption adopted in the article.

Bearing in mind the above conditions, the TOZ questionnaire was constructed on the basis of the following reference planes. The ontological approach to man refers to a searching man who actively and consciously makes decisions and takes responsibility for them. Of course, the area of search can be directed endogenously and exogenously, which leads to a continuous process of change. Humans therefore perceive themselves as thinking, cognising and transforming reality (Siemek, 1978, as cited in Cudowska, 2004). The next plane concerns the reference of creative life orientations from a processual perspective. Processual theories of

creativity have their place and reference to TOZ, because it is in the creative process and its inhibitors that the categories and perspectives presented above are visible. Next, psychodynamic theories of creativity were the point of reference for the adopted concept. Therefore, this part of the study was devoted to establishing a theoretical framework and gaining a broader understanding of the relationships between the components selected for the study. The verification procedure adopted in this article consisted of examining certain interdependencies between observable phenomena or facts, without any interference from the researcher. The research was diagnostic and exploratory in nature. The aim of the research was to gain knowledge about the phenomena in question and to analyse them in order to verify the theory, i.e. to confirm or refute it. In addition, the analysis allowed for the systematisation of knowledge and definitions related to the issue in question.

The main research problem, which is also the subject of this study, is to understand the relationship between gender and creative life orientations and their impact on the potential development of a creative organisation (conclusions). The author's goal was to conduct an in-depth analysis of the identified research problem. Due to the broad scope of the research, hypotheses were formulated concerning the following selected issues. The following were formulated:

Hypothesis (H). *There is a relationship between gender and creative life orientations of employees in creative organisations.*

In order to verify the hypothesis, self-descriptive research was conducted using a proprietary questionnaire, which was used in the article. Then, after defining the sampling frame, i.e. a set of items in the statistical population used to verify the formulated hypothesis, a research sample was randomly selected. The sample was selected using a stratified disproportionate random sampling method. As indicated above, the sample consisted of individuals working in creative organisations who perform creative activities.

The STATISTICA.PL ver. 12 statistical package and the EXCEL programme included in the MICROSOFT OFFICE package were used to perform statistical analysis of the results. The data analysis began with checking the normal distribution using the Kolmogorov-Smirnov test. The results confirmed the normality of the distribution and allowed for the use of parametric tests: Student's t-test, ANOVA and Tukey's post hoc test.

In addition, a set of 48 questions by Cudowska (2004) was used to calculate the TOŻ (creative life orientations) or ZOŻ (conservative life orientations) index, with answers in the following versions: A – fits me, a – fits me a little, b – does not fit me a little, B – does not fit me. Points were assigned for each answer, 0, 1, 2, 3 (in versions A, a and B, respectively). The sum of points obtained in individual categories (+) gave the TOŻ value, and the sum of points for categories (-) gave the ZOŻ value. The TOŻ-ZOŻ value was used in the statistical analysis. A difference greater than or equal to zero (>=0) indicated a person with a TOŻ predominance, while a difference less than zero (<0) indicated a person with a ZOŻ predominance.

Preferences of respondents in terms of creative life orientations working in creative organisations – research results

For each respondent, the TOŻ (creative life orientations) and ZOŻ (conservative life orientations) indices were calculated. The results of the calculations in the categories 'New situations' Ns, 'New creations' Nw, 'Flexibility, adaptability and originality of thinking' E, 'Creativity as a value' Tw, and TOŻ and ZOŻ indices on the example of the group The interpretation refers to the value of the TOŻ-ZOŻ index calculated on the basis of a set of 48 questions in the A, a, b, B answer version. The analysis focused on gender and its relationship to creative life orientations, as it is known from published research in psychology and other fields that male and female brains differ significantly. According to Moir and Jessel (1993), the brains of women and men process information differently, resulting in different perceptions, preferences and behaviours. According to Maccoby and Jacklin (1974), different areas of behaviour can be distinguished: they concern the emotional sphere (level of aggression) and the intellectual sphere (cognitive abilities, including linguistic, mathematical and visual-spatial abilities). Many studies conducted over the last two decades on the cognitive functioning of women and men confirm these conclusions (Reite et al., 1995; Shywitz et al., 1995; Voyer, 1996), additionally revealing their cultural universality (Silverman, Philips, 1996, as cited in Herman-Jeglińska, 1999). Furthermore, the division of intellectual abilities typical for women and men into verbal vs. visual-spatial resembles the characteristics of the specific processing of material by the left and right hemispheres of the brain. Hence, differences in cognitive functioning between the two sexes suggest a different organisation of the brain, which is also revealed in the pattern of lateralisation in the brain of both these functions and motor functions (Harshman, Hampson, Berenbaum, 1983; Bishop, 1990; Peters, 1994, as cited in Herman-Jeglińska, 1999). There are also differences in creative abilities. Hence, some researchers, such as Kosień (1999), undertake analyses in this area. The results of the author's research on boys and girls of school age indicate that girls in the study group demonstrate a higher level of creative abilities. This may indicate that anatomical differences in brain function in the age group studied may influence the level of creative abilities, which is higher in girls during this period. Similar conclusions were reached by Mirski, who found that the greatest (though still relatively small) differences between girls and boys exist in the creative sensuality subscale. It is possible that during adolescence, creativity in girls is even more personal and intimate in nature, while boys are more likely to associate their creativity with more practical and professional plans. In turn, in the creative sensuality subscale, the average score for girls was higher than for boys. This difference was also to be expected – girls' creativity, especially at this age, is associated with greater emotionality and perceptual sensitivity. Research is also being conducted on adults The results obtained in the study conducted by Proudfoot, Kay, Koval, (2015) do not specify gender differences so precisely, referring to them strictly in terms of creativity. It turned out that, depending on the field, a higher level of creativity is sometimes attributed to women and sometimes to men. For example, women dominated in the field of

fashion, while men dominated in creative speeches. Given these ambiguities, a study was conducted on these issues.

Table 1.
Creative life orientations (TOŻ) and conservative life orientations (ZOŻ) in the context of the gender of the respondents

Wersion A a b B					
Men- 547 osób			**Woman - 848 osób**		
Alfa-Cronbacha		0,665	Alfa Cronbacha	0,680	
	Ns+ - Ns-			**Ns+ - Ns-**	
relationship	persons	%	relationship	persons	%
>= 0	263	48,08%	>= 0	447	52,71%
< 0	284	51,92%	< 0	401	47,29%
	Nw+ - Nw-			**Nw+ - Nw-**	
relationship	persons	%	relationship	persons	%
>= 0	180	32,91%	>= 0	321	37,85%
< 0	367	67,09%	< 0	527	62,15%
	E+ - E-			**E+ - E-**	
relationship	persons	%	relationship	persons	%
>= 0	265	48,45%	>= 0	469	55,31%
< 0	282	51,55%	< 0	379	44,69%
	Tw+ - Tw-			**Tw+ - Tw-**	
relationship	persons	%	relationship	persons	%
>= 0	135	24,68%	>= 0	142	16,75%
< 0	412	75,32%	< 0	706	83,25%
	TOŻ -ZOŻ			**TOŻ -ZOŻ**	
relationship	persons	%	relationship	persons	%
>= 0	183	33,46%	>= 0	296	34,91%
< 0	364	66,54%	< 0	552	65,09%

*Wartość różnicy większa lub równa zero (>=0) oznaczała osobę z przewagą wartości TOŻ, natomiast wartość mniejsza od zera (<0) oznaczała osobę z przewagą wartości ZOŻ.

The distribution of responses is presented in Table 1, showing the 'Women' and 'Men' groups separately. The Cronbach's alpha coefficient for the Women group in the test (A, a, b, B) = 0.680 indicates high reliability of the tool used, while the Cronbach's alpha coefficient for the Men group in the test A, a, b, B = 0.665 also indicates high reliability of the tool used. 447 people (31.01% of respondents) in the 'Women' group show a predominance of TOŻ (TOŻ-ZOŻ>=0. while 401 people show a predominance of ZOŻ (TOŻ-ZOŻ<0. 263 people in the 'Men' group show a predominance of TOŻ (TOŻ-ZOŻ>=0), while 284 people show a predominance of ZOŻ (TOŻ-ZOŻ<0. It should be noted that no differences were observed when analysing the 'Women' and "Men" groups, and the predominance of TOŻ preferences was particularly evident in the areas of 'New situations' and 'Flexibility, agility and originality of thinking'. In the categories 'New creations' and 'Creativity as a value'. Only in category 'E' in the Men group are differences visible. It can therefore be concluded that the respondents answered all the questions asked of them honestly.

4. Summary

The subject of exploration discussed in this article concerned the preferences of respondents in terms of life orientation in the creative versus conservative dimension, taking into account the division into 'Women' and 'Men'. The research was selective in nature, although a significant group of respondents was surveyed. Nevertheless, in the author's opinion, this does not entitle her to make unambiguous conclusions or excessive generalisations. In the author's opinion, the attempts made so far to empirically examine the issue of creative life orientations have served not only to understand the phenomenon, but also to gain a deeper understanding of creativity as a specifically human form of social and economic organisation. This seems to be of paramount importance in view of the volatility and dynamics of the modern world, its complexity and intricacy. The empirical illustration of the concept of creative life orientations among the studied group presented in the article allowed for the verification of the assumptions made in the article. The author hopes that this inspiration in the search for an adequate theoretical expression of the model of life orientations in the creative versus conservative dimension has made it possible to indicate how the surveyed group of respondents, representing only a specific part of society, presents itself in this regard. It is worth remembering that the distinction between specific types of identity always takes place within the space of specific social phenomena.

In the light of the analyses carried out, the issue of examining the interdependence between gender and TOŻ was particularly important. It turned out that people employed in creative organisations did not show significantly greater differences based on gender. It was expected that the study would prove the thesis about the relationship between gender in a creative organisation and creative life orientations. It can therefore be concluded that creative life orientations are not determined by gender, but by environmental determinants and whether the individual strives to develop and train their own creativity. Pointing to an egolitarian approach to creativity, it can be said that every individual has creative abilities and traits, but there is a difference in their intensity. However, it is not only this that determines whether someone is creative or not. It seems, therefore, that other determinants definitely influence TOŻ preferences. The author hopes that this inspiration in the search for an adequate theoretical expression of the model of life orientations in the creative versus conservative dimension has made it possible to indicate how this area is presented. The analyses carried out allow us to conclude that the research results obtained explain many controversial issues and shed new light on the research conducted in this area. However, it should be emphasised that they require further study and analysis to explain the phenomenon. They thus become a field for discussion and the development of scientific discourse in the presented empirical works.

References

1. Amabile, T.M. (1988). A model of creativity and innovation in organizations. In *Research in organizational behavior, Vol. 10.* Staw, B.M., Cummings L.L. (Eds.). Greenwich, CT, USA: JAI Press, pp. 123-167.
2. Amabile, T.M. (1996). *Creativity in Context: Update to the Social Psychology of Creativity*. Boulder: Westview Press.
3. Amabile, T.M. (1997). Motivating creativity in organizations: on doing what you love and loving what you do. *California Management Review, No. 40(1),* pp. 39-58.
4. Amabile, T.M. Barsade, S.G. Mueller, J.S. Staw B.M. (2005). Affect and Creativity at Work. *Administrative Science Quarterly*, *No. 50(3),* pp. 367-403, doi:10.2189/asqu.2005.50.3.367
5. Anderson, N., Potočnik, K., Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management, No. 40,* pp. 1297-1333, doi: 10.1177/0149206314527128
6. Bergson, H. (1957). *Ewolucja twórcza*. Warsaw: Książka i Wiedza.
7. Blomberg, A. (2016). *Organizational creativity – hegemonic and alternative discourses*. *Turku School of Economics. Series A.* Retrieved from: https://www.utupub.fi/bitstream/handle/10024/119889/Ae1_2016.pdf?sequence=2&isAllowed=y, 29 April 2021.
8. Bratnicka-Myśliwiec, K. (2019). *Bogactwo społeczno-emocjonalne i twórczość organizacyjna w przedsiębiorstwie.* Katowice: Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach.
9. Choi, J.N., Anderson, T.A., Veillette, A. (2009). Conceptual Inhibitors of Employee Creativity in Organizations: The Insulating Role of Creative Ability. *Group and Organization Management*, *No. 34(3),* pp. 330-357, doi.org/10.1177/1059601108329811
10. Cortada, J. (2017). *Rise of the Knowledge Worker*. Routledge: New York, USA.
11. Csikszentmihalyi, M. (1988). Society, culture, and person: a systems view of creativity. In: R. Sternberg (Ed.), *The nature of creativity: contemporary psychological perspectives.* Cambridge, UK: Cambridge University Press, pp. 325-339.
12. Csikszentmihalyi, M. (1997). *Creativity. Flow and the psychology of discovery and invention*. New York, USA: HarperCollins.
13. Cudowska, A. (2004). *Twórcze orientacje życiowe w dialogu edukacyjnym: studium teoretyczno-empiryczne.* Bialystok: Trans Humana.
14. Diliello, T.C., Houghton, J.D. (2016). Maximizing organizational leadership capacity for the future. *Journal of Managerial Psychology*, *No. 21,* pp. 319-337, doi:10.1108/02683940610663114
15. Ford, C.M. (1996). A theory of individual creative action in multiple social domains. *Academy of Management Review, No. 21(4),* 1112-1142, doi:10.2307/259166

16. Gaižauskienė, L. Tunčikiene, Z. (2016). The concept and role of knowledge worker and workplace fit in learning organization. *International Journal of Learning and Change*, *Vol. 8(3/4),* pp. 245-260, doi: 10.1504/IJLC.2016.081650
17. Ibrahim, N.H., Haron, S. (2014). *Conceptualizing Employee's Creativity And Innovation For Effective Leadership*. Proceedings of the 2nd Technology, Science, Social Sciences & Humanities International Conference (TeSSHI), Malaysia, 5-6 November 2014. Retrieved from: https://www.researchgate.net/publication/271447492_Conceptualizing_Employee%27s_Creativity_And_Innovation_For_Effective_Leadership, 29 April 2021.
18. Johnson, A.P. (2021). *Education Psychology: Theories of Learning and Human Development*, *2014*. EL Cajon, CA, USA: National Science Press. Retrieved from: www.nsspress.com, 22 April 2021.
19. Kozielecki, J. (1997). *Transgresja i kultura*. Warsaw: Żak.
20. Liu, C.-H.S. (2018). Examining social capital, organizational learning and knowledge transfer in cultural and creative industries of practice. *Tourism Management*, *No. 64,* 258-270, doi: 10.1016/j.tourman.2017.09.001
21. Luu, T.T. (2019). Can diversity climate shape service innovative behavior in Vietnamese and Brazilian tour companies? The role of work passion. *Tourism Management*, *No. 72,* pp. 326-339, doi: 10.1016/j.tourman.2018.12.011
22. Mathisen, G.E., Einarsen, S., Jorstad, K., Bronnick, K.S. (2004). Climate for work group creativity and innovation: Norwegian validation of the team climate inventory (TCI). *Scandinavian Journal of Psychology*, *No. 45,* pp. 383-392, doi: 10.1111/j.1467-9450.2004.00420.x
23. Morin, E. (1977*). O Método I: A Natureza da Natureza. 2nd ed.* Lisbona: Publicações Europa América.
24. Nęcka, E. (1995). *Proces twórczy i jego ograniczenia*. Cracow: Impuls.
25. *Nickols, F. Drucker's Dictums: Knowledge Work, Workers & Working* (2016). Retrieved from: https://www.nickols.us/DruckersDictums.pdf, 10 January 2021.
26. Schulz, R. (1990). *Twórczość. Społeczne aspekty zjawiska*. Warsaw: PWN.
27. Sherringham, K., Unhelkar, B. (2020). *Crafting and Shaping Knowledge Worker Services in the Information Economy.* Singapore: Palgrave Macmillan.
28. Shin, S.J., Kim, T., Lee, J., Bian, L. (2012). Cognitive Team Diversity and Individual Team Member Creativity: A Cross-Level Interaction. *Academy of Management Journal*, *No. 55,* pp. 197-212, doi: 10.5465/amj.2010.0270
29. Sirkova, M., Ali Taha, V., Ferencova, M. (2014). An analytical study on organizational creativity: Implications for management. *Polish Journal of Management Studies*, *No. 10(2),* pp. 179-18, EID: 2-s2.0-84921990788
30. Slåtten, T., Svensson, G., Sværi, S. (2011). Empowering leadership and the influence of a humorous work climate on service employees' creativity and innovative behaviour in

frontline service jobs. *International Journal of Quality and Service Sciences*, *Vol. 3(3),* pp. 267- 284, doi: 10.1108/17566691111182834.

31. Sobocka-Szczapa, H. (2020). Acquiring knowledge workers in organizations. *Ekonomia i Prawo. Economics and Law*, *No. 19(1),* pp. 119-134, doi:10.12775/EiP.2020.009
32. Sternberg, R.J. (2006). The nature of creativity. *Creativity Research Journal, No. 18(1)*, pp. 87-98*,* doi: 10.1207/s15326934crj1801_10
33. Turriago-Hoyos, A., Thoene, U., Arjoon, S. (2016). Knowledge workers and virtues in Peter Drucker's management theory. *Sage Open*, *No. 6(1),* pp. 1-9, doi:10.1177/2158244016639631
34. Wilson, C. (2017). *Are all workers knowledge workers? New Economy knowledge workers - Part 1*. Michigan State University Extension. Retrieved from: https://www.canr.msu.edu/news/are_all_workers_knowledge_worker_new_economy_knowledge_worker_part_1, 10 July 2020.
35. Woodman, R.W., Sawyer, J.E., Griffin, R.W. (1993). Toward a theory of organizational creativity. *The Academy of Management Review*, *No. 18(2),* p. 293.
36. Wright, M., Tartari, V., Huang, K.G., Di Lorenzo, F., Bercovitz, J. (2018). Knowledge Worker Mobility in Context: Pushing the Boundaries of Theory and Methods. *Journal of Management Studies*, *No. 55(1),* pp. 1-26, doi: 10.1111/joms.12316
37. Zhou, J., Shalley, C.E. (2008). *Handbook of Organizational Creativity*. New York: Lawrence Erlbaum.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

FROM MARGINALISATION TO EMPLOYMENT: STRENGTHENING HUMAN CAPITAL OF MIGRANT NEETS

Katarzyna STANKIEWICZ

Gdańsk University of Technology; katarzyna.stankiewicz@pg.edu.pl, ORCID: 0000-0002-9780-7702

Purpose: This article aims to analyse and evaluate the model for strengthening the competences and human capital of migrant and refugee NEETs developed in the NewComers@Work project with particular attention to its significance for the effective use of the potential of this group in the labour market across diverse European contexts.
Design/methodology/approach: The article draws on an analysis of the implementation of the NewComers@Work project (2022-2025), including reports produced within the project, training programmes, documentation of pilot activities, and the results of consultations with youth workers and employers. The model developed within the project combines the development of individual competences with mentoring and cooperation with the labour market, and refers to the concepts of multidimensional integration, the capability approach, and social capital theory.
Findings: Effective labour market integration of migrant and refugee NEETs requires the simultaneous strengthening of individual competences and the development of bridging social capital through direct cooperation with employers. The model increases employability and reduces the risk of "brain waste". The effectiveness of these actions depends on the flexibility of support and on cross-sectoral partnerships.
Research limitations/implications: A key limitation of the study lies in the pilot nature of the implemented activities and the lack of long-term observation of the outcomes achieved.
Practical implications: The practical and social implications concern approaches to strengthening competences and human capital that may also be applied to other groups at risk of marginalisation in the labour market.
Originality/value: The article presents the NewComers@Work project as a model for the development of human capital rather than solely as an integration initiative. Its value lies in combining theoretical foundations with practical implementation in diverse European contexts.
Keywords: Human Capital; Competences; NEET; Migrant NEETs; NewComers@Work Project.
Category of the paper: case study.

1. Introduction

Migration is not a new phenomenon in Europe; however, recent years have brought an increase in both its scale and complexity. Wars, natural disasters, and deteriorating living conditions in many regions of the world are prompting a growing number of people to seek safety and stability in European Union countries. The scale of this situation makes the integration of migrants and refugees one of the key social and economic challenges facing the EU (OECD, 2025).

The situation is particularly difficult for migrants and refugees belonging to the NEET[1] group. Eurostat data (2024) indicate that young migrants are significantly more exposed to poverty and marginalisation than their peers from the host population. This is influenced by the accumulation of factors such as migrant background, low levels of education, and language barriers. In the context of the EU labour market, which is increasingly based on human capital, the lack of professional, language, digital, and social competences further limits their employment opportunities (Rahmani, Groot, Rahmani, 2024; World Bank, 2019). These competence deficits are often further intensified by migration experiences, the lack of recognition of prior qualifications, and insufficient support (European Commission, 2020). In this context, the full social and economic integration of this group has become a significant challenge.

The project NewComers@Work: Strengthening the Employability of Young Refugee and Migrant NEETs was developed in response to these challenges. Its main objective was to strengthen the competences and position of young migrants and refugees through activities aimed at increasing their employment opportunities and supporting their sustainable social and labour market integration. The project was implemented through a transnational partnership, which made it possible to take into account diverse national contexts while enabling the exchange of experiences between organisations working with migrants.

This article aims to analyse and evaluate the model for strengthening the competences and human capital of migrant NEETs (mNEETs) developed within the NewComers@Work project, with particular attention to its significance for the effective use of the potential of this group in the labour market across diverse European contexts

2. Migrant NEETs in Europe- labour market context and integration models

The term NEET (Not in Employment, Education or Training) refers to young people, most commonly aged 15-29, who are not working, studying, or participating in training (Eurostat Glossary). In the literature, it has often been stereotypically suggested that the factors leading to NEET status stem primarily from individual characteristics and deficits. However, analyses conducted in various European countries show that this phenomenon is more accurately understood as the result of a complex combination of individual and institutional factors, such as the functioning of education systems, labour market policies, and the availability of support systems (Rocca et al., 2022). Some authors go even further, rejecting the individualisation of the "NEET problem" altogether and pointing instead to structural conditions—including transformations in labour markets, limitations in support systems, and socio-economic inequalities—as the main drivers behind the growth of this group (Lőrinc et al., 2020).

The NEET rate is one of the key indicators used to assess the functioning of youth labour markets as well as the effectiveness of education systems and employment policies in the EU. In 2024, the NEET rate in the EU remained significant at 11.1%, with considerable variation across countries from below 5% in some Western European states to around 20% in certain countries in Southern and Eastern Europe (Eurostat, 2025). Compared with the general youth population, the situation of young migrants and refugees is particularly disadvantageous, as they are significantly more likely to belong to the NEET group. A migrant background substantially increases the risk of remaining outside both education and the labour market (Alonso et al., 2022). Young migrants and refugees often experience a cumulative set of integration barriers, including language barriers that hinder access to both education and employment (Fasani, 2024). An additional challenge is the non-recognition of qualifications and the frequent occurrence of employment below one's level of competence (brain waste), resulting from difficulties in recognising diplomas and professional experience acquired in the country of origin. The situation is further exacerbated by psychosocial factors such as migration-related trauma, legal uncertainty, and limited support networks (Eurofound, 2022; OECD, 2025). At the same time, research conducted in different regions indicates that the scale and nature of these difficulties are strongly shaped by the regional context, including the functioning of local labour markets, education systems, and the availability of institutional support systems (Rocca et al., 2022; Kallenberg, 2020). As a result, the human capital of this group often remains persistently underutilised, with consequences at both the individual and the socio-economic level.

In response to these conditions, the NewComers@Work project was grounded in the concept of integration understood as a multidimensional process. According to the framework proposed by Ager and Strang (2008), integration encompasses social relations, cultural adaptation, civic engagement, and participation in economic life. It is not a one-sided process of assimilation but rather a dynamic relationship between migrants and host communities. Labour market integration therefore goes beyond simple employment activation and includes the development of sustainable employability as well as the ability to function in intercultural environments. This perspective is consistent with Sen's (2002) capability approach, which emphasises strengthening individuals' real opportunities to choose and pursue their life paths. Putnam's (2008) theory of social capital was also an important reference point. The development of so-called bridging social capital through mentoring and cooperation with employers constituted one of the key elements of the adopted strategy.

The project also incorporated a structural perspective. Integration barriers are systemic in nature and include, among other factors, difficulties in the recognition of qualifications, limited access to professional networks, and discriminatory practices (OECD, 2025). For this reason, the project assumed the involvement of employers as partners in the integration process and the creation of collaborative frameworks enabling the monitoring of progress and the adjustment of support to the individual needs of participants. This approach is consistent with the Action Plan on Integration and Inclusion 2021-2027 (European Commission, 2020), which emphasises the importance of cross-sector partnerships and the shared responsibility of public institutions, civil society organisations, and the private sector. From this perspective, strengthening the human capital of young migrants requires both the development of individual competences and the creation of more inclusive institutional and professional environments.

3. The NewComers@Work project- objectives, structure, and operational strategy from a human capital perspective

The project NewComers@Work: Strengthening the Employability of Young Refugee and Migrant NEETs was implemented between 2022 and 2025 under the Erasmus+ Programme, Key Action 2: Cooperation Partnerships in Youth (KA220-YOU)[2]. The project involved a partnership of seven organisations from six European Union countries. The project coordinator was Gdańsk University of Technology, while the partner organisations included: FRAME Foundation for the Development of International and Educational Activity (Poland), Athens Lifelong Learning Institute (Greece), Social Impact Development Centre (Luxembourg), Amadora Innovation em Unipessoal LDA (Portugal), Asociația Institutul pentru Parteneriat Social Bucovina (Romania), and PRISM Impresa Sociale S.R.L. (Italy)[3].

The diversity of the partners' organisational profiles made it possible to combine a research perspective with practical experience in youth work, social integration, and cooperation with the labour market. The transnational character of the project reflected the significant differences in migration contexts across the partner countries (OECD, 2021). Poland and Romania experienced an unprecedented inflow of refugees from Ukraine. Italy and Greece faced intensified migration along Mediterranean routes. Portugal recorded increasing immigration both from Portuguese-speaking countries and from Asia. Luxembourg has one of the highest shares of foreign-born residents in the EU, and its migration profile is primarily economic in nature, linked to the financial sector and the presence of international institutions (OECD, 2025). Such diverse labour market and institutional conditions required and at the same time enabled the development of a flexible model of activities adapted to different national contexts and focused on identifying and strengthening the competence potential of mNEETs.

The main objective of the project NewComers@Work: Strengthening the Employability of Young Refugee and Migrant NEETs was to strengthen the competences and position of young migrants and refugees through activities aimed at increasing their employment opportunities and supporting their sustainable social and labour market integration. The project also defined a set of specific objectives addressing different stages of the social inclusion process. These included, among others: creating safe and mutually respectful environments for beneficiaries, enhancing their qualifications through personalised educational and training activities, identifying and developing their career goals and aspirations, providing personalised support for entering the labour market, and offering mentoring support during the initial stage of professional activity.

To make the achievement of these objectives more feasible, the operational strategy adopted in the project assumed comprehensive and simultaneous activities targeting three groups: mNEETs, specialists working with young people (youth workers, trainers of vocational and social skills, and staff of migrant support centres), as well as employers and HR professionals. Activities directed at specialists aimed to expand and deepen their competences and to equip them with tools necessary for working with mNEETs, including after the completion of the project. In turn, activities addressed to employers and HR specialists were intended to build bridges between mNEETs and the labour market, among others by creating real pathways to employment and mentoring opportunities.

4. Implementation process of the NewComers@Work project

The implementation of the NewComers@Work project was designed as a coherent and structured process aimed at moving from identifying the needs of mNEETs, through the development of appropriate support tools, to the implementation and evaluation of the outcomes

of the activities undertaken. The adopted project implementation logic included the following successive stages:

1. Needs identification:
   a. preparation of national reports on the situation of mNEETs and the conditions of local labour markets in the partner countries,
   b. preparation of a needs analysis report (Needs Analysis – Common Report) identifying key barriers and areas of competence requiring support.
2. Development and testing of tools:
   a. development of the NewComers@Work curriculum as well as materials and tools for specialists working with young people (Digital Toolbox),
   b. pilot implementation of the programme in local communities.
3. Refinement and finalisation of tools:
   a. evaluation of activities and the refinement and finalisation of project tools.

The sequence of activities planned in this way ensured coherence between needs identification and the design of solutions, while enabling a gradual transition from analysis to practical outcomes supporting the development of competences and the human capital of mNEETs.

In the first stage, reports on the situation of mNEETs in the partner countries were prepared. These reports covered, among other aspects, the specific characteristics of local labour markets, the scale and profile of mNEETs, and the available forms of support. The national reports made it possible to identify both shared challenges and specific conditions resulting from local institutional and social systems. In Greece, the labour market was characterised by the seasonality of employment and a relatively low motivation for long-term labour market integration, resulting from the perception of the country as a transitional stage in onward migration. In Luxembourg, despite well-developed institutional support systems, a key challenge was the multilingual nature of the labour market and the difficulty of accessing positions corresponding to migrants' qualifications. In Poland, the mass inflow of refugees from Ukraine was associated with a mismatch between qualifications and labour market needs, as well as limited access to systematic Polish language training. In Portugal, particular emphasis was placed on psychosocial barriers, including experiences of discrimination, mental health challenges, and difficulties in balancing labour market participation with care responsibilities, especially among young women. In Italy, regional disparities in the labour market played a significant role, along with the concentration of mNEETs in low-paid and unstable sectors such as agriculture, hospitality, and services. In Romania, the report highlighted a combination of poverty, limited work experience, and weakly developed local support systems, which increased the risk of prolonged NEET status. In addition to these differences, the reports also confirmed the presence of common barriers, particularly limited knowledge of the host country's language, deficits in digital and soft skills, and low levels of self-confidence in interactions with the labour market.

In the second part of this stage, the Needs Analysis – Common Report[4] was prepared on the basis of a synthesis of the national reports and qualitative data obtained from in-depth interviews and focus groups with practitioners working with young migrants. The analysis identified key integration barriers common to all partner countries, primarily language barriers and deficits in soft skills, reinforced by psychosocial factors, as well as a mismatch between existing forms of support and the specific needs of mNEETs, and the lack of tools enabling individualised work with this group. The analysis of interviews and focus groups also revealed characteristic national differences. In Poland, the coexistence of language barriers and psychosocial burdens such as war-related trauma and family separation was particularly visible among young refugees from Ukraine. This often resulted in employment below their qualifications and highlighted the need for long-term, individualised support. In Greece, labour market instability was accompanied by a high motivation to acquire practical skills. In Italy, the main challenge was the fragmentation of education-to-work pathways and frequent job turnover. In Luxembourg, high formal requirements constituted a major barrier, while in Portugal there was a strong need for closer institutional cooperation. In Romania, weak links with employers and the lack of tools for planning career development pathways were identified as key challenges. The findings confirmed that effective support for mNEETs requires both addressing common integration barriers and taking into account local institutional and labour market conditions.

In the second stage of the project, the NewComers@Work Curriculum[5] and the Digital Toolbox[6] were developed. The Digital Toolbox contains good practices, online tools, and ready-to-use resources for youth workers, employers, and institutions. The curriculum was designed as modular and flexible so that it could be adapted to the specific conditions of different countries and institutions while maintaining a common core set of competences. Each of the four modules included complete workshop scenarios with detailed instructions, training materials, and additional reference sources. Module 1 addressed the needs of mNEETs identified in the first stage and focused on recognising individual needs, barriers, and resources in order to plan further development activities and define realistic educational and career goals.

Module 2 supported the development of language and digital skills and focused on practical aspects of communication, job search strategies, and the safe and effective use of digital tools. Module 3 addressed soft skills that increase the chances of social integration and employment. Module 4 supported the development of cooperation between mNEETs, youth workers, and local stakeholders, particularly employers, creating a coherent support ecosystem that facilitates sustainable integration into the labour market. The individual modules were designed so that they could be implemented either sequentially, as a coherent developmental process, or as standalone thematic workshops. This allowed youth workers to adapt the course of activities to the participants' level of competences, motivation, and life circumstances. Such an approach made it possible to use the programme both in long-term support processes and in shorter educational interventions.

The third stage of the project involved the pilot implementation of the developed tools in local environments across the partner countries. The activities were carried out within existing support structures, such as non-governmental organisations and integration centres cooperating with local labour markets. The pilot phase consisted of testing selected programme modules through group workshops, individual work, and mentoring activities adapted to the competences and life situations of the participants. During the implementation, youth workers used the developed training materials, including tools for needs assessment, planning individual development pathways, and monitoring participants' progress. The use of workshop scenarios and exercises made it possible to assess their practical usefulness in working with mNEETs. At the same time, elements of cooperation with the labour market environment were also tested, particularly contacts with employers and the use of the Digital Toolbox as support for the process of young migrants' adaptation to professional environments.

At a general level, the results of the pilot phase confirmed the usefulness of the programme's modular structure and the practical nature of the tools supporting the individualisation of work with mNEETs. Improvements were observed in participants' understanding of the labour market, increased engagement in educational activities, and a greater willingness to engage with employers. At the same time, the pilot phase revealed the need to simplify some of the content, extend work on language competences, and further refine the tools used for planning individual development pathways.

The pilot results in individual countries also confirmed the importance of linking and adapting forms of support to local conditions. In Poland, the effectiveness of the activities increased significantly when they were combined with psychosocial support, particularly in work with young refugees from Ukraine, who initially demonstrated a limited readiness to plan their career paths. In this context, individual work and the gradual development of a sense of agency proved particularly important. In Greece, the effectiveness of short, intensive workshop formats was confirmed, with participants highly valuing the practical character of the sessions and their direct connection to labour market requirements. In Italy, mentoring activities and modules aimed at developing soft skills played an important role, particularly in relation to communication and functioning in the workplace, while at the same time highlighting the need for longer support during the transition from education or inactivity to employment. In Luxembourg, a key conclusion was the need to further simplify tools for participants with limited language proficiency and to combine language support with elements of workplace-based learning. In Portugal, the pilot confirmed the importance of intermediary institutions and local partnerships, highlighting the usefulness of tools supporting communication between youth workers and employers, as well as the role of the Digital Toolbox in facilitating the adaptation of mNEETs to the work environment. In Romania, the pilot demonstrated the need to equip youth workers with more detailed tools and methodological guidelines for planning individual development pathways, particularly when working with young migrants with highly

diverse educational backgrounds, the absence of which limited the possibility of implementing coherent and long-term developmental support.

Based on the results of the pilot phase, specific modifications were introduced to the curriculum. These included simplifying selected content, expanding the set of tools for individual development pathway planning, and clarifying how the Digital Toolbox should be used in activities implemented in cooperation with employers. These changes increased the programme's operational usability and facilitated its application in diverse national contexts. It should be noted that the pilot results presented here refer to a relatively short period of implementation and do not include an assessment of long-term outcomes. Nevertheless, they allow for a positive evaluation of the programme's usefulness and its alignment with the needs of mNEETs.

5. Project outcomes- implications for human capital development

From the perspective of human capital development, the NewComers@Work project contributed to increasing the capacity of mNEETs to participate in the labour market through the development of competences with high adaptive value. In particular, language, digital, and soft skills were strengthened, as these determine the ability to learn in the workplace and to maintain employment. At the same time, an increase in participants' sense of agency and readiness to make educational and career-related decisions was observed, which is of key importance for activating individuals who have previously remained outside the labour market.The scale of participation in the pilot activities also indicates a genuine interest among this group in programmes aimed at strengthening competences. In total, 366 young migrants and refugees from the NEET group completed the full cycle of support within the project, which included training activities, mentoring, and elements of workplace-based learning, with the involvement of 90 employers participating in the pilot process. In line with the project's assumptions, efforts were made to create approximately 50 employer–participant matches in each partner country, although in practice one employer could support more than one participant. The initially planned model of three-month work placements was adapted during the implementation phase to the legal and organisational conditions of individual countries and ultimately took the form of a hybrid model lasting at least two months, combining workplace experience with additional training and mentoring provided by partner organisations.

The project also contributed to improving the efficiency of the use of institutional resources by strengthening the competences of professionals working with mNEETs and by standardising the tools used in developmental work. The application of a common modular programme enabled more precise tailoring of support to the participants' profiles, thereby reducing the risk of inefficient allocation of training and advisory activities. Institutions implementing the project

gained solutions that can be reused and scaled without the need to design new interventions each time. In this perspective, the project addressed the problem of underutilised or insufficiently utilised human capital among mNEETs, whose potential was constrained by language, competence-related, and psychosocial barriers. The project activities contributed to reducing these barriers, thereby increasing the chances of more effective inclusion of this group in educational and labour market processes and decreasing the risk of long-term economic inactivity.

The key success factors of the project included a solid needs-based diagnosis underpinning the intervention, the modular and flexible structure of the programme, the possibility of individualising development pathways, and the parallel involvement of different stakeholder groups. Of particular importance was the tripartite model of activities involving mNEETs, youth workers, and employers, which increased the efficiency of resource use and strengthened the sustainability of the results.

At the same time, the limitations of the project should be acknowledged. The pilot nature of the implementation and the limited time horizon do not allow for an assessment of long-term outcomes in terms of employment stability or productivity growth among participants. The effectiveness of the activities was also partly dependent on local institutional conditions and the availability of labour market partners. Despite these limitations, the adopted model of action can be applied in different EU countries, combining a common competence framework with the possibility of adaptation to local labour markets. From the perspective of human capital development, the project represents an example of an intervention that enables the effective strengthening and utilisation of the competences of individuals from a group at high risk of long-term exclusion from the labour market, while requiring relatively low adaptation costs across different institutional contexts.

6. Conclusion

The implementation of the NewComers@Work project confirmed that the effective integration of migrants and refugees from the NEET group into the labour market requires a systemic approach combining needs assessment, individualised competence development, and cross-sector cooperation. The project results indicate that strengthening language, digital, and soft skills, complemented by individual support, increases the readiness of mNEETs to engage in educational and professional activities and reduces the risk of long-term inactivity.

An important outcome was also the increased effectiveness of activities through the application of a modular programme enabling the individualisation of support. Such a solution reduces the risk of a mismatch between forms of support and participants' needs and increases the potential for replication and scaling of activities in different national contexts.

Additional value resulted from the parallel involvement of migrant and refugee NEETs, youth workers, and employers in the training activities. This approach made it possible to better align competence development with the actual requirements of the labour market and to strengthen the sustainability of the outcomes achieved.

At the same time, the limitations resulting from the pilot nature of the implementation and the relatively short observation period should be acknowledged, as they do not allow for a full assessment of long-term employment outcomes. The effectiveness of the activities also remains partly dependent on local institutional conditions and the structure of labour markets. Moreover, the level of labour market participation among migrants and the scale of the NEET phenomenon may differ significantly across host countries due to variations in migration structures, economic conditions, and integration policies. For this reason, the perspective presented here has a model character and does not include a detailed comparative analysis of these differences, which could be further developed in future research using quantitative data.

From the perspective of human capital development, the model presented constitutes an example of an intervention that enables more effective support for strengthening the human capital of individuals from groups at high risk of labour market exclusion while maintaining the flexibility needed to adapt to the diverse realities of European labour markets.

References

1. Ager, A., Strang, A. (2008). Understanding integration: A conceptual framework. *Journal of Refugee Studies*, *21*(2), 166-191. https://doi.org/10.1093/jrs/fen016
2. Alonso, P.C., Iniesta, M.A., Muñoz, S.P. (2022). Barriers that keep vulnerable people as NEETs. *Social Sciences*, *11*(6/253). https://doi.org/10.3390/socsci11060253
3. Eurofound (2022). *Living and working in Europe 2021*. Luxembourg: Publications Office of the European Union. Retrieved from: www.eurofound.europa.eu/en/publications/all/living-and-working-europe-2021
4. Eurofound (n.d.). *NEETs*. Retrieved from: www.eurofound.europa.eu/en/topic/neets
5. European Commission (2020). Action Plan on Integration and Inclusion 2021–2027. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Retrieved from: eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52020DC0758
6. Eurostat (2024). *Migrant integration statistics – socioeconomic situation of young people*. Retrieved from: ec.europa.eu/eurostat/statistics-explained/index.php/Migrant_integration_statistics_-_socioeconomic_situation_of_young_people

7. Eurostat (2025). *Statistics on young people neither in employment nor in education or training.* Retrieved from: ec.europa.eu/eurostat/statistics-explained/index.php/Statistics_on_young_people_neither_in_employment_nor_in_education_or_training
8. Eurostat. *Glossary: Young people neither in employment nor in education or training (NEET).* Retrieved from: ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Young_people_neither_in_employment_nor_in_education_and_training_(NEET)
9. Fasani, F. (2024). *New approaches to labour market integration of migrants and refugees.* Brussels: Policy Department for Economic, Scientific and Quality of Life Policies (PE 754.232).
10. Kalleberg, A.L. (2020). Labor market uncertainties and youth labor force experiences: Lessons learned. *The Annals of the American Academy of Political and Social Science*, *688*(1), 258-270. https://doi.org/10.1177/000271622091386
11. Lőrinc, M., Ryan, L., D'Angelo, A., Kaye, N. (2020). De-individualising the 'NEET problem': An ecological systems analysis. *European Educational Research Journal*, *19*(5) 412-427. https://doi.org/10.1177/147490411988040
12. OECD (2021). *International Migration Outlook 2021*. Paris: OECD Publishing. https://doi.org/10.1787/29f23e9d-en
13. OECD (2025). *International Migration Outlook 2025*. Paris: OECD Publishing. https://doi.org/10.1787/ae26c893-en
14. Putnam, R.D. (2008). *Samotna gra w kręgle. Upadek i odrodzenie wspólnot lokalnych w Stanach Zjednoczonych [Bowling Alone: The Collapse and Revival of American Community]*. Warszawa: Wydawnictwa Akademickie i Profesjonalne.
15. Rahmani, H., Groot, W., Rahmani, A.M. (2024). Unravelling the NEET phenomenon: A systematic literature review and meta-analysis of risk factors for youth not in education, employment, or training. *International Journal of Adolescence and Youth*, *29*(1). https://doi.org/10.1080/02673843.2024.2331576
16. Rocca, A., Neagu, G., Tosun, J. (2022). School-work transition of NEETs: A comparative analysis of European countries. *Youth & Society*, *54,* 130-152. https://doi.org/10.1177/0044118X2110517
17. Sen, A. (2002). *Rozwój i wolność [Development as Freedom]*. Poznań: Zysk i S-ka.
18. World Bank (2019). *World Development Report 2019: The Changing Nature of Work*. Washington, DC. Retrieved from: documents1.worldbank.org/curated/en/816281518818814423/pdf/2019-WDR-Report.pdf

Footnotes

[1] In the following sections of the article, the abbreviation mNEET will be used instead of the full term "migrants and refugees belonging to the NEET group".

[2] NewComers@Work project website, available at: https://newcomersatwork.eu/, January 2026.

[3] More information about the project partners, available at: https://newcomersatwork.eu/about, January 2026.

[4] Reports are available at: https://newcomersatwork.eu/resources/, January 2026.

[5] NewComers@Work curriculum, available at: https://newcomersatwork.eu/2026/01/07/newcomerswork-curriculum/, January 2026.

[6] NewComers@Work Digital Toolbox, available at: https://www.newcomersatworktoolbox.eu/ January 2026.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

PREFERRED AND AVOIDED LEADERSHIP STYLES OF HRBPS: EVIDENCE FROM THE WERK INVENTORY

Marzena STASZKIEWICZ[1*], Katarzyna KLIMKIEWICZ[2]

[1] AGH University of Krakow; staszkiewicz@agh.edu.pl, ORCID: 0000-0003-3249-9945
[2] AGH University of Krakow; kklimkie@agh.edu.pl, ORCID: 0000-0003-2927-8308
*Correspondence author

Purpose: The aim of the article is to identify the leadership styles applied by HRBPs and then determine whether individuals performing this function display flexible use of different styles, or whether they exhibit clear preferences, dominance, or avoidance of specific forms of leadership (WERK). The results are discussed in the context of contemporary requirements ascribed to the HRBP role in the relevant literature.
Methodology: The study was conducted among 90 HRBPs using the Leadership Styles Inventory WERK, which diagnoses leadership preferences in four areas: Cheerleader, Steward, Revolutionary, and Captain. Statistical analyses were applied, including measures of central tendency, standard deviations, and significance tests of differences.
Findings: The results indicate the dominance of the Captain and Cheerleader styles among the HRBPs surveyed, with clearly lower scores for the Steward and Revolutionary styles. This means that, in their leadership behaviours, HRBPs most frequently display a task-oriented approach (implementation, decisiveness) or a relationship-oriented approach (empathy, communication). A significant gender difference was found on the Cheerleader scale, where women obtained higher scores.
Research limitations/implications: Study limitations include the sample size, absence of key contextual variables, and reliance solely on self-report measures. Future research should incorporate subordinates' perspectives and a longitudinal design to provide a more comprehensive analysis of HRBP leadership styles.
Practical implications: The findings help organisations deliberately design the HRBP role and plan development by highlighting both strengths in task–relationship styles and competency gaps.
Social implications: The results clarify how HR specialists interpret their leadership role, encouraging reflection on its impact on employee experience, organisational climate and culture.
Originality: The article is one of the first studies to combine empirical data obtained using the WERK Leadership Style Inventory with the current conceptualisation of the HRBP role in Polish literature, presenting the leadership profile of HRBPs.
Keywords: HR Business Partner, leadership styles, WERK Leadership Style Inventory.
Category of the paper: Research paper.

1. Introduction

The HR Business Partner (HRBP) role is becoming increasingly important in organizations. HRBPs are expected not only to know HR processes, but also to shape organizational culture, support managers, and drive development and transformation. As a result, leadership competences are key to HRBP effectiveness in both daily operations and building long-term business relationships. The literature shows that HRBPs combine strategic roles—business (strategic) partner and change agent—with operational ones—administrative expert and employee advocate (Buckley, Monk, 2004; Ulrich, Brockbank, 2008)—integrating the perspectives of employees, managers, and the organization. HRBP tasks span relational, operational, and strategic areas. Because of this complexity, competences in leadership, influence, relationship building, and change support are crucial to HRBP effectiveness. They enable collaboration with stakeholders, execution of daily tasks, and participation in designing and implementing long-term organizational solutions, thus significantly shaping both functional and strategic HR (Lo, Macky, Pio, 2015). This broad responsibility makes it impossible to define a single leadership style suitable for all HRBP situations. Therefore, analysing preferred and avoided leadership styles among HRBPs is essential to understand how they shape their leadership behaviours, build employee relationships, and manage change, tasks, and organizational structures.

One of the tools enabling an objective diagnosis of a preferred leadership style is the Leadership Styles Inventory WERK, developed by Brzezińska and Rafalak (2015). WERK identifies four distinct styles— Cheerleader, Steward, Revolutionary, and Captain— which represent characteristic ways in which a leader functions in relation to people and tasks. WERK is a tool with solid theoretical and psychometric foundations, and its growing presence in scientific research confirms its usefulness for analysing leadership behaviours in various professional groups (Brzezińska, Rafalak 2015; Rozbejko, 2019; Czarska-Bonanaty, 2020; Kraczla, 2020; Kowal, Zaremba, Ziobrowska, 2023). Despite extensive literature on HR leadership, few studies examine the leadership styles of HR Business Partners (HRBPs) directly. Analysing WERK profiles in this group can therefore substantially advance knowledge of contemporary HR specialists' leadership behaviours. The aim of this article is to determine whether individuals performing HRBP role are characterised rather by flexible use of different styles, or whether they exhibit clearly preferred, dominant, or avoided forms of leadership. The research findings presenting these patterns are discussed in the context of the challenges and expectations associated with the HRBP function.

2. Leadership in HR Business Partner role

The HRBP role is a key element in transforming HR into a strategic partner, a shift discussed in the literature since the 1990s, especially in Dave Ulrich's (1997) concept. Over the past three decades, people management has evolved from traditional personnel administration, through functional HR, to strategic partnership focused on creating value for the business and its stakeholders (Ulrich, Dulebohn, 2015). The latest HR Competency Study (HRCS), a key indicator of HR's evolution, identifies five main HRBP competencies: supporting organizational market goals, developing human capabilities, using data to prioritize human capital investments, building positive relationships within HR and across the organization, and simplifying complex processes in a dynamic environment (Ulrich et al., 2021). This highlights how HRBPs, as strategic advisors, work with management to align HR activities with organizational goals. As Ulrich et al. (2012) note, the strategic partner role involves not only participating in decision-making, but also influencing organizational development by introducing innovations and shaping HR policies consistent with business objectives. Cooperation between HRBPs and managers should be a direct, strategic, multidimensional relationship aimed at aligning HR activities with organizational business goals. Through joint strategic efforts, they can build an efficient work environment that supports the company's overarching objectives (Siska et al., 2024). In this context, beyond business orientation and skills in technology, digitalization and data analysis, particular emphasis is placed on HRBPs' abilities in relationship management, advising, influencing, and shaping business decisions (Wash, 2023). A key element of the HRBP role is its leadership-oriented, though non-hierarchical, nature. As Reilly (2012) notes, although HRBPs usually lack formal authority over line managers, they provide advice, coaching and moderation. In doing so, they influence not only individual leaders but also how leadership is understood and practiced across the organization (Klimkiewicz, Staszkiewicz, 2021).

Research among HRBPs shows that influence and leadership competencies are crucial not only for the strategic partner role, but also for the change agent, employee advocate, and administrative expert roles (Kopertyńska, Dernowska, 2021, pp. 31-36). The change agent and employee advocate roles rely mainly on leadership-related competencies such as communication, emotional intelligence, influence, relationship building, and conflict resolution. In the administrative expert role, selected leadership competencies are also important, as they enable influence over stakeholders and shape the quality of HR processes, although each role requires different forms of influence and leadership behavior. Examining HRBPs' leadership styles is therefore essential for understanding how they exercise leadership. Such analysis identifies recurring leadership patterns, assesses their alignment with role requirements and organizational needs, and reveals dominant styles within the HRBP group—relational, procedural, task-oriented, or idea-focused—as well as their variation by demographic and organizational factors such as gender, age, tenure, and organizational size.

3. WERK Leadership Style Inventory

WERK is a psychometric tool designed to identify management styles. The inventory thus makes it possible to draw conclusions about the way individuals function within an organization by determining the degree of consistency between this functioning and the four management styles proposed by the authors: Cheerleader, Steward, Revolutionary, and Captain. A management style is understood here as a mental map reflecting one's perception of one's own functioning in a managerial role: "Me as a manager." It depicts the mode of adaptation characteristic of a given individual to challenges and tasks of a motivational, developmental, and cognitive nature, which are important in the context of performing a managerial role.

In explaining individual differences in the leadership styles adopted, the authors of the tool (Brzezińska, Rafalak, 2015) employ an interactionist approach—integrating both leadership predispositions (personality dispositions) and leadership experience (properties of the situation and environment). They emphasize the contribution of these two groups of variables to the formation of an individual's characteristic management style. In the development of WERK, particular importance was attached to personality factors derived from Jungian psychology, situational factors drawn from Belbin's concept, and the organizational context.

The following theories and studies were considered crucial for the conceptualization of the WERK model: Carl Jung's theory of psychic energy and mental functions (see Dudek, 2021), Douglas McGregor's Theory X and Theory Y (see McGregor, 1960; Head, 2011), Kurt Lewin's research on the nature of leadership (see Lewin, Lippitt, White, 1939), the managerial behavior continuum developed by Robert Tannenbaum and Warren Schmidt (see Tannenbaum, Schmidt, 1958), the leadership theory based on research conducted in Ohio (see Stogdill, Coons, 1957) and Michigan (see Likert, 1961), as well as Mark Snyder's concept of self-monitoring (1974). The result of the work undertaken by the authors of the tool is the WERK model, which identifies four distinct styles of managerial functioning.

The Cheerleader is a leader who prioritises people, focusing on teamwork, integration, and a positive work atmosphere. They show high social sensitivity and can defuse tensions, but their decision-making and organisational skills are usually weaker. They may avoid assertiveness, struggle with discipline, and rely heavily on others' opinions.

The Steward focuses on procedures, norms, and precise task execution. They value order, predictability, and strict hierarchy. In relationships, they remain formal and can be critical and demanding toward subordinates, which may limit flexibility and openness.

The Revolutionary is a leader focused on innovation, change, and creating new solutions. They show strong conceptual thinking, self-confidence, and drive to pursue ambitious challenges. They prefer visionary work over implementation and are expressive in promoting their ideas, which can make their evaluations of employees subjective.

The Captain is task-focused and pragmatic: decisive, goal-driven, consistent, emotionally stable, and practical. They organise the team's work, monitor results, and fairly assess subordinates, while keeping distance and showing limited openness to innovation.

The tool identifies a respondent's preferred leadership style and what they reject as incompatible with their self-image as a manager. The profile shows both the dominant and least typical styles. It does not assess managerial effectiveness but describes the preferred way of operating.

Although WERK was designed with practical application in human resource management in mind, it is also used in scientific research concerning both the evaluation of the tool itself and the use of WERK results to study organizational phenomena (e.g., managerial effectiveness, innovativeness, personality traits). Studies indicate that Polish managers often combine elements of various leadership styles rather than displaying one dominant style. In both the public (Czarska-Bonanaty, 2020) and commercial sectors (Rozbejko, 2019), many respondents showed no clear prevailing style, and differences between styles were small. This likely reflects managerial adaptability, expressed in flexible, situationally adjusted leadership. Such a pattern may be viewed positively by managers themselves, enhancing their perceived self-efficacy (Rozbejko, 2019).

Brzezińska and Rafalak (2015), authors of WERK, stress that results do not determine a manager's success; however, some styles better match specific organizational environments. Kowal et al. (2023) found that team innovativeness was higher under leaders with Revolutionary and Cheerleader profiles, while the Steward style did not foster innovation. Nonetheless, style effectiveness depends on its fit with organizational needs: in settings requiring strict regulatory compliance, the Steward style may be indispensable.

Research using WERK has examined links between psychological variables and preferred leadership style. Kraczle (2020) found that an individual's sense of life meaning and axiological values do not determine leadership style. However, validation studies by the tool's authors (Brzezińska, Rafalak, 2015) show several associations between the intensity and dominance of specific styles and personality dimensions measured by the NEO-FFI (Zawadzki, Strelau, Szczepaniak, Śliwińska, 1998) and the ACL (Gough, Heilbrun, 2012).

4. Methods

The aim of the article is to identify the leadership styles employed by HRBPs. To achieve this aim, the following specific research questions were posed: whether clearly preferred leadership styles can be identified among HRBPs, whether there are styles that are dominant or avoided, and whether HRBPs demonstrate flexibility in applying different leadership styles depending on the situation.

The study used WERK, whereas the reliability of the tool was assessed as satisfactory. Cronbach's α coefficients for the individual scales ranged from 0.70 to 0.84 (Brzezińska, Rafalak, 2015). WERK is characterised by high theoretical validity, resulting from its construction being grounded in extensive literature and a synthesis of key leadership concepts. Criterion validity was preliminarily assessed using HR experts' opinions and correlations with 360° evaluations and other managerial competence questionnaires. The tool includes 60 adjectives in 15 sets of 4. In each set, respondents ranked the adjectives from most to least self-descriptive, limiting self-presentation bias and prompting evaluation of potentially uncomfortable traits. The survey took about 20 minutes.

The study involved 90 HRBPs, including 79 women (87.78%) and 11 men (12.22%), which reflects the typical predominance of women in HR departments. Detailed data on the characteristics of the research sample are presented in Table 1.

Table 1.
Characteristics of the research group

Variable	Category	%
Gender	Men	12.22
	Women	87.78
Age [years]	18–25	2.22
	26–30	23.33
	31–35	32.22
	36–40	27.78
	41–45	11.11
	46–50	2.22
	50+	1.11
Tenure [years]	<1	1.11
	1–3	6.67
	3–5	22.22
	5–7	20.00
	7–10	17.78
	10–15	18.89
	15–20	6.67
	20+	6.67
Company size [number of employees]	Micro (1–9)	3.33
	Small (10–50)	5.56
	Middle (51–249)	11.11
	Big (250–1000)	25.56
	>1000	54.44

Source: Own elaboration.

5. Results

Four leadership styles according to the WERK Inventory were analyzed. The mean scores for the entire sample are presented in Table 2.

Tabele 2.
WERK style among HRBPs

WERK Style	Mean	Standard deviation
Cheerleader	43,42	8,856
Steward	31,94	7,183
Revolutionary	30,55	8,018
Captain	44,09	5,659

Source: Own elaboration.

The highest values were obtained for the Captain and Cheerleader styles, which suggests their dominance in the studied group. The Steward and Revolutionist styles achieved lower means, indicating a lesser importance in respondents' preferences. The analysis of distribution normality (Kolmogorov-Smirnov and Shapiro-Wilk tests) indicates that most variables can be treated as normally distributed, although in selected cases (e.g., Steward among women, Captain among men) deviations from strict normality were observed.

Pearson's correlation analysis (Table 3) showed that among the demographic variables only gender was significantly associated with WERK scores: women obtained higher scores in the Cheerleader style ($r = 0.238$; $p = 0.025$). Age, job tenure, and company size did not exhibit significant relationships with any of the WERK styles. At the same time, the observed strong negative correlations between styles indicate their opposing nature, consistent with the construction of the instrument.

Tabele 3.
Pearson's correlation analysis for WERK

Variable	Gender	Age	Tenure	Company size	Cheerleader	Steward	Revolutionary	Capitan
Gender	1	0,079	-0,021	0,069	**,238***	-0,066	-0,056	-0,205
Age	0,079	1	**,796****	-0,002	0,055	0,077	-0,050	-0,109
Tenure	-0,021	**,796****	1	0,076	0,053	0,161	-0,141	-0,084
Company size	0,069	-0,002	0,076	1	-0,002	0,102	-0,086	-0,001
Cheerleader	**,238***	0,055	0,053	-0,002	1	**-,236***	**-,430****	**-,657****
Steward	-0,066	0,077	0,161	0,102	**-,236***	1	**-,619****	-0,024
Revolutionary	-0,056	-0,050	-0,141	-0,086	**-,430****	**-,619****	1	0,041
Capitan	-0,205	-0,109	-0,084	-0,001	**-,657****	-0,024	0,041	1

Note. **p<0,01 (two-tailed), *p<0,05 (two-tailed).

Source: Own elaboration.

The independent-samples t-test revealed a significant difference between genders only for the Cheerleader style ($t = –2.282$; $p = 0.025$), with women achieving higher scores than men (mean difference = –6.438). No statistically significant differences were found for the Steward, Revolutionary, or Captain styles.

In the analysis of the dominant style, the most frequently indicated style was Captain (26.8%). The next most frequent were the Cheerleader (18.6%), Revolutionary (15.5%), and Steward (13.4%) styles. In 25.8% of cases, the results did not allow for the identification of a dominant leadership style. In the studied group, the Captain style occurred most often, whereas the remaining styles were distributed relatively evenly, without a clear predominance.

In the analysis of the avoided style, the most frequently indicated style was Steward (27.8%). The next in terms of frequency were the Revolutionary (25.8%) and Cheerleader (16.5%) styles. The least avoided style was Captain (6.2%). A total of 23.7% of cases fell into the group in which no avoided leadership style emerged. The results indicate that, in the studied group, respondents most often avoid the Steward style, whereas the Captain style is avoided least frequently.

The results show that HRBPs do not use leadership styles flexibly. Two styles clearly dominated: Captain and Cheerleader, while Revolutionary and Steward scored much lower and were rarely chosen as dominant or preferred. This distribution indicates a strong preference for specific ways of acting rather than balanced use of different styles. The Steward style was most often avoided, further confirming limited flexibility across the entire WERK spectrum.

6. Discussion

The study results revealed the dominance of two leadership styles – Captain and Cheerleader – with relatively lower scores for the Steward and Revolutionary styles. This configuration is consistent with the characteristics of the HRBP role described in the literature, which combines task-oriented, relational and strategic elements, and requires simultaneous activity at the interface of the interests of employees, managers and the organization (Buckley, Monk, 2004; Ulrich, Brockbank, 2008). The HRBP model assumes the multidimensionality of business partners' activities, including a strong emphasis on cooperation, influence, communication, and the implementation of solutions aligned with organizational objectives (Lo, Macky, Pio, 2015; Kopertyńska, Dernowska, 2021; Wash, 2023).

The Captain style, defined in the WERK model as a pragmatic, task-oriented and consistent approach, finds its most direct reflection in the roles of strategic partner and change agent, which constitute key dimensions of HRBP work (Ulrich, 1997). Owing to the ability to organize work, monitor outcomes, and maintain emotional stability, the Captain facilitates the achievement of business goals and the enforcement of decisions, which corresponds to HRBP's responsibility for supporting managers and coordinating strategy-related activities (Ulrich, Dulebohn, 2015). Respondents most often identified with this mode of operation: the Captain was the most frequently indicated dominant style and the least frequently avoided. This suggests that, in practice, HRBPs primarily ensure effective goal attainment and operational coherence of HR processes, consistent with business expectations of this role described in the literature.

The high level of the Cheerleader style corresponds to the second key pillar of HRBP work—interpersonal competencies. As cited studies show, core HRBP competencies, especially in the roles of change agent and employee advocate, include communication, relationship-building, emotional intelligence, and conflict-resolution skills (Kopertyńska,

Dernowska, 2021). Focused on relationships, work climate, and integration, the Cheerleader style naturally supports these functions. The finding that women scored significantly higher on the Cheerleader style is consistent with research on HRBP psychosocial competencies, which shows that women in HR more often display relational skills (Staszkiewicz, 2021). In the HRBP role, this is crucial, as HRBP leadership is largely non-hierarchical and rests on influence, expert authority, and trust rather than formal power (Reilly, 2012). The Cheerleader style can therefore be an important resource for fostering dialogue, mediating conflicts, and building engagement among managers and employees.

The two most common styles—the Captain and the Cheerleader —reflect the main areas of HRBP work: task and relationship orientation. The HRBP role requires combining operational, strategic, and interpersonal activities, and its effectiveness depends on balancing organizational demands with employee needs (Lo et al., 2015).

The study also shows a weaker presence of the Revolutionary style, which may seem surprising given that HRBPs are described as catalysts of organizational change. However, although this role has a strategic component, it is firmly embedded in operational and implementation realities: HRBPs support managers, help enforce decisions, and ensure consistent HR policies (Ulrich et al., 2012). This positioning may favor pragmatic, execution-focused styles (Captain) and relational styles (Cheerleader) over visionary ones. Thus, the low share of the Revolutionary style may reflect organizational responsibility structures rather than a lack of innovative potential among HRBPs. Similar findings have appeared in WERK-based research in other professional groups, where the Revolutionary style was rarely dominant among managers, especially in highly formalized, process-driven work environments (Czarska-Bonanaty, 2020; Rozbejko, 2019).

The low prevalence of the Steward style aligns with the evolving HRBP role, in which traditional administrative tasks have moved to shared service centers and operational units, while HRBPs now focus mainly on advisory, relational, and strategic work. In this study, Steward was the most frequently avoided style, suggesting a deliberate move away from the stereotypical, bureaucratic "personnel department" role. However, this low Steward score, though understandable, may pose challenges in organizations where regulatory compliance and process accuracy are crucial (Brzezińska, Rafalak, 2015).

Concurrently, in light of the ongoing discussion on the upcoming challenges in HRBP work, related, among others, to the role of AI, the role of compliance and digital ethics, as well as the ability to design organizational structures that can respond sufficiently quickly to market changes (Li, Kim, 2024; Ulrich, 2025), both the Revolutionary style and the Steward style may gain in importance for the effective enactment of the HRBP role.

7. Summary

The study shows that HRBPs most often favor the Captain and Cheerleader leadership styles, combining a pragmatic focus on goals with relationship-building and team integration. This aligns with the current view of the HRBP role, which demands both implementation-oriented action and strong interpersonal skills (Ulrich, Brockbank, 2008). Lower scores for the Steward and Revolutionary styles suggest that HRBPs less often take on highly procedural or highly innovative functions, reflecting the mainly advisory–implementation nature of the role.

Future research should include managers' and employees' perspectives to reduce self-report bias. Longitudinal studies could assess the stability of leadership styles over time and compare HRBP profiles across organizations and industries. It would also be valuable to analyze how WERK styles relate to the effectiveness of HR implementations.

Organizations can use WERK study results to design the HRBP role more deliberately and to inform HRBP recruitment and development, aligning competencies with the organization and its operating model. The dominance of Captain and Cheerleader styles highlights the need to build both task-related and relational competencies. The low prevalence of Revolutionary and Steward styles indicates gaps in innovativeness and process discipline, which can be addressed by assigning complementary roles within HR teams or offering targeted development programs.

Acknowledgements

Research project supported by the statutory research funds (no. 16.16.200.396/B02) and program „Excellence Initiative – Research University" for the AGH University of Krakow.

References

1. Brzezińska, U., Rafalak, M. (2015). *Inwentarz Stylów Kierowania Ludźmi WERK.* Warszawa: Pracownia Testów Psychologicznych PTP.
2. Buckley, F., Monks, K. (2004). The implications of meta-qualities for HR roles. *Human Resource Management Journal, Vol. 14, No. 4*, pp. 41-56. doi:10.1111/J.1748-8583.2004.TB00132.X
3. Buckley, F., Monks, K. (2004). The implications of meta-qualities for HR roles. *Human Resource Management Journal, Vol. 14 (4),* pp. 41-56.

4. Czarska-Bonanaty, A. (2020). Style kierowania menadżera służby zdrowia zgodnie z modelem Inwentarza Stylów Kierowania Ludźmi WERK. *Humanitas Zarządzanie, Vol. 21, No. 3*, pp. 147-163.
5. Dudek, Z. W. (2021). *Podstawy psychologii Junga: od psychologii głębi do psychologii integralnej.* Warszawa: Eneteia.
6. Gough, H.G., Heilbrun, A.B. (2012). *Lista Przymiotnikowa. Podręcznik.* Warszawa: Pracownia Testów Psychologicznych, PTP.
7. Head, T.C. (2011). Douglas McGregor's legacy: lessons learned, lessons lost. *Journal of Management History, Vol. 17, No. 2*, pp. 202-216.
8. Klimkiewicz, K., Staszkiewicz, M. (2021). HR biznes partner jako coach społecznej odpowiedzialności przedsiębiorstw i zrównoważonego rozwoju. *Zarządzanie Zasobami Ludzkimi, Vol. 142, No. 5*, pp. 95-116.
9. Kopertyńska, M.W., Dernowska N. (2021). Kompetencje HR biznes partnera w odniesieniu do ról pełnionych w organizacji. *Zarządzanie Zasobami Ludzkimi, Vol. 5, No. 142*, pp. 23-42.
10. Kowal, J., Zaremba, D., Ziobrowska, M. (2023). *The relationship between leadership style and pro-innovation behavior among Polish e-government managers*. Proceedings of GlobDev 2023.
11. Kraczla, M. (2020). Leadership styles in the context of the meaning of life – an empirical analysis. *Scientific Papers of the Silesian University of Technology – Organization & Management, No. 148*, pp. 305-324.
12. Lewin, K., Lippitt, R., White R.K. (1939). Patterns of aggressive behavior in experimentally created "social climates". *The Journal of Social Psychology, 10,* pp. 271-299.
13. Li, H., Kim, S. (2024). Developing AI literacy in HRD: competencies, approaches, and implications. *Human Resource Development International, Vol. 27, No. 3,* pp. 345-366.
14. Likert, R. (1961). *New patterns of management*. New York: McGraw-Hill.
15. Lo, K., Macky, K., Pio, E. (2015). The HR competency requirements for strategic and functional HR practitioners. *The International Journal of Human Resource Management, Vol. 26, No. 18,* pp. 1-21.
16. McGregor, D. (1960). The Human Side of Enterprise. New York: McGraw-Hill.
17. Rozbejko, K.M. (2019). Elastyczność a sprawność w stosowanym stylu kierowania ludźmi na przykładzie menedżerów w sektorze bankowym. *Organizacja i Kierowanie, Vol. 4, No. 187,* pp. 71-84.
18. Siska, Y.A., Yuntina, L., Sundari, P., Sugiarti, S., Widodo, R.E. (2024). Human Resource Business Partners: HR strategy, business model and leadership. *Scientific Journal of Applied Management, Vol. 2, No. 2,* pp. 180-193.
19. Snyder, M. (1974). The self-monitoring of expressive behavior. *Journal of Personality and Social Psychology*, *Vol. 30, No. 4*, pp. 526-537.

20. Staszkiewicz, M. (2021). Kompetencje osobiste i społeczne HR biznes partnera. *Zarządzanie Zasobami Ludzkimi, Vol. 5, No. 142*, pp. 43-62.
21. Stogdill, R.M., Coons, A.E. (1957). *Leader behavior: Its description and measurement*. Ohio State Univer: Oxford.
22. Tannenbaum, R., Schmidt, W.H. (1958). How to Choose a Leadership Pattern. *Harvard Business Review*, *Vol. 36,* pp. 95-101.
23. Ulrich, D. (1997). *Human Resource Champions: The Next Agenda for Adding Value and Delivering Results.* Boston, MA: Harvard Business School Press.
24. Ulrich, D. (2025, May 27). *What Competencies Define an Effective HR Professional? Past, Present, and Future.* Retrieved from: Https://Www.Linkedin.Com/Pulse/What-Competencies-Define-Effective-Hr-Professional-Past-Dave-Ulrich-Epnnc/
25. Ulrich, D., Brockbank, W. (2008). *Tworzenie wartości przez dział HR*. Kraków: Oficyna a Wolters Kluwer business.
26. Ulrich, D., Ulrich, M., Burns, W. Wright, P. (2021). *Human Resource Competency Study: Round 8 research report*. The RBL Group.
27. Ulrich, D., Younger, J., Brockbank, W., Ulrich, M.D. (2012). *HR from the outside in: Six competencies for the future of human resources.* New York: McGraw-Hill.
28. Urlich, D., Dulebohn, J.H. (2015). Are we there yet? What's next for HR? *Human Resource Management Review*, *Vol. 25, Iss. 2,* pp. 188-204.
29. Wash, G.L. (2023). Strategy and competencies for future-ready business and HR business partners: A conceptual analysis. *International Journal of Research in Human Resource Management, Vol. 5, No. 1*, pp. 11-20.
30. Zawadzki, B., Strelau, J., Szczepaniak, P., Śliwińska, M. (1998). *Inwentarz osobowości NEO-FFI Costy i McCrae.* Warszawa: Pracownia Testów Psychologicznych PTP.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

FROM DYNAMIC CAPABILITIES TOWARDS ADAPTABILITY COMPETENCE

Maciej SZAFRAŃSKI

Poznań University of Technology; maciej.szafranski@put.poznan.pl, ORCID: 0000-0002-4281-9845

Purpose: The purpose formulated in the article is to improve coherence between the concepts of dynamic capabilities (DC) and competence management (CM).
Design/methodology/approach: A critique of the dynamic capabilities concept will be conducted using a systematic-narrative literature review, with particular emphasis on articles by the founders of the DC concept and articles containing criticism of this concept. Achievements to date in the field of CM will also be taken into account, in order to introduce a correction to the DC concept.
Findings: The concept of dynamic capabilities constitutes a component of the CM concept. It reduces to the management of one fairly narrow, though important, category of competencies, namely the competencies for managing organisational adaptation to rapidly changing market conditions — i.e., quick adaptability competence (QAC).
Research limitations/implications: The starting point for the critique is the most important publications on the concept of dynamic capabilities selected from only two main authors in this area: D. J. Teece and K. M. Eisenhardt.
Practical implications: The research results will facilitate understanding of the DC concept in enterprises, among other things by changing its name to one adapted to the clarified real scope of impact.
Social implications: Achieving the formulated objective will improve the process of formulating certain competency requirements in job advertisements and recruitment processes, leading to their enhancement, and thus to increased satisfaction of job candidates and subsequently employees, especially in managerial positions.
Originality/value: To date, scientific research has been dominated by attempts at a critical approach to the DC concept in the aspect of strategic management rather than CM. The research gap in this area has been filled in the present article.
Keywords: dynamic capabilities, competence management, adaptability competence, strategic management.
Category of the paper: Research paper.

1. Introduction

The high dynamics of changes in the business environment translates into the need for organisations to continuously adapt to new conditions, which is essential for their survival and development. Environmental volatility stimulates internal changes in organisations and generates demand for the improvement of management methods and systems, hence their continuous development. One of the concepts addressing the need for organisations to adapt to change is the one concerning dynamic capabilities (DC), whose precursors were Teece and Pisano (1994), continued by Eisenhardt and Martin (2000).

The DC concept has been refined for over thirty years. During this time, however, other approaches to organisational management have also developed, including competence management (CM), first as a sub-discipline within human resource management (HRM) (Armstrong, 2006, p. 248; Hrabal et al., 2021, p. 278), and now increasingly as independent from it (Medina, R., Medina, A., 2017, pp. 505-506; Szafrański, 2022, pp. 137-138).

The long-term, parallel and independent development of various management concepts often leads to contradictions between them. A clear inconsistency between DC and CM has been identified. In connection with this, a critical analysis of the DC concept in the CM aspect was carried out. Criticism does not imply negation but reduces to indicating the merits and shortcomings of DC; its ultimate consequence is to achieve greater integration between these two concepts, which will positively influence their further development, understanding and the increase of the potential for simultaneous use in organisations.

The DC subject is quite frequently addressed in the stream of research on strategic management (SM), while a research gap has been identified with regard to considering DC in the context of CM, which is surprising given that the concept of capability is often treated interchangeably with the concept of competence in the DC literature.

The result of linking DC with CM will be a different perspective on the concept of dynamics and a proposal to move away from the concept of dynamic capabilities, treating dynamics as a characteristic of every competence and a characteristic of the market.

The aim of this research is to improve coherence between the DC and CM concepts.

The general research question posed in the article is: what are dynamic capabilities in the context of competence management?

2. Literature research method

In order to verify and explain what dynamic capabilities are, and then to take a critical view of this concept with the aim of achieving greater coherence between DC and CM, the following literature research method was adopted:

- stage 1: selection and review of the literature on DC,
- stage 2: selection and review of the literature on critical references to DC,
- stage 3: synthesis concerning the basic concepts within the DC framework and changes occurring in this concept over the years,
- stage 4: comparison of DC with competencies,
- stage 5: development of a proposal for greater coherence between DC and CM.

Stages 1 and 2 concerned the preparation and familiarisation with the data and will be described in this section. The results of stages 3, 4 and 5 are the research findings, which will be presented in the next section.

Stage 1: selection and review of the literature on DC. First, a systematic review was conducted, consisting of an initial review of the literature from a selected database based on selected queries, and then, within the resulting publication database, a narrative review was conducted with purposive selection of chosen publications. The SCOPUS database was used. Two queries were formulated, both on 07.01.2026:

- Query no. 1: "dynamic capabilit*" AND Teece; result: 77 publications; in the years 1994-1997 Teece published 3 articles on the subject under study, of which 2 most frequently cited were selected for further analysis — purpose: selection of publications containing the original form of the DC concept; in the years 2022-2025 Teece published 9 articles on the subject under study, of which 5 most frequently cited or strictly on topic were selected for further analysis — purpose: selection of publications containing the current form of the DC concept; in total, the content of 7 publications was initially analysed — purpose: capturing changes in the views of Teece and co-authors with whom he published on the subject of DC; ultimately, an eighth publication from 2007 was added to the set of analysed publications, due to significant references to it in previously selected articles;
- Query no. 2: "dynamic capabilit*" AND Eisenhardt; result: 7 publications; 3 publications were selected for further analysis: the first from 2000 with the original form of the DC concept and two later ones from 2010 and 2011; all three are simultaneously the most frequently cited from the entire set; purposes: selection of publications containing both the original and the most current form of the DC concept; comparison of the concept of two researchers who do not write together — Eisenhardt and co-authors vs. Teece and co-authors.

Stage 2: selection and review of the literature on critical references to DC. First, a systematic review was conducted, consisting of an initial review of the literature from a selected database based on a selected query, and then, within the resulting publication database, a narrative review with purposive selection of chosen publications. The SCOPUS database was used. On 07.01.2026 the following query was formulated: "dynamic capabilit*" AND critici*. In response, 36 publications were obtained, from which 7 most frequently cited and strictly on topic were purposively selected. The purpose of the selection was to identify the merits and shortcomings of DC presented by researchers other than the creators of the concept.

Before proceeding to stages three through five, after a rapid reading of the selected publications, several specific questions related to the general question were formulated:

SQ1: What are dynamic capabilities?

SQ2: What types of DC can be distinguished?

SQ3: How should the concept of microfoundation be understood?

SQ4: What merits and shortcomings of the DC concept are most frequently indicated by other researchers (other than Teece and Eisenhardt and their co-authors)?

SQ5: Does the DC concept constitute a component of the CM concept?

Questions SQ1-SQ4 are related to the third stage of the work and question SQ5 to the fourth and fifth stages.

3. Literature research method

3.1. Synthesis concerning the basic concepts within the DC framework and changes occurring in this concept over the years

As part of the third stage of research work, a synthesis was conducted concerning the basic concepts within the DC framework and changes occurring in this concept over the years. The scope of the presentation was determined by the formulated specific questions.

3.1.1. Dynamic capabilities

In the first widely popularised publication, Teece and Pisano defined DC as: "a subset of the competences/capabilities of the firm that allow the firm to create new products and processes and respond to changing market circumstances" (1994, p. 541). They therefore understood them as a subset distinguished from the entire set of competencies: $DC \subset C$, where C — competencies.

Three years later, Teece, Pisano and Shuen described DC as: "the ability of the firm to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (1997, p. 516). From this definition it followed that DC are abilities to undertake selected activities in enterprises oriented towards shaping a particular category of competencies, namely those whose use would ensure response to changing environments.

Moreover, the concern was not with all environmental changes but only with rapid environmental changes. In addition, in subsequent publications, DC were presented in opposition to ordinary capabilities (OC) (Teece, 2023).

Teece, Pisano and Shuen distinguished two types of competencies from the category necessary for responding to rapidly changing environments. These were internal and external competencies, which would indicate that the use of DC should ensure an impact on competencies contained within the organisation as well as those possessed by persons or organisations outside the boundaries of the organisation under consideration.

Agreement on the purpose of distinguishing and developing DC can be found in the publication by Eisenhardt and Martin (2000). They too drew attention to the important role of DC in adapting organisations to market changes. However, they understand the concept of DC differently from Teece and co-authors. In their view, DC are not a subset of competencies or capabilities, but rather: "the firm's processes that use resources — specifically the processes to integrate, reconfigure, gain and release resources". In other words, they are: "the organisational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve and die" (Eisenhardt, Martin, 2000, p. 1107). Somewhat later, writing about routines, Bingham and Eisenhardt explained that this concept was adopted after Nelson and Winter (1982) and means: "learned, highly patterned, repetitive" behaviour (Bingham, Eisenhardt, 2011, p. 1439). This understanding of a routine is quite similar to the understanding of a function in the classical stream of management, understood as: "a repetitive, typical and formalised activity, separated on the basis of content and a specific task" (Hamrol, Mantura, 1998, p. 69).

3.1.2. Types of dynamic capabilities

From the first publications by Teece and co-authors, it follows that DC, and consequently their set, are determined by three categories of factors: processes, positions and paths (PPP) (Teece, Pisano, 1994, pp. 541, 550), whereby processes are shaped by the assets of the enterprise (called positions) and paths, which, more precisely, are evolutionary paths (Teece, Pisano, Shuen, 1997, p. 524). Since PPP undergo transformations, it can be inferred that the set of DC may also change. Independently, Teece in a later work defined three main categories (clusters) of DC, including: sensing, seizing and transforming (SST) (2023) and called them high-level dynamic capabilities, suggesting that they contain within themselves low-level DC, i.e., all elementary DC. Examples are provided in Table 1.

Table 1.
Dynamic capabilities according to Teece and co-authors (in later works)

High-level dynamic capabilities	Exemplary components of high-level dynamic capabilities
Sensing	– Search for new technologies. – Identification of customer needs. – Entrepreneurial orientation (innovativeness, proactiveness, risk-taking).
Seizing	– Rapid development of new products. – Effective collaboration with partners. – Development of complementary, co-specialised assets. – Creation of common rules and agreements.
Transforming	– Achieving decentralization. – Flexible coordination of asset usage (semi-persistent asset orchestration). – Effective knowledge transfer. – Ad hoc problem solving.

Source: Pitelis, Teece, Yang, 2024; Foss, Schmidt, Teece, 2023; Teece, 2024; Heaton, Teece, Agronin, 2022.

It is worth noting that the processes which Teece and co-authors consider to be determinants of DC development, Eisenhardt and Martin treat as DC themselves, and very specific ones at that, such as: product development, alliance formation, strategic decision-making, rather than abstract "routines for learning routines" (2000, p. 1107). A compilation of DC mentioned in works with Eisenhardt's co-authorship is presented in Table 2.

Table 2.
Dynamic capabilities according to Eisenhardt and co-authors

Categories of dynamic capabilities	Dynamic capabilities (routines)
Resource integration capabilities	– Product development. – Strategic decision-making.
Resource reconfiguration capabilities	– Transfer processes. – Resource allocation. – Co-evolution. – Business alignment.
Resource acquisition and release capabilities	– Knowledge creation. – Alliances. – Acquisitions. – Exit routines.
Strategic processes	– Internationalisation. – Architectural innovation and modular corporate forms.

Source: Bingham, Eisenhardt, 2011; Eisenhardt, Martin, 2000; Eisenhardt, Furr, Bingham, 2010.

3.1.3. Microfoundations

An important concept in the DC framework is that of microfoundations. Originally, Teece understood by this term the set of all distinguishable: "skills, processes, procedures, organisational structures, decision rules and disciplines" (2007, p. 1319). This understanding of microfoundations was also adopted in later publications (Pitelis, Teece, Yang, 2024). They are therefore all distinguishable components forming the foundation for the development of SST. From this definition it follows that for SST (i.e., DC), which constitute one of the categories in

the set of all distinguishable competencies, one of the components of this foundation may be other competencies (e.g., skills) that are not part of DC.

In a later publication, Teece calls microfoundations "low-level dynamic capabilities" (2023, p. 123), which might suggest a departure from the original definition and recognition that these are capabilities constituting components of SST; however, immediately afterwards Teece refers back to the 2007 publication, leading to terminological confusion. In the same publication, as an example of a microfoundation, i.e., a low-level DC, he cites processes such as the creation of external partnerships or the development of new products (2023, p. 119), which in earlier articles he treated not as DC but as the foundation for DC development. Ultimately, one may have the impression that the concept of microfoundation is a general name for every entity distinguished within the DC framework and could equally well be replaced by the concept of variable, entity, construct, etc.

According to Eisenhardt, Furr and Bingham (2010), microfoundations are not DC but shape DC. Unlike DC considered at the organisational level, microfoundations are heuristics, cognitive processes and individual decisions considered at the level of individuals and groups (2010, p. 1263).

3.1.4. Merits and shortcomings of the DC concept frequently indicated by other researchers

Table 3 presents the merits and shortcomings of DC frequently described in the literature.

Table 3.
Merits and shortcomings of DC

	Barreto, 2010, pp. 257, 258, 270	**Arndt et al., 2022, pp. 423, 426-427**	**Kurtmollaiev, 2020, pp. 3-6**	**Kapoor, Aggarwal, 2020, pp. 187, 191-196**	**El Shafeey, Trott, 2014, pp. 125, 137-138, 142**	**Kuuluvainen, 2012, pp. 382-383, 386-389**
MERITS						
Interdisciplinarity	1					
Theoretical significance		1	1			
Progress in DC research		1				
Integrative potential of approaches based on: transaction costs, resources (RBV), knowledge (KBV) or complementing the static character of RBV				1	1	
Support in identifying accumulation processes					1	
Instrumental potential for resource manipulation				1		
Contextual flexibility						1

Cont. table 3.

SHORTCOMINGS						
Difficulty in establishing links between DC and other theoretical schools, in particular RBV and the competence-based view (CBV)	1				1	
Inconsistency of definitions, ambiguity, mysteriousness, abstractionism, intangibility, tautology in the DC concept and conceptual vagueness	1					1
Contradictory interpretations of DC between different schools developing this concept		1	1	1		1
Fragmented research		1		1		
Redundancy in the division into dynamic and ordinary/operational capabilities			1			1
Indeterminacy of DC hindering their empirical testing			1			
Insufficient number of empirical studies on DC		1		1		

Source: as in the table.

4. Dynamic capabilities and competencies

Since dynamic capability has already been described, before comparing it with the concept of competence it is necessary to provide a synthetic introduction to the latter. A universal characterisation of competence will be presented (in the aspect of management in organisations). The narrowing to the aspect of management is key, since the same object can be perceived significantly differently in disciplines other than management sciences (e.g., in psychology).

The universal characterisation of competence consists of several basic features:

Feature 1. Competencies are characteristics of people. Treating competence as a human characteristic is typical in management sciences (Boyatzis, 1982; Spencer, L.M., Jr., Spencer, S.M., 1993; Gangani et al., 2006).

Feature 2. For organisations, competencies constitute a resource. This property of competence fits within the RBV approach (Wernerfelt, 1984) and was postulated by Teece, Pisano and Shuen (1997) and commonly accepted by other researchers (Knight, Kim, 2009; Ganie, 2019).

Feature 3. Competencies manifest themselves in action. This feature follows directly from the theory of competence as a behavioural pattern (Woodruffe, 1993).

Feature 4. Competencies are subject to structuring; hence, they can be represented in hierarchical trees (Whiddett, Hollyforde, 2003). Each competence from a higher level in the tree constitutes a meta-competence for the set of competencies from the lower level assigned to it.

Feature 5. The value of a given competence in organisations changes and depends on changing objectives over time; hence, it is sometimes perceived as a resource and other times not (the relativity of the concept of resource). Sometimes it is required at a higher level and other times at a lower level.

Feature 6. The concepts of other categories of competencies (e.g., organisational, team) constitute shortcuts, under which one should understand sets of human competencies or systems of competencies from those sets. Their use, as a result of the implementation of management functions, leads to a synergy effect in achieving current objectives formulated in organisations.

Taking into account the distinguished features of competencies, DC can be treated as a category of competencies, considered on the basis of Feature 6, which, for example, Teece (2007; 2023, pp. 123-124) proposes to lay out in the form of a tree on the basis of Feature 4. And this category ultimately consists of human competencies distinguished on the basis of Features 1, 2 and 3.

In the CM literature, competencies are often categorised according to the KSAO model (knowledge, skills, abilities, others) (Campion et al., 2011, p. 226), and in such a model the category of competencies that DC represent may also be considered. In connection with changes occurring in the organisation and in its environment, the demand for competencies from the DC category changes on the basis of Feature 5.

DC are a category of competencies in an organisation whose possession is expected of managers, and thus these competencies will be particularly important in managerial positions. In the concept of dynamic capabilities, the component "dynamic" indicates rather the objective that managers are to achieve by using DC and not the nature of these competencies. The name of this category of competencies is therefore misleading. It is more advantageous to speak of the category of competencies that managers should possess in order to be able to effectively achieve objectives in organisations, which often change due to market dynamics. However, if the component "dynamic" were eliminated from the DC name, only the component "capabilities" would remain, which requires some specification. If DC are a category distinguished from the set of all possible competencies, it would be advantageous to name this category with a more concrete qualifier, as is done in the case of other categories of competencies (marketing competencies, logistics competencies, etc.).

5. Towards coherence between DC and CM — discussion and conclusions

El Shafeey and Trott (2014, pp. 122-127) emphasised the importance of research on the integrity of three approaches: RBV, DC and CBV. They themselves considered them as separate, as did, for example, Makadok (2001). At the same time, they noted that some researchers (Barney, Clark, 2007) treat the three mentioned approaches as the same school, and the scientific discussion mainly concerns the name of the common theoretical approach. Taking into account the earlier findings, following Barney and Clark, a reductionist approach is proposed, consisting in treating DC as a category of competencies and assigning them a more adequate name, which will not affect in any way the research into their impact on SM. It is proposed to call them adaptability competence (AC). From the analysed literature it unambiguously follows that AC are the competencies of managers that allow them to quickly, and at the same time effectively and efficiently, adapt the organisation to dynamically changing market conditions.

The ability to adapt to new conditions is adaptation. Every person has both some level of adaptive capability and the ability to influence the adaptation of others. Managers may possess different bundles of competencies (at different levels) for adapting the organisation to changing conditions, particularly in a market with high change dynamics. In such conditions, they should possess the meta-competence of quick adaptability (of the organisation), which will consist of elementary competencies.

The proposed modified approach to DC leads to:

- moving away from the name dynamic capabilities (DC) and transitioning to the name adaptability competence (AC) or quick adaptability competence (QAC),
- abandoning the concept of a closed catalogue of DC and opening up the set of AC, treated as a temporally changing bundle of elementary competencies with varying dynamics of change, depending on market dynamics, including the internal environment of the organisation,
- treating AC as one of the categories of the complete set of competencies, i.e., abandoning the division into DC and operational/ordinary capabilities,
- assigning the concept of "dynamism" to phenomena such as: variability of market conditions, knowledge of which will be relevant in the context of demand for AC; variability of demand for competencies and their level, but not only AC but all competencies, in accordance with Feature 5 of competencies.

6. Summary

The article proposes moving away from the concept of DC in favour of the concepts of AC and QAC. The change of name is not an aesthetic procedure but a consequence of a change in thinking about DC and the inclusion of the DC concept in the CM conceptual stream. Such a change is possible thanks to the dynamic development of the CBV concept and signs of its transformation into the CM concept. The main limitation of the research conducted was the adoption as a starting point for the critique of the most important, but not all, publications on the concept of dynamic capabilities exclusively of two selected main authors in this area: D.J. Teece and K.M. Eisenhardt.

Further research should aim at empirically confirming that DC are one of the categories of AC, in particular QAC, and at a deeper understanding of the link between market dynamics and competence dynamics, including the dynamics of AC or QAC.

References

1. Andreeva, T., Ritala, P. (2016). What are the sources of capability dynamism? Reconceptualizing dynamic capabilities from the perspective of organizational change. *Baltic Journal of Management*, *Vol. 11, Iss. 3*, pp. 238-259, doi: 10.1108/BJM-02-2015-0049
2. Armstrong, M. (2006). *A handbook of human resource management practice*. London/Philadelphia: Kogan Page.
3. Arndt, F., Galvin, P., Jansen, R.J.G., Lucas, G.J.M., Su, P. (2022). Dynamic capabilities: New ideas, microfoundations, and criticism. *Journal of Management & Organization*, *Vol. 28, Special Iss. 3*, pp. 423-428, doi: 10.1017/jmo.2022.57
4. Barney, J.B., Clark, D.N. (2007). *Resource-Based Theory: Creating and Sustaining Competitive Advantage*. Oxford: Oxford University Press.
5. Barreto, I. (2010). Dynamic Capabilities: A Review of Past Research and an Agenda for the Future. *Journal of Management*, *Vol. 36, Iss. 1*, pp. 256-280, doi: 10.1177/0149206309350776
6. Bingham, C.B., Eisenhardt, K.M. (2011). Rational heuristics: the 'simple rules' that strategists learn from process experience. *Strategic Management Journal*, *Vol. 32, Iss. 13*, pp. 1437-1464, doi: 10.1002/smj.965
7. Boyatzis, R.E. (1982). *The competent manager: A model for effective performance*. New York: John Wiley & Sons.

8. Campion, M.A., Fink, A.A., Ruggeberg, B.J., Carr, L., Geneva, G.M., Odman, R.B. (2011). Doing Competencies well: Best Practices in Competency Modeling. *Personnel Psychology*, *Vol. 64, Iss. 1*, pp. 225-262, doi: 10.1111/j.1744-6570.2010.01207.x
9. Eisenhardt, K.M., Furr, N.R., Bingham, C.B. (2010). Crossroads — microfoundations of performance: balancing efficiency and flexibility in dynamic environments. *Organization Science*, *Vol. 21, Iss. 6*, pp. 1263-1273, doi: 10.1287/orsc.1100.0564
10. Eisenhardt, K.M., Martin, J.A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, *Vol. 21, Iss. 10/11*, pp. 1105-1121, doi: 10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E
11. El Shafeey, T., Trott, P. (2014). Resource-based competition: three schools of thought and thirteen criticisms. *European Business Review*, *Vol. 26, Iss. 2*, pp. 122-148, doi: 10.1108/EBR-07-2013-0096
12. Foss, N.J., Schmidt, J., Teece, D.J. (2023). Ecosystem leadership as a dynamic capability. *Long Range Planning*, *Vol. 56*, *102270*, doi: 10.1016/j.lrp.2022.102270
13. Gangani, N., McLean, G.N., Braden, R.A. (2006). A competency-based human resources development strategy. *Performance Improvement Quarterly*, *Vol. 19, Iss. 1*, pp. 127-139, doi: 10.1111/j.1937-8327.2006.tb00361.x
14. Ganie, S.A. (2019). Human Resource Management: A Competence Based Approach. *Pacific Business Review International*, *Vol. 12, Iss. 3*, pp. 30-37.
15. Hamrol, A., Mantura, W. (1998). *Zarządzanie jakością: Teoria i praktyka [Quality management: Theory and practice]*. Warszawa/Poznań: PWN.
16. Heaton, S., Teece, D.J., Agronin, E. (2022). Dynamic capabilities and governance: An empirical investigation of financial performance of the higher education sector. *Strategic Management Journal, Vol. 44, Iss. 2*, pp. 520-548, doi: 10.1002/smj.3444
17. Hrabal, M., Tucek, D., Molnar, V., Fedorko, G. (2021). Human factor in business process management: modeling competencies of BPM roles. *Business Process Management Journal, Vol. 27, Iss. 1*, pp. 275-305, doi: 10.1108/BPMJ-04-2020-0161
18. Kapoor, M., Aggarwal, V. (2020). Tracing the economics behind dynamic capabilities theory. *International Journal of Innovation Science, Vol. 12, Iss. 2*, pp. 187-201, doi: 10.1108/IJIS-05-2019-0050
19. Knight, G.A., Kim, D. (2009). International business competence and the contemporary firm. *Journal of International Business Studies, Vol. 40, Iss. 2*, pp. 255-273, doi: 10.1057/palgrave.jibs.8400397
20. Kurtmollaiev, S. (2020). Dynamic capabilities and where to find them. *Journal of Management Inquiry, Vol. 29, Iss. 1*, pp. 3-16, doi: 10.1177/1056492617730126
21. Kuuluvainen, A. (2012). How to concretize dynamic capabilities? Theory and examples. *Journal of Strategy and Management, Vol. 5, Iss. 4*, pp. 381-392, doi: 10.1108/17554251211276353

22. Makadok, R. (2001). Toward a synthesis of the resource-based and dynamic-capability views of rent creation. *Strategic Management Journal, Vol. 22, Iss. 5*, pp. 387-401, doi: 10.1002/smj.158
23. Medina, R., Medina, A. (2017). Managing competence and learning in knowledge-intensive, project-intensive organizations: a case study of a public organization. *International Journal of Managing Projects in Business, Vol. 10, Iss. 3*, pp. 505-526, doi: 10.1108/IJMPB-04-2016-0032
24. Nelson, R.R., Winter, S.G. (1982). *An evolutionary theory of economic change*. Cambridge, Mass.: Belknap-Harvard University Press.
25. Pitelis, C.N., Teece, D.J., Yang, H. (2024). Dynamic capabilities and MNE global strategy: a systematic literature review-based novel conceptual framework. *Journal of Management Studies, Vol. 61, Iss. 7*, pp. 3295-3326, doi: 10.1111/joms.13021
26. Spencer, L.M., Jr., Spencer, S.M. (1993). *Competencies at work: Models for superior performance*. New York: John Wiley & Sons.
27. Szafrański, M. (2022). *Modelowanie wymagań kompetencyjnych na stanowiskach pracy [Modelling competency requirements at work positions]*. Poznań: Wydawnictwo Politechniki Poznańskiej.
28. Teece, D.J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal, Vol. 28, Iss. 13*, pp. 1319-1350, doi: 10.1002/smj.640
29. Teece, D.J. (2023). The evolution of the dynamic capabilities framework. In: R. Adams, D. Grichnik, A. Pundziene, C. Volkmann (Eds.), *Artificiality and sustainability in entrepreneurship: Exploring the unforeseen and paving the way to a sustainable future* (pp. 113-129). Cham: Springer.
30. Teece, D.J. (2024). Evolutionary economics, routines, and dynamic capabilities. K. Dopfer, R.R. Nelson, J. Potts, A. Pyka (Eds.), *Routledge Handbook of Evolutionary Economics* (pp. 197-214). London: Routledge.
31. Teece, D.J., Pisano, G. (1994). The dynamic capabilities of firms: an introduction. *Industrial and Corporate Change, Vol. 3, Iss. 3*, pp. 537-556, doi: 10.1093/icc/3.3.537-a
32. Teece, D.J., Pisano, G., Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, Vol. 18, Iss. 7*, pp. 509-533, doi: 10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z
33. Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal, Vol. 5, Iss. 2*, pp. 171-180, doi: 10.1002/smj.4250050207
34. Whiddett, S., Hollyforde, S. (2003). *A Practical Guide to Competencies: How to Enhance Individual and Organisational Performance*. London: Chartered Institute of Personnel and Development Publishing.
35. Woodruffe, C. (1993). What Is Meant by a Competency? *Leadership & Organization Development Journal, Vol. 14, Iss. 1*, pp. 29-36, doi: 10.1108/eb053651

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

THE LEVEL OF INCLUSIVENESS IN POLISH UNIVERSITIES COMPARED TO SELECTED EUROPEAN COUNTRIES – A COMPARATIVE ANALYSIS

Anna TOMASZUK[1*], Anna WASILUK[2]

[1] Bialystok University of Technology; a.tomaszuk@pb.edu.pl, ORCID: 0000-0002-2675-0323
[2] Bialystok University of Technology; a.wasiluk@pb.edu.pl, ORCID: 0000-0002-5980-333X
* Correspondence author

Purpose: The aim of this article is to identify and compare the level of academic inclusiveness, measured across two dimensions – belongingness and uniqueness – among students from selected European countries.
Design/methodology/approach: The study was conducted using an original questionnaire developed on the basis of the inclusiveness model proposed by Shore et al. (2011) and validated by Chung et al. (2020). The instrument was designed to measure two dimensions of the inclusiveness experience: belongingness and uniqueness. The sample used for the purposes of this article comprised students from Poland, Spain, Portugal, Italy, and France (N = 1084). A comparative analysis was conducted to identify differences and similarities in the perception of academic inclusiveness across national groups.
Findings: Students from Spain and Portugal achieved the highest scores in areas related to emotional bonding, perceived care, and overall sense of group belonging. Polish students consistently obtained lower scores across these three constructs, indicating a weaker sense of integration within the academic environment. The key factor differentiating levels of academic inclusiveness is the sense of belonging, which remains statistically significantly lower among Polish students compared to their Spanish counterparts. This may indicate a less communal character of academic relationships and a more reserved communication style.
Research limitations/implications: The main limitations of the study include the non-representative sampling based on the snowball method and the unequal distribution of respondents across countries, which restricts the generalizability of the findings. Additionally, the use of a self-report measurement instrument entails the risk of response subjectivity.
Future research should employ more representative samples, incorporate additional contextual variables.
Practical implications: The results highlight the need to strengthen the sense of belonging within academic environments, particularly in Poland, through initiatives that foster integration, collaboration, and open communication.
Social implications: They emphasize the importance of inclusiveness for developing social competencies and effective functioning in diverse societies.
Originality/value: The study's value lies in combining a well-established theoretical framework with a comparative perspective across multiple European higher education contexts,

contributing to a deeper understanding of both universal and culture-specific determinants of academic inclusiveness.
Keywords: academic inclusiveness, belongingness, uniqueness, cultural diversity, higher education.
Category of the paper: research paper.

1. Introduction

In the coming years, organizations will be compelled to transform their modes of operation in ways that account for increasing social and demographic diversity, creating collaborative environments that enable the coexistence of different lifestyles, values, needs, and forms of participation (Władarczyk, 2025). Contemporary organizations operate within an increasingly diverse social environment – both culturally and demographically. Diversity management, a subject of scholarly interest for over four decades, is progressively shifting toward inclusive management, the aim of which is to promote integration and to value diversity (Nishii, 2013). This shift reflects a growing awareness that addressing the challenges arising from diversity requires the active creation of inclusive environments (Holvino et al., 2004).

This issue is particularly significant in the academic context. An inclusive environment not only enhances students' well-being and engagement and contributes to equal opportunities in higher education, but also prepares individuals to function effectively in a diverse society. Experiences of collaboration and dialogue in diverse – especially cultural and social – contexts foster the development of intercultural competencies, empathy, and communication skills (Gurin et al., 2002). Students who feel accepted and represented within the academic environment demonstrate higher levels of engagement, motivation to learn, and overall satisfaction with their studies (Strayhorn, 2019). In the long term, inclusive academic environments contribute to the development of more open-minded, reflective, and socially responsible citizens (Steward, 2023).

With the increasing socio-cultural diversity among students – resulting, among other factors, from migration, the internationalization of education, demographic changes, and the development of equality policies – higher education institutions face the challenge of creating spaces that not only provide access to education but also ensure that each individual experiences a sense of belonging, fair treatment, and opportunities for development (Thomas, May, 2010; Strayhorn, 2019). Despite a growing number of initiatives aimed at promoting equality and diversity, there remains a relative scarcity of comparative studies examining how inclusiveness is perceived and implemented across different national contexts. Accordingly, the aim of this article is to determine the level of inclusiveness among Polish students in comparison with students from selected European countries. Inclusiveness was measured based on two dimensions – belongingness and uniqueness (Shore et al., 2011; Chung et al., 2020).

2. Inclusiveness in the Academic Environment – Theoretical Foundations and Literature Review

Inclusiveness is a multidimensional concept which, depending on the research context and the adopted theoretical framework, may assume different meanings. From a socio-political perspective, it is analyzed in relation to social justice and civil rights and is understood as the possibility of active participation of all individuals and social groups in public life, regardless of characteristics such as social status, gender, origin, sexual orientation, or religion (Young, 2000). From a managerial perspective, inclusiveness is defined as the process of creating conditions that enable the full participation of all organizational members, regardless of their affiliation with minority groups. In organizational terms, inclusiveness refers to policies and practices that simultaneously promote diversity and equality (Shore et al., 2011), as well as the creation of a work environment in which differences are valued rather than marginalized. From a psychological perspective, inclusiveness is perceived as a state in which an individual feels both accepted and authentic (Brewer, 1991). Both the meaning and implementation of inclusiveness may vary depending on cultural and institutional contexts. Consequently, the level and structure of inclusiveness may be experienced differently depending on the country and the higher education system.

The appeal of inclusiveness lies in its positive orientation, focusing on the recognition and appreciation of individual differences (Ferdman, Deane, 2014). It assumes equal opportunities for members of socially marginalized groups to participate in and contribute to the organization, while also ensuring that individuals from non-marginalized groups can engage authentically. Inclusive environments are grounded in value systems that respect all perspectives represented by their members and enable different groups to support one another in striving for full participation at all levels (Shore et al., 2018). The extent to which these assumptions are realized may vary depending on cultural norms and dominant styles of social relations, which distinguishes inclusive environments from exclusionary ones, where all participants are expected to conform to pre-established organizational values and norms (Shore et al., 2011).

Although research on inclusiveness is still in its early stages, the importance of creating inclusive environments is becoming increasingly recognized – not only due to rising levels of diversity (Nishii, Rich, 2014), but also because of the benefits observed within organizations. Among the most frequently reported outcomes are higher organizational commitment (Brimhall et al., 2017), satisfaction of psychological needs (Paolillo et al., 2021), reduced employee turnover, fatigue, and burnout (Panicker, Sharma, 2020; Behnke et al., 2022), as well as an overall decrease in negative behaviors (Luo et al., 2022; Santarpia et al., 2023). Although most of these studies have been conducted in organizational settings, it can be assumed that similar mechanisms operate within academic environments, where social and institutional relationships play a crucial role in shaping students' experiences.

The literature on inclusiveness has evolved over recent decades. In its initial phase, it was perceived as a means for organizations to capture the benefits of diversity (Cox, Blake, 1991). However, inclusiveness extends beyond diversity itself. The mere recognition of diversity is insufficient to unlock an organization's potential for innovation, effectiveness, and well-being. What is crucial is how diversity is integrated and experienced by members of the organization (Guillaume et al., 2014).

Pioneers in the systematic measurement of inclusion include Mor-Barak and Cherin (1998), who proposed a scale comprising the following sub-constructs: participation in work groups, roles in decision-making processes, and access to information and resources. The scale was later updated and, building upon existing constructs, enabled data collection at multiple organizational levels (Mor-Barak, 2017). However, a key concept for understanding inclusiveness, according to the authors, is Optimal Distinctiveness Theory (ODT) (Brewer, 1991), which represents one of the most important frameworks integrating the psychological social needs of individuals. This theory emphasizes that individuals prefer groups that allow them to simultaneously experience a sense of belonging and maintain their individuality. According to ODT, individuals engage in group relationships not only to gain acceptance and a sense of belonging, but also to affirm their individuality. The need for belonging reflects a universal desire to be part of a community, to draw support from it, and to shape one's social identity. In contrast, the need for uniqueness is associated with the desire to be a distinct individual, differentiated from others, which supports the development of personal identity and autonomy. Although these needs may appear contradictory, they are not mutually exclusive. On the contrary, the most satisfying social identity develops when individuals are able to simultaneously fulfill their need for belonging and their need for distinctiveness. This state of balance, referred to as "optimal distinctiveness," represents a psychological ideal in which an individual can remain true to themselves while being part of a community. Inclusiveness is defined in a similar way by Shore et al. (2011) – as the degree to which an individual perceives themselves as a valued member of a group through treatment that satisfies their needs for belongingness and uniqueness. The model proposed by Shore and colleagues, subsequently operationalized by Chung et al. (2020), is based on the optimal balance between belongingness and uniqueness.

Although, since the publication of ODT (Brewer, 1991) and the model by Shore et al. (2011), there has been debate as to whether the components of belongingness and uniqueness are interrelated or independent, it is generally accepted that they should be conceptualized as coexisting rather than opposing dimensions (Chung et al., 2020). Individuals can belong to a group while simultaneously maintaining their uniqueness (Jansen et al., 2014), and an increase in the sense of belonging does not necessarily entail a loss of individual distinctiveness (Hornsey, Jetten, 2004).

Building on ODT, the Mor-Barak scale, and the framework developed by Shore et al., the concept of inclusion expands the understanding of integration in the workplace by arguing that accepting and valuing individuals for their unique characteristics – rather than despite them – enhances group dynamics. According to this perspective, belongingness and uniqueness constitute the foundation of inclusive workplaces. Similarly, Czerniawska (2010) points out that the needs for belonging and distinctiveness coexist in both individual and cultural development, and that inclusiveness entails the ability to harmoniously integrate these needs. The inclusion framework, illustrating different combinations of belongingness (and exclusion) and uniqueness (and conformity), is presented in Table 1.

Table 1.
Inclusion framework

	Low level of belonginess	**High level of belonginess**
Low level of uniqueness	**Exclusion** The individual is not treated as a member of the organization with unique value for the workgroup. They do not feel part of the team and do not perceive their distinctiveness as valuable – their presence in the workplace is marginalized.	**Assimilation** The individual is integrated into the team, but this occurs at the expense of expressing their distinctiveness – there are strong expectations to conform to established group norms and to downplay one's uniqueness.
High level of uniqueness	**Differentiation** The individual is not treated as a full member of the organization; however, their unique characteristics are perceived as valuable and necessary for achieving group success.	**Inclusion** The individual feels fully part of the team while being able to remain authentic – individual characteristics are recognized and valued.

Source: Shore et al., 2011.

Inclusiveness undoubtedly constitutes a complex and multidimensional phenomenon which, in the academic context, is further intensified by cultural and institutional diversity resulting from student mobility (Filippou et al., 2025). Scholars point out that the majority of existing research has overlooked countries of Eastern and Southern Europe, focusing predominantly on countries of the Global North. Moreover, inclusiveness has most often been analyzed along single dimensions (e.g., disability), thereby neglecting the complex ethnic, linguistic, and identity-related determinants that increasingly shape the academic reality.

There is also a noticeable lack of comparative analyses in the literature that would allow for an assessment of whether particular dimensions of academic inclusiveness exhibit similar levels of cross-cultural variation, or whether the dimension of belongingness is more susceptible to cultural context than the dimension of uniqueness.

3. Research methodology

The aim of the presented study was to determine the level of academic inclusiveness among Polish students in comparison with students from selected European countries. Inclusiveness was understood as the simultaneous fulfillment of two key psychological needs: the need for belongingness (being an accepted member of a group and perceiving that caring relationships have been established and maintained within the group) and the need for uniqueness (the ability to express one's identity and distinctiveness, as well as the perception that one can differ from other group members, hold different views, and that these differences are recognized and respected by others) (Shore et al., 2011).

To measure academic inclusiveness, an original questionnaire was employed, developed on the basis of the two-dimensional model of inclusiveness proposed by Shore et al. (2011) and operationalized by Chung et al. (2020). Within each subscale (dimension), five constructs were examined (see Table 2). Responses were provided using a five-point Likert scale (level of agreement: 1 – "strongly disagree"; 5 – "strongly agree"). Respondents were asked to assess the extent to which individual statements reflected their experiences related to functioning within the academic environment of their home institutions.

Table 2.
Items used in the belongingness and uniqueness subscales

	Item
Belonginess	B1: I am treated as a valuable member of my workgroup.
	B2: I belong in my work group
	B3: I feel a strong bond with my group at the university.
	B4: I feel that my student group is a place where I am meant to be.
	B5: I feel that students in my group care about me.
Uniqueness	U1**:** I am able to contribute unique characteristics and skills to my student group that distinguish me from other members.
	U2: Other students in my group listen to me, even when my views differ from theirs.
	U3: During classes, I feel comfortable expressing opinions that differ from those of my group.
	U4: I am able to share my thoughts on various issues, even when they differ from the views of other students.
	U5: When my group's perspective becomes too narrow, I am able to introduce a new point of view.

Source: Author's own elaboration based on Shore et al. (2011).

In line with the adopted research assumptions, the following research hypotheses were formulated:

H1: There are statistically significant differences in the level of experienced academic inclusiveness among students from European countries.

H2: The dimension of belongingness exhibits greater cross-cultural variation than the dimension of uniqueness in the perception of academic inclusiveness among students from selected European countries.

The study was conducted in the first quarter of 2025 using a quantitative research method – an online survey (CAWI). The questionnaire was prepared in electronic form and distributed via the Google Drive platform. The survey link was disseminated with a request for further sharing (snowball sampling method). The sampling procedure was non-probabilistic and non-representative.

The article attempts to analyze respondents from selected European countries – Poland, Spain, Portugal, Italy, and France. The criterion for selection was the highest response rate to the questionnaire in these European countries. Ultimately, 1,084 questionnaires were included in the analysis. The structure of the research sample is presented in Table 3.

Table 3.
Structure of respondents

Country of origin	Number and structure of respondents	
	(N)	(%)
Poland	535	49.35
Spain	438	40.41
Portugal	65	6.00
Italy	24	2.21
France	22	2.03
Total	1084	100

Source: Author's own elaboration based on the conducted research.

The data collected in the study were subjected to statistical analysis using Statistica 13.1 software. To verify the research hypotheses, a set of quantitative analyses was applied. In the first stage, descriptive statistics were used (arithmetic means (M) and standard deviations (SD) for each item of the inclusiveness scale, as well as for the overall scale and its two subscales: belongingness and uniqueness). This enabled a descriptive overview of the distribution of results and their variability across individual regions.

In the subsequent stage, the non-parametric Kruskal-Wallis test (allowing for comparisons among more than two independent groups) was applied. The analyses were conducted for the overall inclusiveness scale and its two components: belongingness and uniqueness. In cases where statistically significant differences were identified, Dunn's post hoc test with Bonferroni correction was performed to determine which pairs of groups differed significantly. Additionally, to assess the magnitude of the observed effects, the effect size coefficient r was calculated, allowing for an evaluation of the practical significance of the results.

The results of the reliability analysis indicate high internal consistency for both the overall scale and its two subscales. The Cronbach's alpha coefficient for the total scale was 0,8998; the belongingness subscale achieved a value of 0,8586, while the uniqueness subscale reached 0,8374. All of these values fall within the 0,8-0,9 range, which is considered indicative of high reliability. This suggests that the constructed questionnaire consistently and accurately reflects the two key dimensions of academic inclusiveness and is suitable for further comparative analyses.

4. Analysis of results and discussion

In order to identify differences in the perception of academic inclusiveness among students from selected European countries, an analysis of responses to the ten items of the inclusiveness scale was conducted (see Table 4 and 5).

Table 4.
Differences in the evaluation of inclusiveness scale items depending on respondents' country of origin – part 1

Subscales	Poland		Spain		Portugal		Italy		France	
	M	SD	M	SD	M	SD	M	SD	M	SD
B1	3.66	1.03	3.63	1.09	3.71	1.11	3.50	1.25	3.41	1.01
B2	3.60	1.15	3.63	1.10	3.42	1.24	3.71	1.16	2.91	1.31
B3	3.11	1.17	3.70	1.13	3.62	1.13	3.58	1.14	3.14	1.28
B4	3.24	1.12	3.63	1.06	3.42	1.26	3.58	1.06	3.09	1.06
B5	3.21	1.15	3.64	1.09	3.62	1.25	3.50	1.32	3.14	1.08
U1	3.59	1.08	3.56	1.06	3.45	1.16	3.50	1.18	3.27	0.98
U2	3.53	0.99	3.72	1.08	3.49	1.15	3.79	1.14	3.50	0.96
U3	3.41	1.13	3.61	1.11	3.63	1.23	3.75	1.07	3.50	1.10
U4	3.62	0.99	3.61	1.08	3.40	1.26	3.50	1.10	3.41	1.22
U5	3.49	1.00	3.61	1.07	3.40	1.20	3.58	1.18	3.23	1.23

M - mean, *SD* - standard deviation.

Source: Author's own elaboration based on the conducted research.

Table 5.
Differences in the evaluation of inclusiveness scale items depending on respondents' country of origin – part 2

Subscales	H	P	r
B1	2.26	0.692	0.051
B2	7.76	0.100	0.053
B3	66.43	0.000	0.241
B4	30.25	0.000	0.156
B5	36.62	0.000	0.174
U1	3.04	0.551	0.052
U2	11.63	0.020	0.079
U3	9.69	0.056	0.047
U4	2.14	0.710	0.051
U5	5.76	0.218	0.056

H – Kruskal–Wallis test statistic, p – statistical significance (p significant when < 0.05), r – effect size coefficient.

Source: Author's own elaboration based on the conducted research.

The highest value of the H statistic (66,43) was recorded for the belongingness item related to experiencing a strong bond with the group. The p-value indicates statistically significant differences between countries; according to the post hoc analysis, Polish students experience a significantly weaker bond with their group compared to students from Spain and Portugal. No significant differences were observed among the remaining countries. This result suggests that, for these two national groups, the relational component of belongingness is sensitive to

national and institutional contexts, which is consistent with the assumptions of ODT (Brewer, 1991).

Similarly, the analysis of the item "I feel that my student group is a place where I am meant to be" revealed statistically significant differences. Post hoc analysis indicated that, as in the case of experiencing a strong bond with the group, Spanish students reported a significantly stronger sense of belonging to their student group than Polish students. The remaining differences, although observable at the level of means, did not reach statistical significance. This suggests that the sense of "being in the right place" within a student group is more strongly socially conditioned than individually determined, which is supported by the literature on belongingness as a relational need.

The final construct within the belongingness dimension in which statistically significant differences were observed concerns the sense of mutual care (B5). Here as well, Polish students reported significantly lower levels than Spanish (and Portuguese) students. This finding reinforces the interpretation of belongingness as a dimension closely linked to the quality of interpersonal relationships and norms of social support, as emphasized in research on organizational inclusiveness (Shore et al., 2011).

In summary, the analysis of the items constituting the belongingness dimension indicates that three constructs – emotional bond with the group, sense of belonging to the group, and perceived care from fellow students – exhibit statistically significant differences across nationalities. Polish students achieved the lowest scores in each of these three areas, suggesting a weaker sense of connection and belonging compared to students from other countries. These results are consistent with hypothesis H1 and confirm the existence of variation in academic inclusiveness among students from different European countries.

The highest scores in these constructs were observed among students from Spain and Portugal, which may indicate stronger interpersonal relationships and a greater role of social support within their student groups. Italy and France occupy intermediate positions – the results of students from these countries are moderate, yet generally slightly higher than those observed in Poland. Although the differences are statistically significant, the effect size indicator r (respectively 0,241 (B3); 0,156 (B4); 0,174 (B5)) suggests a small to moderate effect size, indicating the need for cautious interpretation of their practical significance.

The analysis of responses related to the second component of inclusiveness – uniqueness – revealed statistically significant differences in only one item. Significant differences were found regarding being listened to despite holding different views (U2). Post hoc analysis identified differences between students from Spain and Poland, with Spanish students more frequently declaring that their opinions are taken into account. This difference may reflect variations in academic communication styles; however, due to the small effect size, its practical significance should be interpreted with considerable caution.

Tables 6 and 7 presents a comparison of the overall level of academic inclusiveness and its two components – belongingness and uniqueness. This approach allows for a more general analysis of differences between groups and facilitates the identification of consistent patterns within the main dimensions of the studied variable.

Table 6.
Comparison of academic inclusiveness results, including constructs, among students from selected European countries – part 1

Constructs	Poland		Spain		Portugal		Italy		France	
	M	SD	M	SD	M	SD	M	SD	M	SD
Inclusiveness	3.45	0.80	3.63	0.78	3.51	0.91	3.60	0.76	3.26	0.60
Belonginess	3.36	0.93	3.65	0.84	3.55	0.96	3.58	0.93	3.14	0.83
Uniqueness	3.53	0.84	3.62	0.82	3.47	0.96	3.63	0.79	3.38	0.57

M - mean, *SD* - standard deviation.

Source: Author's own elaboration based on the conducted research.

Table 7.
Comparison of academic inclusiveness results, including constructs, among students from selected European countries – part 2

Constructs	H	p	r
Inclusiveness	14.86	0.005	0.1171
Belonginess	24.22	0.001	0.149
Uniqueness	3.840	0.428	0.060

H – Kruskal–Wallis test statistic, p – statistical significance (p significant when < 0.05), r – effect size coefficient.

Source: Author's own elaboration based on the conducted research.

The analysis of the overall level of inclusiveness indicates the presence of statistically significant differences. The lowest level was observed among students from France, while the highest was recorded in Spain. Polish students ranked just above their French counterparts. Post hoc analysis revealed differences between Polish and Spanish students – the overall level of inclusiveness within the academic community is lower among Polish students compared to Spanish students. This result further supports hypothesis H1.

The inclusiveness construct in which statistically significant differences were observed is belongingness. Post hoc analysis indicated a lower level of belongingness among Polish students compared to Spanish students, which is consistent with the earlier analysis of individual items within both constructs.

The analysis of the second inclusiveness construct – uniqueness – indicates that although differences in its level exist, they are not statistically significant. This may suggest a relative stability of this component of inclusiveness across different national contexts, which is consistent with the assumptions of ODT, according to which the need for uniqueness has a more individual and less context-dependent character (Brewer, 1991; Shore et al., 2011). At the same time, the lack of significant differences in the uniqueness dimension at the subscale level confirms hypothesis H2.

In summary, students from Spain and Portugal demonstrate a significantly higher sense of inclusiveness than students from Poland, which may result from differences in integration practices, communication styles, and academic cultures. Countries of Southern Europe may be characterized by a more relational and community-oriented model of education, with greater mutual support and more open communication. These findings align with the literature indicating that belongingness is the component of inclusiveness most sensitive to cultural context, whereas uniqueness remains relatively consistent across cultures.

The findings of this study may serve as a basis for reflection on higher education policies in Poland, particularly in terms of fostering openness, collaboration, and a sense of belonging within student groups. This is especially important given that belongingness is identified as a key component of academic success, psychological well-being, and student retention, particularly among marginalized individuals, students with disabilities, and first-generation students (Allen et al., 2023). Students with a higher sense of belonging are also more likely to engage in activities that contribute to the development of the university community (Masika, Jones, 2016).

5. Conclusion

The aim of the study was to compare the level of experienced academic inclusiveness among Polish students with that of students from selected European countries. The statistical analyses conducted allowed for the confirmation of hypothesis H1, indicating the presence of statistically significant differences between countries both in the overall level of academic inclusiveness and in one of its key components – belongingness. At the same time, no statistically significant differences were found within the dimension of uniqueness.

The obtained results also confirmed hypothesis H2, according to which the belongingness component exhibits greater cross-cultural variation than the uniqueness component. Analyses conducted at both the subscale and individual item levels indicate that the sense of belonging to the academic community is more susceptible to the influence of cultural, social, and institutional factors than the sense of uniqueness. These findings are consistent with the assumptions of ODT and the inclusiveness model proposed by Shore et al. (2011), according to which the need for belongingness has a more relational and context-dependent character, whereas the need for uniqueness demonstrates greater individual stability.

Despite providing valuable empirical insights, the study has certain limitations that should be taken into account when interpreting the results. First, the sampling method, based on snowball sampling, and its non-representative nature limit the generalizability of the findings to the broader student populations in the respective countries. Additionally, the analysis covered only selected European countries, which does not allow for a comprehensive understanding of

academic inclusiveness across the entire European context. Unequal sample sizes across countries may also have affected the statistical power of the tests and the detectability of effects. Furthermore, the use of the CAWI method and an exclusively self-report measurement instrument entails the risk of response subjectivity and social desirability bias, which may lead to inflated assessments of inclusiveness.

Future research should consider incorporating additional differentiating variables, such as gender, level, mode, and field of study, as well as employing more balanced and randomized sampling procedures. Important directions for further analysis may also include comparative studies that take into account characteristics of educational systems, as well as longitudinal studies enabling the observation of changes in inclusiveness over time, including the impact of academic experiences and implemented educational interventions.

In conclusion, the conducted study makes a meaningful contribution to the literature on academic inclusiveness by highlighting the importance of cultural context in shaping students' sense of belonging and emphasizing this component as a key dimension of inclusiveness in European higher education.

Acknowledgements

The research was carried out as part of project no. WZ/WIZ-INZ/3/2026 at Bialystok University of Technology and financed from the research subsidy granted by the minister responsible for science.

References

1. Allen, K.-A., Slaten, C., Hong, S., Lan, M., Craig, H., May, F. (2023). Belonging in higher education: A twenty-year systematic review. *Journal of University Teaching & Learning Practice*, *20(2),* pp. 45-78. https://doi.org/10.53761/1.20.2.3
2. Behnke, J., Rispens, S., Demerouti, E. (2022). Does the interplay of diversity and inclusion buffer the impairment of health and well-being in a STEM organization? *Journal of Personnel Psychology, 22(2),* pp. 66-75, doi: 10.1027/1866-5888/a000311
3. Brewer, M.B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin, 17*(5), pp. 475-482. https://doi.org/10.1177/0146167291175001

4. Chung, B.G., Ehrhart, K.H., Shore, L.M., Randel, A.E., Dean, M.A., Kedharnath, U. (2020). Work group inclusion: Test of a scale and model. *Group & Organization Management, 45(1),* pp. 75-102. https://doi.org/10.1177/1059601119839858
5. Cox, T.H., Jr, Blake, S. (1991). Managing cultural diversity: implications for organizational competitiveness. *The Executive*, *5(3),* pp. 45-56, www.dx.doi.org.mtrproxy.mnpals.net/10.5465/ame.1991.4274465
6. Czerniawska, M. (2010). *Zmiany wartości i postaw młodzieży w okresie przeobrażeń ustrojowych. Kolektywizm versus indywidualizm. Studium interdyscyplinarne*. Białystok: Oficyna Wydawnicza Politechniki Białostockiej.
7. Ferdman, B.M., Deane, B.R. (Eds.) (2014). *Diversity at work: The practice of inclusion.* San Francisco, CA: Jossey-Bass.
8. Filippou, K., Acquah, E.O., Bengs, A. (2025). Inclusive policies and practices in higher education: A systematic literature review. *Review of Education*, *13*, *e70034*. https://doi.org/10.1002/rev3.70034
9. Guillaume, Y.R., Dawson, J.F., Priola, V., Sacramento, C.A., Woods, S.A., Higson, H.E., Budhwar, P., est, M.A. (2014). Managing diversity in organizations: An inte grative model and agenda for future research. *European Journal of Work and Organizational Psychology*, *23(5),* pp. 783-802. DOI:10.1080/1359432X.2013.805485
10. Gurin, P., Dey, E.L., Hurtado, S., Gurin, G. (2002). Diversity and higher education: Theory and impact on educational outcomes. *Harvard Educational Review*, *72(3),* pp. 330-366. https://doi.org/10.17763/haer.72.3.01151786u134n051
11. Holvino, E.H., Ferdman, B.M., Merrill-Sands, D. 2004. Creating and sustaining diversity and inclusion in organizations: Strategies and approaches. In: M.S. Stockdale, F.J. Cosby (Eds.), *The psychology and management of workplace diversity*. Malden, MA: Blackwell.
12. Hornsey, M.J., Jetten, J. (2004). The individual within the group: Balancing the need to belong with the need to be different. *Personality and Social Psychology Review, 8,* pp. 248-264.
13. Jansen, W.S., Otten, S., van der Zee, K.I., Jans, L. (2014). Inclusion: Conceptualization and measurement. *European Journal of Social Psychology*, *44,* pp. 370-385. https://doi.org/10.1002/ejsp.2011
14. Luo, J., Li, S., Gong, L., Zhang, X., Wang, S. (2022). How and when workplace ostracism influences employee deviant behavior: a self-determination theory perspective. *Frontiers in Psychology, 13, 1002399*, doi: 10.3389/fpsyg.2022.1002399
15. Masika, R., Jones, J. (2016). Building student belonging and engagement: Insights into higher education students' experiences of participating and learning together. *Teaching in Higher Education, 21(2),* pp. 138-150. https://doi.org/10.1080/13562517.2015.1122585
16. Mor-Barak, M.E. (2017). *Managing diversity: Toward a globally inclusive workplace* (4th ed.). SAGE Publications, Inc.

17. Mor-Barak, M.E., Cherin, D.A. (1998). A tool to expand organizational understanding of workforce diversity: Exploring a measure of inclusion-exclusion. *Administration in Social Work, 22,* pp. 47-64.
18. Nishii, L.H. (2013). The benefits of climate for inclusion for gender-diverse groups. *Academy of Management Journal*, *56(6),* pp. 1754-1774. http://dx.doi.org/10.5465/amj.2009.0823
19. Nishii, L.H., Rich, R.E. (2014). Creating inclusive climates in diverse organizations. In: B.M. Ferdman, B.R. Deane (Eds.), *Diversity at work: The practice of inclusion*. San Francisco, CA: Jossey-Bass. https://doi.org/10.1002/9781118764282.ch11
20. Panicker, A., Sharma, A. (2020). Demonstrating the impact of participative decision making, distributive justice perception and growth opportunities on favorable and unfavorable employee outcomes: mediating effect of workplace inclusion in Indian HEIs. *International Journal of Business Science and Applied Management*, *15(1),* pp. 30-46. https://hdl.handle.net/10419/261643
21. Paolillo, A., Sinval, J., Silva, S.A., Scuderi, V.E. (2021). The relationship between inclusion climate and voice behaviors beyond social exchange obligation: the role of psychological needs satisfaction. *Sustainability*, *13(18), 10252,* doi: 10.3390/su131810252.
22. Santarpia, F.P., Sommovigo, V., Borgogni, L. (2024). The Social Drivers of Inclusive Workplaces scale: A preliminary validation of the questionnaire. *Equality, Diversity and Inclusion. An International Journal, 43(4),* pp. 610-631. https://doi.org/10.1108/EDI-01-2023-0022
23. Shore, L.M., Cleveland, J.N., Sanchez, D. (2018). Inclusive workplaces: A review and model. *Human Resource Management Review, 28,* pp. 176-189. https://doi.org/10.1016/j.hrmr.2017.07.003
24. Shore, L.M., Randel, A.E., Chung, B.G., Dean, M.A., Ehrhart, K.H., Singh, G. (2011). Inclusion and diversity in work groups: A review and model for future research. *Journal of Management*, *37(4*), pp. 1262-1289. https://doi.org/10.1177/0149206310385943
25. Stewart, A. (2023). Belonging and uniqueness as essential elements for inclusive workplaces: A literature review. *Pathfinder*, *4(1),* pp. 106-117. https://doi.org/10.29173/pathfinder90
26. Strayhorn, T L. (2019). *College students' sense of belonging: A key to educational success for all students* (2nd ed.). Routledge.
27. Thomas, L., May, H. (2010). Inclusive learning and teaching in higher education: A synthesis of research. *Higher Education Academy*.
28. Włudarczyk, A. (2025). Wiarygodność to podstawa działania. *Personel i Zarządzanie*, *3,* pp. 12-17.
29. Young, I.M. (2000). *Inclusion and democracy*. Oxford University Press.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

ASSESSMENT OF COMPETENCY PROFILES IN THE EMPLOYEE SELECTION PROCESS USING THE THURSTON AND TOPSIS METHODS. A CASE STUDY

Fryderyk WACHOWIAK

Poznan University of Technology; fryderyk.wachowiak@put.poznan.pl, ORCID: 0009-0008-8552-9961

Purpose: The article presents a case study of the assessment of competency profiles in the process of employee selection using the Thurston method and using the TOPSIS analysis. The author presents the results of his own research carried out in plants producing wood-based panels, for the position of visual quality control employee.
Design/methodology/approach: The presented method is based on an expert survey, an employee survey, and analysis of the collected data using the Thurston method and TOPSIS analysis. Finally, it again uses surveys of subjective employee assessments by the supervisor.
Findings: The application of TOPSIS analysis to the assessment of visual quality control employees presented in the article was successfully implemented in one of the plants producing wood-based panels that participated in the research.
Research limitations/implications: The method described applies to selected job positions in a specific industry. Therefore, research should be undertaken to validate the method in other settings. The weakest link in the presented method is the subjective assessment of employees performed by their manager. An unbiased, subjective assessment can be distorted by interpersonal relationships between the manager and the employee. Objectifying this stage will certainly improve the results obtained using the presented method.
Originality/value: The presented content is based on research conducted by the author as part of his doctoral dissertation and has not been previously published. The author's approach to assessing competency profiles is an innovative approach, demonstrating a systematic approach to organizing and selecting employees across the spectrum of problems related to exemplary quality control in the wood-based products industry.
Keywords: competency profiles, Thurston, TOPSIS, employee selection.
Category of the paper: Case study.

1. Introduction

In today's economy, amidst global competition and the global crisis, the importance of product quality is growing. Globalization and intense competition are trends observed worldwide. Unpredictability and turbulence have become inherent features of the environment,

from which opportunities and risks emerge (Włodarkiewicz-Klimek, 2018). Advancing technological advancement helps achieve the best process results. This is largely related to process automation (Gollinger-Tarajko, 2017), enterprise management systems, and general technological advancement. However, as many authors note, despite the growing importance of Industry 4.0 initiatives (Bendkowski, 2017; Basl, 2017; Yazdi et al., 2020), and thus largely the automation of production processes (Stojanovic et al., 2001; Giesko, Mazurkiewicz, Abrowski, Czajka, 2011; Sgarbossa, Grosse, Neumann, Battini, Glock, 2020), people still play a significant role in manufacturing processes. Processes involving human involvement require appropriate competencies, experience, and skills. Therefore, it is necessary to select appropriate employees for processes, operations, and tasks. This allows for optimal utilization of employee potential while ensuring appropriate process security. The question arises: what characteristics should the ideal employee possess for a given process? How can we assess the competency profiles of process employees so that they can be delegated to the appropriate processes?

This article is based on the author's doctoral dissertation. It discusses the competency profile assessment method, defined as a method for assessing "the fundamental characteristics of individuals that determine effective task performance and performance" (Klemp, 1980), in the employee selection process using the Thurston method and TOPSIS analysis. The presented example is based on visual quality control workers in the wood-based panel industry.

2. Visual quality control. Employee characteristics

The importance of visual quality control is widely described in the literature – Hamrol, Kowalik, 2006; Kujawińska, Vogt, 2015; Bożek, Kujawińska, Hamrol, Diering, Rogalewicz, 2017; Gruszka, Tytyk, 2018; Bae, Han, 2021. Visual quality control processes in organizations vary, including in terms of the difficulty of their implementation and their importance to the organization. Therefore, it is important to select the right employees – in this case, controllers – for specific quality control processes. This will allow for optimal utilization of employee potential and appropriate process security.

The literature on the subject lists a wide range of desirable characteristics that a quality controller should possess. These include, among others: mindfulness, objectivity, detail-oriented (Tomic, 2016), but also perceptiveness, experience, temperament or creativity (Vogt, Kujawińska, 2013). Other authors point to knowledge, abilities, skills, health, attitudes and values or motivation (Szymankowska, 2009). According to the National Standard of Professional Competences, quality controllers of mechanical products (2013) should be characterized by good eyesight, accuracy, the ability to distinguish colors, the ability to maintain concentration, resistance to stress, the ability to work under time pressure, technical

and organizational skills, but also communication skills, self-control, innovation and openness. How to assess which of the indicated features are the most important and which of them and to what extent are possessed by employees of a given, specific organization?

3. Methodology

Due to the characteristics of the chosen industry, the author selected a targeted sample – production plants of the largest corporations producing wood-based panels. In the initial phase, 10 production plants in Europe were invited to participate in the study. Ultimately, four plants participated. The research was conducted between March and August 2021. The material was developed as part of the author's doctoral dissertation.

An expert survey was used in the study. Quality assurance department managers (from the four selected plants) with at least two years of professional experience were considered experts. As a result of this stage, the nine most relevant traits desired in visual quality control employees, in the opinion of the expert group, were selected.

In the initial stage of the Thurston analysis, a matrix was developed presenting the weighting assigned by the controllers to the individual criteria selected by the experts (Table 1).

Table 1.
Criteria weightings by controllers

	CRITERIA								
CONTROLLER	**Cr1**	**Cr2**	**Cr3**	**Cr4**	**Cr5**	**Cr6**	**Cr7**	**Cr8**	**Cr9**
C1	2	9	3	5	7	6	1	8	4
C2	3	8	9	7	6	1	5	2	4
C3	1	5	4	3	8	7	2	9	6
C4	3	2	4	7	5	8	1	9	6
C5	6	9	4	8	5	7	1	3	2
C…	6	4	7	2	3	5	9	1	8
C86	4	5	3	8	7	6	1	9	2

Source: own study.

The next step in Thurston's method was to develop a table of proportions. For this purpose, the evaluated criteria were listed in rows and columns. At the diagonal, at the intersection of the same criteria, a proportion value of "0" was entered, as a proportion between the same parameters is impossible. For the remaining intersections of rows and columns, a resulting value was entered, indicating the dominance of one criterion over another - a column over a row (Table 2). These values result from determining the number of times a given criterion was rated as more important than the opposite one. This value is divided by the number of possible cases, i.e., 86 controllers. For example, the dominance value of Criterion 2 over Criterion 1 is 0.71.

Of the 86 respondents, 61 considered Criterion 2 more important than Criterion 1. Therefore, dividing 61 by 86 yields a value of 0.71.

Table 2.
Proportion – Dominance according to Thurston

Criterion	Cr1	Cr2	Cr3	Cr4	Cr5	Cr6	Cr7	Cr8	Cr9
Cr1	0,00	0,29	0,60	0,45	0,29	0,36	0,62	0,24	0,48
Cr2	0,71	0,00	0,69	0,58	0,42	0,50	0,67	0,28	0,56
Cr3	0,40	0,31	0,00	0,40	0,20	0,22	0,47	0,15	0,33
Cr4	0,55	0,42	0,60	0,00	0,35	0,42	0,63	0,30	0,53
Cr5	0,71	0,58	0,80	0,65	0,00	0,56	0,69	0,38	0,66
Cr6	0,64	0,50	0,78	0,58	0,44	0,00	0,69	0,34	0,63
Cr7	0,38	0,33	0,53	0,37	0,31	0,31	0,00	0,28	0,38
Cr8	0,76	0,72	0,85	0,70	0,62	0,66	0,72	0,00	0,70
Cr9	0,52	0,44	0,67	0,47	0,34	0,37	0,62	0,30	0,00

Source: own study.

Next, according to Thurston's method, the standard normal distribution function was used to obtain standardized values used to determine the importance of individual criteria. These values were taken from mathematical tables of distributions. The standardized data used in the study, presented in Table 3, come from the Statsoft website (November 21, 2021) (Table 3).

Table 3.
Standard normal distribution function

	0	**0,01**	**0,02**	**0,03**	**0,04**	**0,05**	**0,06**	**0,07**	**0,08**	**0,09**
0	0,0000	0,0040	0,0080	0,0120	0,0160	0,0199	0,0239	0,0279	0,0319	0,0359
0,1	0,0398	0,0438	0,0478	0,0517	0,0557	0,0596	0,0636	0,0675	0,0714	0,0753
0,2	0,0793	0,0832	0,0871	0,0910	0,0948	0,0987	0,1026	0,1064	0,1103	0,1141
0,3	0,1179	0,1217	0,1255	0,1293	0,1331	0,1368	0,1406	0,1443	0,1480	0,1517
0,4	0,1554	0,1591	0,1628	0,1664	0,1700	0,1736	0,1772	0,1808	0,1844	0,1879
0,5	0,1915	0,1950	0,1985	0,2019	0,2054	0,2088	0,2123	0,2157	0,2190	0,2224
0,6	0,2257	0,2291	0,2324	0,2357	0,2389	0,2422	0,2454	0,2486	0,2517	0,2549
0,7	0,2580	0,2611	0,2642	0,2673	0,2704	0,2734	0,2764	0,2794	0,2823	0,2852
0,8	0,2881	0,2910	0,2939	0,2967	0,2995	0,3023	0,3051	0,3078	0,3106	0,3133
0,9	0,3159	0,3186	0,3212	0,3238	0,3264	0,3289	0,3315	0,3340	0,3365	0,3389
1	0,3413	0,3438	0,3461	0,3485	0,3508	0,3531	0,3554	0,3577	0,3599	0,3621

Source: own study.

Having a table of the standard normal distribution function for values between "0" and the value of the "Z" variable, we move on to determining the standardized values (Table 4). This is done by assigning to each value from the proportion table the appropriate value from the standard normal distribution function table.

Table 4.
Standardized values

	Criterion								
	Cr1	**Cr2**	**Cr3**	**Cr4**	**Cr5**	**Cr6**	**Cr7**	**Cr8**	**Cr9**
Cr1		0,1141	0,2257	0,1736	0,1141	0,1406	0,2324	0,0948	0,1844
Cr2	0,2611		0,2549	0,2190	0,1628	0,1915	0,2486	0,1103	0,2123
Cr3	0,1554	0,1217		0,1554	0,0793	0,0871	0,1808	0,0596	0,1293
Cr4	0,2088	0,1628	0,2257		0,1368	0,1628	0,2357	0,1179	0,2019
Cr5	0,2611	0,2190	0,2881	0,2422		0,2123	0,2549	0,1480	0,2454
Cr6	0,2389	0,1915	0,2823	0,2190	0,1700		0,2549	0,1331	0,2357
Cr7	0,1480	0,1293	0,2019	0,1443	0,1217	0,1217		0,1103	0,1480
Cr8	0,2764	0,2642	0,3023	0,2580	0,2324	0,2454	0,2642		0,2580
Cr9	0,1985	0,1700	0,2486	0,1808	0,1331	0,1443	0,2324	0,1179	
Zn	0,2185	0,1716	0,2537	0,1990	0,1438	0,1632	0,2380	0,1115	0,2019
W*n*	0,7527	0,4226	1,0000	0,6157	0,2271	0,3637	0,8896	0,0000	0,6356

Source: own study.

$$\mathrm{Wn} = \frac{\mathrm{Zn} - \mathrm{Zmin}}{\mathrm{Zmax} - \mathrm{Zmin}} + 1$$

where:
The Zn value represents the arithmetic mean for the nth column.
The Wn value represents the importance of the nth criterion, expressed by the formula:
Zmin is the minimum value of the arithmetic mean of the Zn means from the table.
Zmax is the maximum value of the arithmetic means of the Zn means.

The validity criterion Wn was rescaled due to the fact that normalization in the 0-1 range implies that the lowest-ranking criterion will receive a value of "0," which may be problematic in further arithmetic transformations and interpretation of results. In the analysis result considered in this paper, such a situation occurs for criterion 8. After rescaled to the range (0.1-1.0), we obtain the following results (Table 5).

Table 5.
Rescaled validity criterion

criteria (j)	**Cr1**	**Cr2**	**Cr3**	**Cr4**	**Cr5**	**Cr6**	**Cr7**	**Cr8**	**Cr9**
Wn	0,7775	0,4803	1,0000	0,6541	0,3044	0,4274	0,9006	0,1000	0,6721

Source: own study.

This resulted in a ranking of the importance of the features (Table 6) desired in an ideal employee performing visual quality control of products.

Table 6.
Ranking of the importance of the features of an ideal WKJ controller

Criterion (j)	**Results (Wn)**
Experience	1,000
Observation	0,9006
Decisiveness	0,7775
Training	0,6721
Intelligence	0,6541

Cont. table 6.

Determination	0,4803
Motivation	0,4274
Health	0,3044
Temperament	0,1000

Source: own study.

This stage aimed to answer the question of which of the identified characteristics of visual quality control employees were most important.

The next stage of the study involved a subjective assessment of the quality control employees from a given organization by their supervisor – the head of the quality assurance department. The evaluation focused on the characteristics desired in an ideal quality controller in the indicated industry, identified in the first stage of the study. The survey form developed by the authors used a five-point Likert scale.

The final data analysis, which compared the importance of characteristics and the controllers' ratings, was conducted using TOPSIS analysis. The analysis was used to develop an aggregated index of controller excellence. This analysis allowed for the ranking of specific employees based on their possession of the identified key characteristics of an ideal controller. As a result, the TOPSIS analysis allowed for the aggregation of both the importance of characteristics of an ideal controller and the employee ratings conducted by managers of the studied organizations into a single index. The TOPSIS analysis has been used in various analyses and described in numerous publications, i.e. Chu and Lin (2003), Rahim and Supiyandi et al. (2019), and Widianta, Rizaldi et al. (2018). The TOPSIS algorithm consists of six steps, presented in Table 7.

Table 7.
TOPSIS analysis algorithm

1. Creating a normalized attribute matrix	2. Creating a normalized weight matrix	3. Determining the weighted decision matrix
4. Establishing ideal and anti-ideal reference values	5. Calculating the Euclidean distance from reference objects	6. Determining the ordering measure, creating a ranking of decision variants

Source: own study based on Kacprzak, 2018

In the first step, the author created a normalized attribute matrix, which involved normalizing the attribute values for each variant of a given decision matrix according to the following formula:

$$z_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}}$$

where the number of decision objects/variants i = 1, 2... m; and the number of decision criteria j = 1, 2,… m.

In the second step, a normalized matrix for the decision criteria was determined. The described TOPSIS method does not impose any methods for determining the weights of the decision criteria.

In the next, third step, a weighted, normalized decision matrix was developed using calculations according to the formula:

$$v_{ij} = w_j * z_{ij}$$

Step four involved determining the ideal and anti-ideal values.

$$\text{Ideal value: } a^+ = \begin{cases} \max v_{ij} \text{ for stimulant} \\ \min v_{ij} \text{ for destimulant} \end{cases}$$

$$\text{Anti-ideal values: } a^- = \begin{cases} \min v_{ij} \text{ for stimulant} \\ \max v_{ij} \text{ for destimulant} \end{cases}$$

In step five, all Euclidean distances separating the values of the tested variants for each criterion from the ideal and anti-ideal solutions were calculated.

$$d_i^+ = \sqrt{\sum_{j=1}^{n} (v_{ij} - a_j^+)^2} \text{ for } i = 1,2,\dots,m \text{ and } j = 1,2,\dots,n$$

$$d_i^- = \sqrt{\sum_{j=1}^{n} (v_{ij} - a_j^-)^2} \text{ for } i = 1,2,\dots,m \text{ and } j = 1,2,\dots,n$$

The last, sixth step consisted in determining the ordering measure and creating a ranking of decision variants.

$$R_i = \frac{d_i^-}{d_i^+ + d_i^-}$$

$$i = 1,2,\dots,m \text{ , and } 0 \le R_i \le 1$$

Ri is a number between zero and one, where one represents the relatively best and zero represents the relatively worst.

The used analysis allowed to rank employees based on their distance from the ideal and anti-ideal, using an aggregated controller goodness-of-fit index based on the importance of the ideal controller's characteristics and the controllers' assessment of those characteristics.

4. Summary

The application of TOPSIS analysis to the assessment of visual quality control employees presented in this article was successfully implemented in one of the wood-based panel production plants that participated in the study.

The presented model can also be used by organizations in other industries with different specificities, or to conduct employee assessment processes in various departments. The key is to correctly identify the characteristics that a theoretically ideal employee should possess. A reliable assessment of the importance of these characteristics is also crucial – this is where the Thurston method comes in.

The weakest link in the presented method is the subjective assessment of employees made by the supervisor – in this example, the department manager. This subjective assessment can be distorted by interpersonal relationships between the supervisor and the employee. Therefore, it is advisable to use objective methods for this stage, which will certainly contribute to improving the results.

In the next phase, using the TOPSIS method, an aggregated indicator of employee excellence should be obtained. By considering the importance and assessment of a given characteristic of an ideal employee, we obtain a ranking of the best and least predisposed employees to perform visual quality control tasks.

The data obtained through the use of the presented method can be used for appropriate personnel management – delegating employees closest to the ideal to the most important and challenging tasks. They can also be used to develop individual training plans, strengthening employees' weakest traits.

Further research directions include developing objective methods for assessing quality control employees by their supervisors, for example, using personality tests to avoid subjectivity. Consideration should also be given to designing integrated solutions utilizing IT tools for calculations and data analysis, which will significantly facilitate and accelerate the practical application of the method, particularly in facilities classified as large enterprises due to their employment size.

References

1. Bae, J., Han, S. (2021). Vision-Based Inspection Approach Using a Projector-Camera System for Off-Site Quality Control in Modular Construction: Experimental Investigation on Operational Conditions. *Journal of Computing in Civil Engineering, 35*(5).
2. Basl, J. (2017). Pilot study of readiness of Czech companies to implement the principles of Industry 4.0. *Management and Production Engineering Review*, *8*(2), 3-8. https://doi.org/10.1515/mper-2017-0012
3. Bendkowski, J. (2017). Zmiany w pracy produkcyjnej w perspektywie koncepcji "Przemysł 4.0". *Zeszyty Naukowe Organizacja i Zarządzanie, 112.* Politechnika Śląska, 21-23.

4. Bożek, M., Kujawińska, A., Rogalewicz, M., Diering, M., Gościniak, P., Hamrol, A. (2017). Improvement of catheter quality inspection process, MATEC Web of Conferences 121, 05002. *8th International Conference on Manufacturing Science and Education–MSE 2017 "Trends in New Industrial Revolution"*.
5. Chu, TC., Lin, YC. (2003). A Fuzzy TOPSIS Method for Robot Selection. *The International Journal of Advanced Manufacturing Technology*, *21*, 284-290. https://doi.org/10.1007/s001700300033.
6. Giesko, T., Mazurkiewicz, A., Zbrowski, A., Czajka, P. (2011). Optomechatroniczny system do automatycznej kontroli jakości wyrobów w przemyśle. *Problemy Eksploatacji, 4*, 103-114.
7. Gollinger-Tarajko, M., Zaręba, K. (2017). Motywy działań w kierunku integracji systemów i automatyzacji procesów produkcyjnych. *Innowacje w zarządzaniu i inżynierii produkcji*, *1,* 734-743.
8. Gruszka, J., Tytyk, E. (2018). Problemy ergonomiczne i jakościowe w różnych fazach istnienia wyrobów technicznych. *Organizacja i Zarządzanie ZNPP*, *77*, 66-83, https://doi.org/10.21008/j.0239-9415.2018.077.05
9. Hamrol, A., Kowalik, D. (2006). Wpływ wybranych czynników środowiska pracy na jakość procesu ręcznego montażu samochodowych wiązek kablowych. *Archiwum Technologii Maszyn i Automatyzacji*, *26*(2), 113-127.
10. Kacprzak, D. (2018). Przedziałowa metoda TOPSIS dla grupowego podejmowania decyzji. *Optimum Economic Studies*, *4*(94), 256-273. https://doi.org/10.15290/oes.2018.04.94.19
11. Klemp, G.O. Jr (1980). *The Assessment of Occupational Competence Report to the National Institute of Education*, Washington.
12. Kujawińska, A., Vogt, K. (2015). Human Factors in Visual Quality Control. *Management and Production Engineering Review*, *6*(2), 25-31.
13. Rahim, S., Supiyandi, S., Siahaan, A.P.U., Listyorini, T., Utomo, A.P., Triyanto, W.A., Irawan, Y., Aisyah, S., Khairani, M., Sundari, S. (2018). TOPSIS Method Application for Decision Suport System in Internal Control for Selecting Best Employees. *Journal of Physics*, *Conference Series*, 1028.
14. Sgarbossa, F., Grosse, H.E., Neumann, P.W., Battini, D., Glock, H.C. (2020). Human factors in production and logistics system of the future, *Annual Reviews in Control*, *49*, 295-305.
15. Stojanovic, R., Mitropulos, P., Koulamas, C., Karayiannis, Y., Koubias, S., Papadopoulos, G. (2001). Real-Time Vision-Based System for Textile Fabric Inspection. *Real-Time Imaging, 7(6),* 507-518. https://doi.org/10.1006/rtim.2001.0231
16. Szymankowska, A. (2009). *Marketing personalny w zarządzaniu zasobami ludzkimi*. Rozprawa doktorska. Poznań: UE.

17. Widianta, M.M.D, Rizaldi, T., Setyohadi, D.P.S., Riskiawan, H.Y. (2018). Comparison of Multi Criteria Decision Support Methods (AHP, TOPSIS, SAW & PROMENTHEE) for Employee, 953. *Journal of Physics: Conference Series, The 2nd International Joint Conference on Science and Technology (IJCST)*, 27-28. https://doi.org/10.1088/1742-6596/953/1/012116
18. Yazdi, Z., Sadeghniiat-Haghighi, K., Loukzadeh, Z., Elmizadeh, K., Abbasi, M. (2014). Prevalence of Sleep Disorders and Their Impacts on Occupational Performance: A Comparison between Shift Workers and Nonshift Workers. *Sleep Disorders.* https://doi.org/ 10.1155/2014/870320

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

EDUCATION AND TRAINING STANDARDS IN CCC CERTIFICATION: A COMPARATIVE ANALYSIS OF OECI AND EUNETCCC

Arkadiusz WIERZBIC[1*], Dorota DUDEK-GODEAU[2], Krystian OLEK[3], Katarzyna PIÓRKOWSKA[4], Witold SZUMOWSKI

[1] Uniwersytet Ekonomiczny we Wrocławiu; arkadiusz.wierzbic@ue.wroc.pl, ORCID: 0000-0003-0118-4123
[2] Uniwersytet Ekonomiczny we Wrocławiu; dorota.dudek-godeau@ue.wroc.pl, ORCID: 0000-0002-3815-246X
[3] Uniwersytet Ekonomiczny we Wrocławiu; krystian.olek@ue.wroc.pl, ORCID: 0000-0001-8981-7313
[4] Uniwersytet Ekonomiczny we Wrocławiu; katarzyna.piorkowska@ue.wroc.pl, ORCID: 0000-0001-5880-136X
[5] Uniwersytet Ekonomiczny we Wrocławiu; witold.szumowski@ue.wroc.pl, ORCID: 0000-0002-0709-2978
* Correspondence author

Purpose: The purpose of this paper is to explore education and training standards in CCCs (Comprehensive Cancer Centres) certification within the OECI (Organisation of European Cancer Institutes) and EUnetCCC (European Comprehensive Cancer Centre Network) frameworks.
Design/methodology/approach: To achieve the research purpose, a narrative literature review and secondary data analysis were conducted. Education and training standards were compared across two frameworks: OECI and EUnetCCC.
Findings: The comparative analysis shows that the EUnetCCC standards in the field of Education and Training are reflected in the OECI framework. By contrast, EUnetCCC conceptualises Education and Training as a more explicit, cross - cutting dimension of CCC maturity.
Research limitations/implications: The literature analysis is based on a narrative literature review rather than a systematic one and relies only on secondary data and document review. The analysis is limited to two frameworks: OECI and EUnetCCC. Although these two represent relevant and influential approaches to cancer centre certification in Europe, they do not cover the full diversity of certification and quality assurance models operating across European healthcare systems. The analysed frameworks differ in their institutional maturity and degree of operationalisation, which limits the extent to which they can be compared.
Practical implications: It may help cancer centres benchmark their own practices, identify gaps, and prepare more effectively for certification.
Originality/value: This paper offers an original contribution by focusing on education and training standards as a dimension of European cancer centre certification.
Keywords: CCC - Comprehensive Cancer Centre, EUnetCCC, OECI, certification.
Category of the paper: Research paper.

1. Introduction

Cancer is a public health challenge, which is the result of demographic changes, increasing life expectancy, and change in life-style. Although considerable progress has been made in the field of diagnostics, therapy and drugs, cancer remains one of the leading global health issues.

The EU is working on the initiative of improving the management and control of cancers across the EU, supporting the development of Comprehensive Cancer Centres (CCCs) where the treatment of cancer can be provided within an integrated framework that fosters innovation, research and excellence in the management of cancer patients.

Oncological certification in Europe has become an important area of research due to its impact on cancer care quality, patients' equitable access to care, and patient outcomes (Bierbaum et al., 2024; Brand, Blankart, 2026; Mroczkowski et al., 2025). While progress has been made through the implementation of several oncology certification schemes, multinational standards for multidisciplinary training, and relevant legislation, the process continues and many aspects still need to be addressed for the alignment of cancer certification activities and practices for CCCs in Europe to be achieved between countries (de Paoli, Preziosa, 2024). Organisational certification in oncology means the evaluation of a hospital against a set of national or international quality and safety standards. While individual healthcare professionals can achieve certification in their profession, this certification is more about the structural items, the workflows and the organisational culture that are needed to run a high quality cancer service. Such features are common across several major European certification frameworks for cancer care, as well as features such as multidisciplinary care (Taberna et al., 2020), integration of research with clinical care and quality benchmarking. This trend is extending hospital accreditation towards the certification of Comprehensive Cancer Networks (Wind et al., 2023).

The Joint Action CraNE established the basis for a European network of Comprehensive Cancer Center (CCC) and certification criteria assuring a high level of care and organisational performance. These achievements are being further pursued within the context of the EUnetCCC project, which is aiming at refining the certification criteria for cancer centres with special focus on oncology. Importantly, two European certification schemes for CCCs (from all analysed) has fully met the predefined criteria for the admission of certified CCCs to the future EU Network (de Paoli, Preziosa, 2024), the one of the Organisation of European Cancer Institutes (OECI) and the Deutsche Krebshilfe (DKH).

The aim of this paper is to explore education and training standards in CCC certification within the OECI and EUnetCCC frameworks. This research task was tackled by conducting a narrative literature review and a secondary data-based comparative analysis. The paper is organised into two sections. The first part discusses OECI and EUnetCCC certification schemes. The second part undertakes the actual comparative analysis of the standard requirements of these certification schemes.

2. OECI and EUnetCCC certification schemes

2.1. OECI certification scheme

Amongst OECI's activities, the Accreditation and Designation Programme plays a special role (i.e. Mazzini et al., 2021). Its purpose is not only to assess the quality of care but also to identify the degree of comprehensiveness of a given centre or network - that is, the level of integration of treatment, research, education, and care organisation (OECI, 2025a). According to OECI data accessed on 8 March 2026, the OECI has 177 members, more than half of whom have completed the Accreditation and Designation Programme (A&D Programme) or are in the process of doing so. At that date, the OECI had certified 47 Comprehensive Cancer Centres, 22 Cancer Centres, and 2 Comprehensive Cancer Networks, and 40 are in the accreditation process (OECI, https://accreditation.oeci.eu/certified-centres/, March 8, 2026).

Oberst et al. (2020) identified 100 European Core Quality Standards that serve as the basis for quality requirements for cancer treatment and research centres. In turn, Kehrloesser et al.'s (2021) analysis, based on data from the A&D Programme, showed that this system enables differentiation between Cancer Centres and Comprehensive Cancer Centres using both qualitative and quantitative indicators. It is worth emphasising a key difference and, at the same time, a distinguishing feature of CCCs: their research potential, publication output, and clinical trial activity.

In recent years, the OECI has also developed a pathway for Comprehensive Cancer Networks (CCNs). This model examines not a single hospital but a network of oncology care built around at least one Comprehensive Cancer Centre, which also serves as the network's hub. In the CCN framework, CCC status is first accredited or confirmed. Then, network standards are applied across the entire network to ensure consistency in quality, patient pathways, research, and access to clinical trials (Wind et al., 2023).

The OECI accreditation framework is modular, with the standards defined within it divided into nine areas of oncology unit operations. These areas are: 1. Governance, 2. Organisation of quality systems, 3. Patient involvement and empowerment, 4. Multidisciplinarity, 5. Prevention and Early Detection, 6. Diagnosis, 7. Treatment, 8. Research, 9. Education and training. The exception is the 10th area, titled General, which is assigned only to the quantitative section.

The certification scheme consists of two parts. The first is qualitative and contains 87 synthetic standards, which are described by 287 detailed standards describing CC in the nine areas examined. The second is the Quantitative Questionnaire, which consists of 116 questions/items (no questions are provided for the Prevention and Early Detection area). During evaluation, CCC must comply with all standards and questions specified in the accreditation scheme. In contrast, CC must comply only with selected ones (OECI, 2025b).

2.2. EUCCC certification scheme

An EUCCC is understood as an organisational entity with clear governance, advanced infrastructure, and a high level of expertise. EUCCCs are expected to provide cutting-edge care, including for rare cancers, and to conduct translational research. They may also operate within, or in cooperation with, tumour-specific or regional Comprehensive Cancer Care Networks (CCCNs) (see more at https://eunetccc.eu/about-eunetccc).

The EUCCC certification scheme was developed in response to the needs of Europe's Beating Cancer Plan (EBCP), adopted by the European Commission in 2021. The plan introduced a new EU approach to cancer prevention, treatment, and care, based on policy integration and broad stakeholder involvement. One of its flagship objectives is the establishment of a network of Comprehensive Cancer Centres (CCCs) in every Member State in order to improve access to high-quality diagnosis and treatment and to strengthen cancer research and innovation (Wierzbic et al., 2025, p. 9).

The network is intended to consist of certified centres, with the goal of certifying 100 EUCCCs by 2028. At the same time, candidate centres may use existing OECI and DKH schemes, although these are not accredited certification schemes in the formal EUCCC sense.

The EUCCC certification model was initially developed within the CraNE Joint Action and is being further refined in the EUnetCCC project. A key reference document is D7.2 Set of criteria and standards and their application in a certification process for EU Comprehensive Cancer Centres (Dubois et al., 2024). This document defines standards grouped into seven domains: Governance, Care, Research, Integration of Research and Care, Innovation, Prevention, and Education and Training.

Some of these standards are classified as core standards. These are considered essential within the framework, receive particular attention during certification, require stronger evidence, and are prioritised during audits (Wierzbic et al., 2025, p. 13).

The structure of the set of standards, including the core standards, is presented in Table 1.

Table 1.
Number of standards, broken down by theme, including core standards, in specific themes

Theme	Total number of standards	Number of standards defined as core	Percentage of standards defined as CORE
Governance	39	11	28.2%
Care	134	17	12.7%
Research	60	13	21.7%
Integration Research and Care	40	15	37.5%
Innovation	18	2	11.1%
Prevention	12	1	8.3%
Education and Training	19	7	36.8%
All Themes	322	66	20.5%

Source: Wierzbic et al., 2025, p. 14.

From the perspective of this article, the authors' main area of interest are the standards grouped under Education and Training. It should be noted that the authors do not go beyond this theme/domain in their analysis because of the necessity to fit the article to limited size. Nonetheless there are also standards in other themes that to some extent refer to the Education and Training topic. Analysis of these standards and their reflection in the OECI framework may be the subject of next article.

3. Education & Training – a comparative analysis of OECI and EUnetCCC

The comparative analysis begins with a secondary data analysis of the text documents aimed to identify semantic connections between the standards of both certification schemes. The standards analysis was based on the Sets of Criteria and Standards for CCCs and the OECI Qualitative Standards for Cancer Centres.

Table 2.
A comparative analysis (EUnetCCC and OECI) of standards grouped in Education & Training theme

EUnetCCC Standard in Theme "Education and Trainig"	Is Core standard in EUnetCCC?	Is Covered with OECI?	Corresponding OECI Theme	Corresponding OECI Standard
7.1.1.1 The EUCCCs offers its employees access to comprehensive list of formal education programs (CORE)	Yes	Yes	9. Education and training	85.270. There is a comprehensive training programme for all staff members based on the evaluation of individual training needs. CORE
7.1.1.3 The list of educational programs serves as an annual checklist to ensure that the program offers the education and training needed for the EUCCC to reach its strategic goals.	No	No	No	No standard corresponding.
7.1.1.4 The EUCCCs promotes a range of educational programs meeting professional needs and covers:	No	Yes	3. Patient involvement and empowerment 8. Research	21.67. The cancer centre organises communication (including public events) to showcase advances in cancer care and research. 78.243. There is a programme in place for research talent development.
Undergraduate and post-graduate education				
Continuous Professional Development (CPD) programs				
Postdoctoral research training in cancer				
Public outreach and awareness programs				

Cont. table 2.

7.1.2.1 The EUCCC fosters interdisciplinary and multidisciplinary collaboration by providing educational programs to unite healthcare professionals in a cohesive working relationship. (CORE)	Yes	No	No	No standard corresponding.
7.1.2.2 The EUCCC offers cancer research training programs that emphasise research methodologies, data analysis, and critical appraisal of scientific literature to facilitate integration research and care.	No	No	No	No standard corresponding.
7.1.2.3 The EUCCC offers training program bolstering healthcare professionals' capacity to seamlessly integrate research findings into clinical practice.	No	Yes	8. Research	76.239. Regular meetings on research activities, results and new opportunities are organised to promote interactions minutes of meetings, between researchers and clinicians. 77.242. There are procedures in place to ensure that results from internal and external research are translated into new practice (e.g. diagnostic tools, treatment or prevention).
7.1.3.1 The EUCCC collaborates with training centres, universities, research institutions, and community partners, including patient representatives, to create and offer cancer-related training and education programs. (CORE)	Yes	Yes	1. Governance	5.12. The cancer centre has formal agreements with universities agreements for cancer education, where those entities are not a legal part of the cancer centre. CORE
7.1.3.2 The EUCCC ensures stakeholder involvement in revision of the educational program.	No	No	No	No standard corresponding.
7.1.4.1 The EUCCC develops and offer a range of educational programs and resources for patients and their families, including topics on:	No	Yes	3. Patient involvement and empowerment	21.64. There are patient education programmes/processes that aim education; examples of at improving patient understanding of their illness, diagnosis, events for patients including information on self-care and how to manage multiple aspects of their illness or survivorship. CORE
• Cancer prevention				
• Treatment options				
• Supportive care				
• Self-care				
• Informed decision-making				
7.1.4.2 The EUCCC offer personalised counselling and support services to assist patients and their families in understanding and managing the complexities of cancer care.	No	Yes	3. Patient involvement and empowerment	21.66. Information and support services (including in-person and/or virtual platforms) are available in the cancer centre and easily accessible for staff, patients, family members and care givers.

Cont. table 2.

7.1.4.3 The EUCCC provides access to support groups, survivorship programs, and community resources that can offer additional support and information. (CORE)	Yes	Yes	3. Patient involvement and empowerment	24.80. Information about patients' associations and about self-help, and support groups is given to patients and their caregivers. 28.90. Information is given to patients on relevant patient support and advocacy groups.
7.2.1.1 The EUCCC offers a comprehensive range of educational activities to meet the diverse learning needs of healthcare professionals and cover all stages of the cancer patient pathway. (CORE)	Yes	Yes	7. Treatment 9. Education and training	56.189. Nurses who are involved in the care of cancer patients are trained in oncology according to their role and responsibility. 60.199. There is regular education for staff on pain management. Standards from 85.270-278
7.2.1.2 The EUCCC evaluates the specific educational needs and competencies required for different professional roles in cancer care and design training programs accordingly.	No	Yes	9. Education and training	Standards from 85.273-276, ex. 82.273. Based on the analysis, the cancer centre defines an annual or multi-annual oncology training programme for physicians.
7.2.1.3 The EUCCC regularly based on peer experts and feedback from participants evaluates their training and education programs to inform improvements.	No	Yes	9. Education and training	85.278. The cancer centre collects and analyses feedback about the quality of the continuous professional training programmes.
7.2.2.1 The EUCCC collaborates with patient associations or advocacy groups to co-create education and training programs, ensuring they are aligned with patients' needs and perspectives. (CORE)	Yes	Yes	3. Patient involvement and empowerment	20.63. There is a formalised committee representing the patient voice and serving as a link between the cancer centre and the patients for advice and consultation.
7.2.2.2 The EUCCC integrates patient-centred principles in their education and training programs, highlighting the significance of shared decision-making and empowering patients in their healthcare journey.	No	Yes	3. Patient involvement and empowerment	23.72. There are procedures in place which specify how and by whom patients are informed about their diagnostic results, treatment options and risks, follow-up, and survivorship support, which involve shared decision-making.
7.2.2.3 The EUCCC offers training opportunities for healthcare professionals, aiming to improve their communication skills with patients, involve them in treatment planning, and cater to their unique needs and preferences. (CORE)	Yes	Yes	3. Patient involvement and empowerment	23.74. Expertise and specific training on communicating with patients and their families is available for all relevant staff.
7.2.3.1 The EUCCC participates in student exchange programs, fellowships, and staff mobility to support international education and training.	No	Yes	9. Education and training	86.283. The cancer centre offers oncology education to medical/nursing/supportive discipline students from other countries, e.g. through exchange programmes.

Cont. table 2.

7.2.3.2 The EUCCC engages in a variety of international activities, such as conferences, workshops, research, and meetings, to facilitate knowledge sharing, idea exchange, and collaborative efforts.	No	Yes	8. Research 9. Education and training	75.237. The cancer centre has formalised collaborations with international research organisations and networks. 86.283. The cancer centre offers oncology education to medical/nursing/supportive discipline students from other countries, e.g. through exchange programmes.

Source: Own elaboration.

It briefly looks into the 19 EUnetCCC standards in the field of Education and Training in relation with OECI standards and specifically mentions the relation of core standards with the other standards.

Overall there is a partial but substantial match. 14 out of 19 standards were reflected in the OECI, while 5 did not match with any standard. The highest degree of correspondence was found concerning the organisation of educational programmes, patient and family support, the training needs of doctors, the assessment of educational activities and international co-operation in education.

Standards not included in OECI are those related to the strategic and participatory aspects of education. They include achieving a high level of alignment between educational activities and the institution's objectives, stimulating interdisciplinary approaches within the institution, and strengthening the involvement of external stakeholders. In comparison, the OECI appears to be oriented more towards operational aspects, while EUnetCCC has a clear focus on the strategic and systemic level of education.

4. Conclusion

The main purpose of the paper was to examine the OECI and EUnetCCC frameworks, with special attention to certification standards, in terms of the education and training dimension dedicated to CCCs.

The research results show that the EUnetCCC standards in the field of Education and Training dimension are substantially reflected in the OECI framework. Importantly, the EUnetCCC conceptualises Education and Training as a more explicit dimension of CCC organisational maturity.

Several limitations of the study need to be considered. The literature analysis is based on a narrative literature review rather than a systematic one and relies only on secondary data (document review). Moreover, the comparison is limited to two frameworks: OECI and EUnetCCC. Although these two represent relevant and influential approaches to cancer centre certification in Europe, they do not cover the full diversity of certification across European

healthcare organisations. Finally, the analysed frameworks differ in their institutional maturity and degree of operationalisation, which limits the extent to which they can be compared.

These limitations show several future research directions. We suggest conducting a systematic literature review to provide comprehensive and replicable literature review results on oncology certification in Europe. Additionally, conducting interviews as primary data sources (completing our secondary data analysis) with certification representatives could help us gain a deeper understanding of how education and training standards and requirements are implemented in practice. Moreover, we believe that identifying good practices in certified centres could provide reliable insights into how to incorporate and adapt to certification frameworks effectively.

Acknowledgements

Co-funded by the European Union

The paper is realised within the European Comprehensive Cancer Centre Network (EUNetCCC). EUnetCCC Joint Action is co-funded by the European Union. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or European Health and Digital Executive Agency (HaDEA). Neither the European Union nor the granting authority can be held responsible for them. The authors are not responsible for any further and future use of the report by third parties and third-party translations. The project is co-financed by the Polish Ministry of Science and Higher Education under the programme “Co-financed International Projects”.

The authors would like to express their gratitude for providing data for comparative analysis to EUnetCCC J.A. Work Package 5 leaders: Haute Autorité de Santé and Unicancer.

Generative AI tools were used solely for language editing and linguistic verification of the manuscript, including improvements in grammar, clarity, and readability.

References

1. Bierbaum, V., Bobeth, C., Roessler, M. et al. (2024). Treatment in certified cancer centers is related to better survival in patients with colon and rectal cancer: evidence from a large German cohort study. *World J. Surg. Onc., 22, 11*. Retrieved from: https://doi.org/10.1186/s12957-023-03262-9, 08.03.2026.
2. Brand, T., Blankart, K. (2026). Does access to quality accreditation improve health? - Patient-level evidence from German cancer care. *Eur. J. Health. Econ.*, *27*, 591-607. https://doi.org/10.1007/s10198-025-01833-z
3. de Paoli, P., Preziosa, E. (2024). *Process of Admission to the EU Network of Comprehensive Cancer Centres (D5.1).* CraNE Joint Action, WP5.
4. Dubois, T, LeGall, M, Jego, C, Mæhle, P, Guldvik, I.J. (2024). *D7.2, Set of criteria and standards and their application in a certification process for EU Comprehensive Cancer Centres*. CraNE Joint Action.
5. European Network of Comprehensive Cancer Centres (EUnetCCC). *About EUnetCCC*. Retrieved from: https://eunetccc.eu/about-eunetccc, March 8, 2026.
6. Kehrloesser, S., Oberst, S., Westerhuis, W., Wendler, A., Wind, A., Blaauwgeers, H., Burrion, J.B., Nagy, P., Saeter, G., Gustafsson, E., De Paoli, P., Lovey, J., Lombardo, C., Philip, T., de Valeriola, D., Docter, M., Boomsma, F., Saghatchian, M., Svoboda, M., Philip, I., Monetti, F., Hummel, H., McVie, G., Otter, R., van Harten, W. (2021). Analysing the attributes of Comprehensive Cancer Centres and Cancer Centres across Europe to identify key hallmarks. *Mol. Oncol., May,15(5),* 1277-1288. doi: 10.1002/1878-0261.12950. Epub 2021 Mar 30. PMID: 33734563; PMCID: PMC8096787
7. Mazzini, E., Soncini, F., Cerullo, L. et al. (2021). A focused ethnography in the context of a European cancer research hospital accreditation program. *BMC Health Serv. Res., 21*, 446, https://doi.org/10.1186/s12913-021-06466-5
8. Mroczkowski, P., Kusian, H., Jannasch, O., Lippert, H., Zajdel, R., Zajdel, K., Sadowski, A., Merecz-Sadowska, A. (2025). Treatment Quality of Rectal Cancer Patients in Certified Colorectal Cancer Centers Versus Non-Certified Hospitals: A Comparative Analysis. *Cancers, 17(1),* 120. Retrieved from: https://doi.org/10.3390/cancers17010120, 08.03.2026.
9. Oberst, S., van Harten, W., Sæter, G., de Paoli, P., Nagy, P., Burrion, J.-B., Lovey, J., Philip, T. (2020). 100 European core quality standards for cancer care and research centres. *The Lancet Oncology, 21*(8), 1009-1011. doi:10.1016/S1470-2045(20)30318-1
10. Organisation of European Cancer Institutes (OECI). *Certified Centres*. Retrieved from: March 8, 2026, https://accreditation.oeci.eu/certified-centres/
11. Organisation of European Cancer Institutes (OECI) (2025a). *Accreditation and Designation Programme – User Manual Version 4.0*. ISBN N 9789082576634.

https://accreditation.oeci.eu/. Retrieved from: https://accreditation.oeci.eu/the-ad-programme/#ad-manual, 08.03.2026.

12. Organisation of European Cancer Institutes (OECI) (2025b). *Accreditation and Designation Programme*, Appendices I-X open access extract.
13. Taberna, M., Gil Moncayo, F., Jané-Salas, E., Antonio, M., Arribas, L., Vilajosana, E., Peralvez Torres, E., Mesía, R. (2020). The Multidisciplinary Team (MDT) Approach and Quality of Care. *Front. Oncol., Mar. 20; 10,* 85. doi: 10.3389/fonc.2020.00085. PMID: 32266126; PMCID: PMC7100151
14. Wierzbic, A., Szumowski, W., Organa, M., Olek, K., Dudek-Godeau, D., Guarga, L., Krichen, M., Deutsch, A., Santoro, M., Bernstein, D., Seksek, I., Dorczak, R. (2025). *Initial Comprehensive Certification Framework (D5.3). EUnetCCC Joint Action*, unpublished project deliverable.
15. Wind, A., Oberst, S., Westerhuis, W., Blaauwgeers, H., Sæter, G., de Paoli, P., Nagy, P., Burrion, J.B., Jolly, E., Lovey, J., van Harten, W. (2023). Evaluating comprehensive cancer networks; a review of standards and evaluation methods for care networks to inform a comparison with the OECI comprehensive cancer network standards. *Acta Oncol., Jan; 62(1),* 15-24. doi: 10.1080/0284186X.2023.2170275. Epub 2023 Feb 14. PMID: 36786345

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

CO-CREATING HIGHER EDUCATION WITH STAKEHOLDERS: A CASE OF MICRO-CREDENTIALS DEVELOPMENT AT WROCLAW UNIVERSITY OF ECONOMICS AND BUSINESS

Anna WITEK-CRABB[1*], Niki DERLUKIEWICZ[2], Sylwia WRONA[3]

[1] Wroclaw University of Economics and Business; Anna.Witek@ue.wroc.pl, ORCID: 0000-0003-2801-5952
[2] Wroclaw University of Economics and Business; Niki.Derlukiewicz@ue.wroc.pl, ORCID: 0000-0002-3967-3048
[3] Wroclaw University of Economics and Business; Sylwia.Wrona@ue.wroc.pl, ORCID: 0000-0001-6326-8395
* Correspondence author

Purpose: The goal of this paper is to examine how co-creation can be implemented in the educational design of short learning formats and micro-credentials in collaboration between a higher education institution (HEI) and its stakeholders.
Design/methodology/approach: The study adopted qualitative, dual-case, practice-based inductive design, analysing 2 purposefully selected WUEB projects. The cases were organised using the ADDIE instructional design framework.
Findings: The study demonstrated that effective implementation of micro-credentials benefits from close co-creation processes. In both examined cases, collaboration with external stakeholders was systematic and multi-stage. The findings confirm that co-creation enhances the relevance, flexibility, and responsiveness of educational offerings to stakeholder needs.
Research limitations/implications: The paper is based on the analysis of two case studies within a single institution, which limits the generalisability of the findings.
Practical implications: The study highlights that involving stakeholders in the design of micro-credentials can increase their relevance and responsiveness, leading to more demand-driven and flexible educational formats.
Originality/value: This paper examined the role of co-creation in designing short learning formats and micro-credentials, based on two initiatives implemented at Wroclaw University of Economics and Business: BIPS and K(A)FE. These case studies demonstrated that the effective implementation of micro-credentials benefits from close co-creation.
Keywords: co-creation, HEI, microcredentials.
Category of the paper: Case study.

1. Introduction

The acceleration of technological progress, the emergence of new employment models, and the increasing demand for adaptable competencies have placed growing pressure on higher education institutions (HEIs) to redefine their roles and responsibilities (OECD, 2025; World Economic Forum, 2020; Altbach, Wit, 2018). Contemporary students expect learning experiences that are not only of high academic quality but also flexible, personalised, and strongly connected to real-world contexts (GNEDUCAUSE, 2023). Simultaneously, employers are seeking graduates with the capacity for continuous upskilling, and effective collaboration within dynamic business environments (Brewer, Comyn, 2015). Both learners and employers now place significant value on short learning formats and practice-oriented experiences that support the acquisition of relevant skills and competencies (Milligan, Kennedy, 2017). In this context, micro-credentials, understood as short, competency-based learning experiences that certify the acquisition of specific skills or knowledge through transparent, assessable, and verifiable learning outcomes (European Commission, 2022), gain significance. For these expectations to be incorporated into the new academic programs, the co-creation involving both industry and learner participation is a promising model of curriculum design (Galvagno, Dalli, 2014). In the case of education, co-creation may involve key stakeholders such as employers, learners, and educators in the design process. This collaborative model ensures that educational programmes respond directly to real market needs and increase shared ownership of the outcomes (Sanders, Stappers, 2008). The goal of the paper is to present the implementation of co-creation in the educational design of short learning formats and micro-credentials, between Wroclaw University of Economics and Business (WUEB) and its stakeholders. The study adopts a dual-case, practice-based inductive approach (Yin, 2018; Eisenhardt, 1989), aiming to illustrate a theoretical co-creation model with two purposefully selected cases of HEI-stakeholder collaboration in short learning formats and micro-credentials design. Both projects were described using the ADDIE framework (Gagné et al., 2005) – an instructional design model of 5 stages: Analysis, Design, Development, Implementation and Evaluation.

2. Literature review

A collaborative approach to education design is rooted in the theory of co-creation (Prahalad, Ramaswamy, 2004) and has a long tradition in higher education institutions. Co-creation is the collaborative process by which multiple actors shape value, solutions, or experiences. Prahalad and Ramaswamy (2004) describe it as joint problem definition and

problem solving between organisations and their stakeholders (mainly consumers), Galvagno and Dalli (2014) define co-creation as distributed, collaborative practices in which actors integrate resources, knowledge and competencies to create outcomes that none could produce independently. Organisations engage in co-creation because it accelerates innovation through diverse knowledge sharing (Chesbrough, 2003), increases stakeholder commitment (Ranjan, Read, 2016), and reduces the misalignment between products and customer needs (Payne et al., 2008). In higher education, co-creation refers to the collaborative processes through which students, staff, industry and other stakeholders jointly develop curricula, learning experiences, and educational outcomes. It's a collaborative, reciprocal process through which all participants have the opportunity to contribute equally to curricular or pedagogical design (Bovill et al., 2011; Dunne, Zandstra, 2011). Co-creation enables institutions to include first-hand industry intelligence in educational programme design, thereby strengthening relevance and improving students' employability (Jackson, 2016). A useful way to conceptualise how co-creation between HEIs and industry can be organised is through established instructional design frameworks such as the ADDIE model (Figure 1).

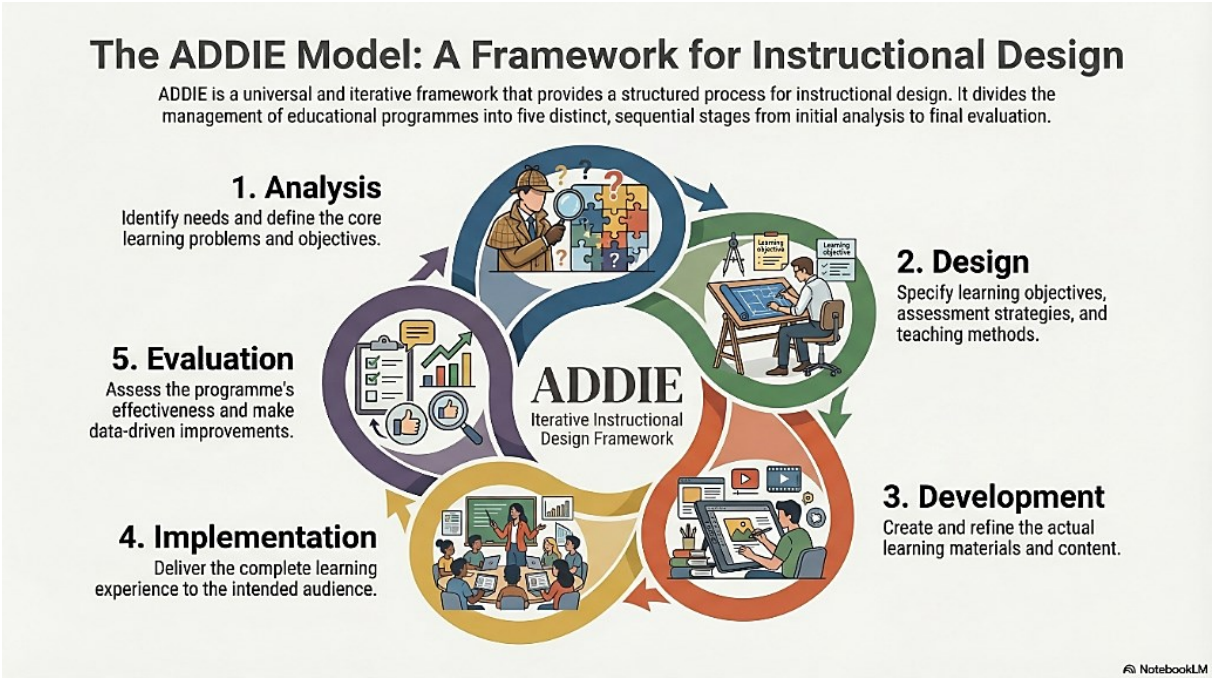


Figure 1. ADDIE Model: a Framework for Instructional Design.

Source: Own work based on (Gagne et al., 2005), visualisation NotebookLM.

ADDIE outlines five iterative stages of educational design (Gagné et al., 2005): Analysis (identifying needs and defining learning problems), Design (specifying learning objectives, assessment strategies and teaching methods), Development (creating and refining learning materials), Implementation (delivering the learning experience), and Evaluation (evaluation and improvements). This model offers HEIs a structured way for collaboration throughout the entire educational design process.

A global trend toward more flexible, personalised, and labour-market-oriented education systems (Gamage, Dehideniya, 2025) leads to solutions that encourage both collaborative design and short formats, as observed in micro-credentials. The concept of micro-credentials has gained increasing interest in recent years, as an innovative mechanism for validating competencies and addressing the evolving demands of the labour market (Johan et al., 2025; European Commission, 2023). According to the European Commission's definition, a micro-credential is a certified proof of the learning outcomes that a learner has achieved following a small volume of learning (European Commission, 2022). Micro-credentials are usually available in digital form and are seen as a way to upskill, reskill and improve employability among adults. They complement formal education systems, which may be too slow to respond to rapid labour market changes, and can provide flexible and market-relevant learning opportunities (Pirkkalainen et al., 2023). This is particularly important because contemporary education systems do not always keep pace with the rate of digital transformation, which may lead to the emergence of a competency gap (Saito, 2026; Tiron-Tudor et al., 2025). Micro-credentials also support the stacking of competencies across different providers and contexts to document lifelong learning progress (CEDEFOP, 2022; Celik, Toprak, 2026). Micro-credentials serve as a bridge between HEIs and the employment sectors (Ahsan et al., 2023). They align educational outcomes with evolving workforce needs, improving employability (Ngoc et al., 2025; Orman et al., 2023; Abdullah et al., 2026).

3. Methods

The goal of the study was to examine how co-creation can be implemented in the educational design of short learning formats and micro-credentials in collaboration between a higher education institution (HEI) and its stakeholders. The authors addressed the following research questions:

1. How to involve stakeholders in educational co-design at different stages of the process?
2. What are the benefits and challenges of the co-creation of educational programmes at HEI?
3. How can micro-credentials be embedded into the design of short learning formats at a HEI?

The study used a qualitative, dual-case, practice-based and inductive approach, drawing on two purposefully selected projects at WUEB. The aim was not to generalise the cases, but to use them illustratively to show how a co-creation model of educational design can be implemented in practice. In line with case study logic (Yin, 2018) and inductive theory-informed research (Eisenhardt, 1989; Eisenhardt, Graebner, 2007), the cases served as concrete examples of stakeholder involvement in co-creation of micro-credentials and other short

learning formats. ADDIE framework – a model grounded in instructional design (Gagné et al., 2005) was used to organise the description of both cases. Each of the ADDIE stages (Analysis, Design, Development, Implementation and Evaluation) was studied from the perspective of co-creation between the HEI and stakeholders.

The study is based on several complementary sources of evidence – primary and secondary, to strengthen the credibility of the analysis:

- Semi-structured expert interviews with key actors involved in the programmes' design and implementation (including programme coordinators and core team members), aimed at reconstructing and validating the design process and stakeholder involvement.
- Internal programme documentation, including programme concepts, instructional materials (e.g., trainer manuals, workshop scenarios), co-design artefacts (e.g., workshop outputs, personas), and implementation records.
- Evaluation and monitoring materials, such as participant surveys, stakeholder feedback reports, pre- and post-assessment tools, and project reporting documents.

Data was analysed using a theory-informed qualitative categorisation approach. All materials were first organised by case and then categorised according to the five stages of the ADDIE model. Within each stage, the analysis focused on identifying kinds of stakeholder involvement, co-creation mechanisms, observed outcomes, and challenges. In selecting cases, two key criteria were considered: projects had to involve participatory educational design and focus on short learning formats appropriate for micro-credentials. Based on these criteria, two projects from WUEB were chosen: BIPS – Business Individual Program of Studies and K(A)FE – Short Learning Formats. Both BIPS and K(A)FE were designed as co-creation initiatives, but they differ in size and maturity. BIPS is a niche programme operating for 10 years, with a co-creation culture and micro-credentials currently being developed. K(A)FE is a new project, designed from the start as a large-scale co-creation process, with micro-credentials built in from the beginning.

Case 1 – BIPS

BIPS is an innovative educational program established in 2017 at WUEB to strengthen the collaboration between students, academic staff, and the business sector. The program aims to provide chosen students with practical, personalised, and interdisciplinary learning experiences that go beyond traditional classroom education, accelerating their professional and personal development. Students who join the one-year program, in addition to their regular studies, begin developmental work within a triad, under the supervision of an academic tutor and a business mentor, to pursue their professional and personal aspirations. During this period, they also participate in a dedicated training programme. BIPS was designed in a modular way (tutoring, mentoring, training) that later served as the basis for the development of micro-credentials. In 10 years of its operations, BIPS has involved appr. 300 students, 50 academic tutors and 50 business mentors.

Case 2 – K(A)FE

K(A)FE is a pioneering competency development programme for adults (aged 18-64), delivered by WUEB in partnership with the Lower Silesian Employers Association (LSEA). The initiative, funded by the European Union, promotes lifelong learning by offering flexible development pathways lasting 2-3 months, which are designed to meet the immediate demands of the labour market. Between 2025 and 2029, the programme aims to enhance the skills of 960 participants.

The programme offers personalised learning through intensive online or on-site workshops and podcasts. Participants design their own two- to three-month pathway by selecting 1 of 3 academies: Specialist, Manager or Leader, and 1 complementary track: Growth Lab, INQUBE or Language. The final element is the Innovathon Workshop, a DT-based collaborative marathon in which participants tackle real-world challenges. Participants receive MIKRO-K(A)FE micro-credentials upon completion.

4. Findings

ADDIE in BIPS

Since its creation in 2017, BIPS has been founded on the values of co-creation and co-design in all ADDIE stages, and co-design has become an integral part of the programme's culture. The key stakeholders of the programme are:

- Students – main beneficiaries, but also co-creators; described as active, self-driven and entrepreneurial.
- Academic tutors – representatives of the University's top teaching staff, who carry out 1:1 tutorials with students, are also a team responsible for managing the programme.
- Business mentors – industry and social environment representatives, carrying out 1:1 mentoring with students. Alumni – BIPS graduates, who serve as student buddies, but also contribute to the BIPS network.

BIPS was founded before micro-credentials were available, but since its creation, it has been building value through modular, short educational formats that allow for personalised student development. Their achievements were certified through a diploma supplement – a practice that is now being transformed into a micro-credential certification.

Good practice of co-creation within BIPS is built on a few major pillars:

- BIPS is a self-organising team, managed by a group of academic tutors, with programme coordinators being appointed by the community. It’s a self-governing project with high autonomy.

- Culture of continuous feedback about the programme from all its stakeholders as a basis for improvements.
- Design Thinking as a method of choice to develop programme changes.

These founding characteristics inspired practical solutions throughout the whole ADDIE process of educational design.

Specifically, significant effort was put into the stage of needs and goals identification and design before the programme took its final shape (A-Analysis and D-Design). Through a series of workshops involving potential business mentors and students, representing student associations, personas for a BIPS student at the recruitment level, a BIPS graduate, a BIPS tutor, and a BIPS mentor were designed, and their roles and tasks were discussed. The workshops provided business mentors with an opportunity to express the value the programme could add to them as employers and the value they could offer students. Students, on the other hand, were able to express how BIPS could complement their regular studies and accelerate their careers. As a result of the workshops, the BIPS framework was designed, and a committed group of potential mentors and students emerged.

After the design stage, content co-development (D-Development) took place. The main role was played by the founding group of 16 academic tutors, who would become the core of the programme's first edition. During the 60-hour tutoring training course, tutorial tools and methods were adapted to the programme's needs, and different cases and work approaches were jointly discussed, practised, and prepared.

Delivery of the programme, understood as the implementation stage (I-Implementation), has also been carried out through co-creation among programme stakeholders. Each student works in a triad with an academic tutor and a business mentor. Even though these two processes are separate, tutors and mentors sometimes meet to discuss how students' aspirations may be better supported. Additionally, an annual off-site training event is organised for the entire community, where different groups collaborate to discuss programme implementation and future plans. Another initiative is DT workshops, during which students, under tutor facilitation, design new solutions for the programme. Some examples of such initiatives are the buddy programme for new students' onboarding, an annual off-site workshop for the entire BIPS community, team-building events or a thematic conference.

The evaluation (E-Evaluation) stage in BIPS has been carefully designed to encourage co-creation in continuous improvement. Twice a year, students and tutors complete detailed feedback questionnaires regarding the current solutions, encouraging reflection on one's own involvement and inquiring about individual needs and aspirations. Academic tutors have also formed a Tutors' Club that meets monthly to address organisational issues and to share knowledge, train, and discuss students' ongoing processes. Academic tutors work under professional supervision to support their personal development and ensure external validation of their work methods.

Designing a programme that places co-creation at its heart and has continued its operations for the tenth year has proven to deliver value. Stakeholders' feedback indicates distinct benefits for each group. Students particularly mention career acceleration, finding their own path, and getting to know themselves, as well as motivational support and a valuable network, as main programme outcomes. Academic tutors, on the other hand, experience a renewed sense of purpose at work and fulfilment of their pedagogical mission, as well as building a strong, trusting team, as the main benefits. Business mentors mention inspiration, self-fulfilment, and satisfaction from sharing their business stories, as well as interesting student collaboration on various projects. Multiple collaborations and joint ventures resulted from the programme.

Co-creation comes with certain costs and limitations, though, that need to be mentioned. Co-design proved to take time. Some of BIPS decisions were sometimes delayed due to prolonged community negotiations or the need for consensus. And yet, the value of commitment, the level of identification with the programme and the personal gains that accompany participation in the process secured BIPS position as one of the flagship programmes at WUEB, with a strong reputation among students, local businesses, and city officials.

ADDIE in K(A)FE

The K(A)FE project was funded by the National Centre for Research and Development (NCBiR). The project's core philosophy is based on co-designing educational activities with various stakeholders.

The success of K(A)FE relies on the ecosystem of professionals and participants:

- Project Participants – individuals pursuing personalised development to improve their professional competencies.
- Advisory Staff – Intake and Talent Guides supporting initial and final competence assessments.
- Educational Delivery Team – trainers facilitating workshops.
- Validation and Support – Growth Guides observing progress and learning outcomes during final workshops.
- Project Management Team – an interdisciplinary group from WUEB and LSEA responsible for coordination and academic leadership.

To validate and motivate learning, K(A)FE uses a two-tier micro-credential system:

- Partial Micro-credentials – granted upon passing knowledge tests and submitting self-reflection journals for specific pathways.
- Final Micro-credentials – a comprehensive confirmation of competencies gained after completing three pathways and successful validation.

The project is based on three fundamental principles: Human-Centred Design, which ensures solutions are intuitive and aligned with user needs; Design Thinking, which facilitates iterative, empathetic educational design; and a commitment to continuous improvement through stakeholder feedback and self-reflection. The ADDIE model is the primary methodology used to develop these educational solutions "with people and for people".

The A-Analysis phase involved preparatory work to ensure that the project was aligned with labour market needs and EU educational policy priorities. This stage included diagnosing employer demands and educational trends in collaboration with LSEA, which informed the descriptions of the target group and the intended learning outcomes. The analysis led to a project concept and secured funding of over PLN 7 million.

In November 2024, the D-Design stage held conceptual workshops with 21 interdisciplinary stakeholders from academia, industry and user groups, supported by experts in neurodidactics, inclusive design and learning methods. Using DT the teams developed educational activities that were both engaging and impactful. This phase produced delivery guidelines, recommendations for inclusive materials, and standardised certification procedures.

The D-Development stage focused on creating integrated teaching resources. The process involved producing comprehensive didactic materials, such as the Trainer’s Manual, agendas, scripts and tests, as well as podcasts, all based on design recommendations. The team also established learning outcomes, validation criteria and micro-credential visual IDs.

The I-Implementation stage focused on launching the first delivery cycle for the 60 pilot participants. The phase concluded with train-the-trainer and orientation sessions.

E-Evaluation is a continuous, multidimensional process comprising both formative and summative assessments. Formative evaluation improves teaching quality and organisational effectiveness, while summative evaluation measures stakeholder satisfaction and competence transfer. Effectiveness is tracked via pre- and post-tests, validation tools and 'lessons learned' journals. Regular stakeholder feedback and monthly status meetings provide a permanent quality assurance mechanism that informs programme.

The benefits of co-creation observed in K(A)FE are primarily associated with developing solutions that respond directly to participants' real-life contexts. When learners are placed at the centre of the design process, learning formats become more accessible and inclusive, and are closely aligned with professional and personal challenges. Collaboration between academic and non-academic stakeholders contributes to a broader, practice-oriented perspective. Iterative design cycles and continuous feedback loops enhance innovation capacity. Co-creation also facilitates knowledge transfer across stakeholder groups, leading to higher-quality, more readily implementable programme outputs, as well as stronger engagement and shared ownership. However, co-creation at the scale and complexity of K(A)FE also involves significant constraints. These include high coordination costs, the need to mediate cultural and communication differences between academia and professional practice, and increased process complexity. Further risks relate to contributors performing multiple roles and becoming

overloaded with work, and to structural limitations arising from public procurement regulations, where price-dominated criteria may hinder the selection of partners who are adequately prepared for iterative and collaborative work.

5. Discussion and Conclusions

In the context of rapid technological change, globalisation and growing labour market expectations, traditional models of academic education are proving insufficiently flexible. As the literature highlights, while higher education provides a solid theoretical foundation, it often fails to keep pace with the dynamic evolution of the competencies required by employers (OECD, 2021). Micro-credentials are therefore emerging as a key instrument for reshaping the relationship between HEIs and the labour market (Varadarajan et al., 2023). This paper examined the role of co-creation in designing short learning formats and micro-credentials, based on two initiatives implemented at Wroclaw University of Economics and Business: BIPS and K(A)FE. These case studies demonstrated that the effective implementation of micro-credentials benefits from close co-creation. In both BIPS and K(A)FE initiatives, collaboration with external stakeholders, particularly those from the labour market, was systematic and multi-stage. Micro-credentials seem most valuable when developed as part of a broader ecosystem of cooperation between HEIs, employers, and learners. As emphasised in the literature, their legitimacy and effectiveness depend largely on the extent of labour market involvement and alignment with actual competency requirements (OECD, 2021).

The case analysis also showed that applying the ADDIE model as a framework for structuring the co-creation process helps to ensure consistency across the stages. In both initiatives, co-creation was not a one-off activity, but a permanent mechanism embedded in the management of the educational process. This corroborates previous findings that co-creation is most effective when iterative and systemic rather than ad hoc (Ind, Coates, 2013).

A comparison of the two cases also revealed that co-creation can take various forms, ranging from an organic, bottom-up community model (BIPS) based on a high degree of autonomy, to a formalised, large-scale, structured model (K(A)FE).

At the same time, however, the study reveals certain constraints of this approach. Co-creation increased organisational complexity and coordination costs and created the need to reconcile diverse stakeholder interests. Therefore, the findings confirm that, although co-creation improves the quality and relevance of education, effective implementation requires organisational maturity and stable governance mechanisms.

As shown in the cases of BIPS and K(A)FE, co-creation should not be viewed as a universally efficient solution, but rather as a trade-off between inclusiveness and organisational efficiency. Therefore, universities should carefully design co-creation processes that balance flexibility and structure according to their own ecosystem and strategic goals.

The study has certain limitations. It is based on the analysis of two case studies within a single institution, which limits the generalisability of the findings. Furthermore, it primarily focuses on the design and implementation processes rather than on participants' long-term employment outcomes. Future research could address these limitations by extending the analysis across institutions and examining the labour-market effectiveness of micro-credentials. Complementary, quantitative studies on a larger sample would further support the development of more generalisable conclusions.

References

1. Abdullah, N.F., Heidary, S., Zulkifli, I.H., Abu-Samah, A., Ibrahim, R., Subhi, N., Zennaro, M. (2026). Micro-credential for Industry 4.0: engineering safety and reliability with integrated machine learning and soft skills. *Cogent Education*, *13*(1), 2598923.
2. Ahsan, K., Akbar, S., Kam, B., Abdulrahman, M.D.A. (2023). Implementation of micro-credentials in higher education: A systematic literature review. *Education and Information Technologies, 28(10),* 13505-13540.
3. Altbach, P.G., de Wit, H. (2018). The new global landscape of international higher education. *International Higher Education, 94*.
4. Bovill, C., Cook-Sather, A., Felten, P. (2011). Students as co-creators of teaching approaches, course design, and curricula. *International Journal for Academic Development, 16(2),* 133-145.
5. Brewer, L., Comyn, P. (2015). *Integrating Employability Skills into TVET Curricula*. ILO.
6. CEDEFOP (2022). *Microcredentials for labour market education and training: first look at mapping microcredentials in European labour-market-related education, training and learning: take-up, characteristics and functions*. Luxembourg: Publications Office of the European Union.
7. Celik, G.Y., Toprak, E. (2026). Micro-credentials in higher education: a systematic review for quality aspects. *Turkish Online Journal of Distance Education, 27(1),* 103-134.
8. Chesbrough, H.W. (2003). *Open innovation: The new imperative for creating and profiting from technology.* Harvard Business School Press.
9. Dunne, E., Zandstra, R. (2011). *Students as change agents: New ways of engaging with learning and teaching in higher education*. ESCalate, University of Exeter.
10. EDUCAUSE (2023). *Horizon Report: Teaching and Learning Edition*.

11. Eisenhardt, K.M. (1989). Building theories from case study research. *Academy of Management Review, 14(4)*, 532-550.
12. Eisenhardt, K.M., Graebner, M.E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal, 50(1),* 25-32.
13. European Commission (2022). *A European approach to micro-credentials for lifelong learning and employability.* Publications Office of the European Union.
14. European Commission (2023). *Micro-credentials and the European Education Area: Building the Future of Learning and Skills*. Brussels: Publications Office of the European Union.
15. Gagné, R.M., Wager, W.W., Golas, K.C., Keller, J.M. (2005). *Principles of instructional design (5th ed.).* Wadsworth.
16. Galvagno, M., Dalli, D. (2014). Theory of value co-creation: A systematic literature review. *Managing Service Quality, 24(6),* 643-683.
17. Gamage, K.A., Dehideniya, S.C. (2025). Unlocking Career Potential: How Micro-Credentials Are Revolutionising Higher Education and Lifelong Learning. *Education Sciences, 15(5)*, 525.
18. Ind, N., Coates, N. (2013). The meanings of co-creation. *European Business Review, 25(1),* 86-95.
19. Jackson, D. (2016). Re-conceptualising graduate employability: The importance of pre-professional identity. *Studies in Higher Education, 41(8),* 1237-1258.
20. Johan, R.C., Rullyana, G., Susilana, R., Emilzoli, M. (2025). Micro-Credentials in Higher Education: A Review and Bibliometric. *Journal of Education and Learning, 19(2),* 1103-1116.
21. McGreal, R., Olcott Jr, D. (2022). A strategic reset: Micro-credentials for higher education leaders. *Smart Learning Environments, 9(1)*, 9.
22. Milligan, S., Kennedy, G. (2017). *Micro-credentials: What do we know now?* Melbourne Centre for the Study of Higher Education.
23. Ngoc Ha, N.T., Van Dyke, N., Spittle, M. (2025). Micro-credentials in higher education: perceived benefits for graduate employability and interest levels in micro-credentials for training employability skills. *Studies in Higher Education*, 1-13.
24. OECD (2021). *Micro-credentials for Lifelong Learning and Employability: Emerging Practices and Key Issues*. Paris: OECD Publishing.
25. OECD (2025). *Building the Skills of the 21st Century for All*. OECD Publishing.
26. Orman, R., Şimşek, E., Kozak Çakır, M.A. (2023). Micro-credentials and reflections on higher education. *Higher Education Evaluation and Development, 17(2),* 96-112.
27. Payne, A.F., Storbacka, K., Frow, P. (2008). Managing the co-creation of value. *Journal of the Academy of Marketing Science, 36(1),* 83-96.

28. Pirkkalainen, H., Sood, I., Padron Napoles, C., Kukkonen, A., Camilleri, A. (2023). How might micro-credentials influence institutions and empower learners in higher education? *Educational Research, 65(1),* 40-63.
29. Prahalad, C.K., Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing, 18(3),* 5-14.
30. Ranjan, K.R., Read, S. (2016). Value co-creation: Concept and measurement. *Journal of the Academy of Marketing Science, 44(3)*, 290-315.
31. Saito, T. (2026). Redefining Agency: A Capability-Driven Research Agenda for Generative AI in Education. *Education Sciences, 16(1),* 155.
32. Sanders, E.B.N., Stappers, P.J. (2008). Co-creation and the new landscapes of design. *Co-design, 4(1),* 5-18.
33. Tiron-Tudor, A., Labaditis, A., Deliu, D. (2025). Future-ready digital skills in the AI era: bridging market demands and student expectations in the accounting profession. *Technological Forecasting and Social Change, 215*, 124105.
34. Varadarajan, S., Koh, J.H.L., Daniel, B.K. (2023). A systematic review of the opportunities and challenges of micro-credentials for multiple stakeholders: learners, employers, higher education institutions and government. *International Journal of Educational Technology in Higher Education, 20(1),* 13.
35. World Economic Forum (2020). *The Future of Jobs Report 2020*.
36. Yin, R.K. (2018). *Case study research and applications: Design and methods (6th ed.).* SAGE Publications.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

EMOTIONAL EMPTINESS IN A LEADER'S WORK: IS BOREDOM A SPECIFIC FORM OF BURNOUT AMONG MANAGERS?

Agnieszka Julia WITKOWSKA

Katedra Zarządzania, Ekonomii i Finansów, Wydział Inżynierii Zarządzania, Politechnika Białostocka; agnieszka@onherway.com.pl, ORCID: 0009-0001-5208-8003

Purpose: The study aimed to diagnose managerial boredom as an emotional–motivational experience and to determine its relationships with perceived meaning of work and burnout among individuals performing managerial roles. The study focused on managers' subjective experience of boredom at work, understood not as a consequence of being underloaded with tasks, but rather as a signal of a weakened relationship with work and with the meaning attributed to the activities performed
Design/methodology/approach: The study had been designed as quantitative and cross-sectional. A total of 61 individuals performing managerial roles participated in the research. Standardized instruments were used to measure occupational boredom, burnout, perceived meaning of work, and work overload, and the data were analyzed with Pearson's r correlation and linear regression.
Findings: The results indicate that higher levels of managerial boredom are associated with a lower sense of meaning in work and higher levels of burnout, particularly in the dimension of withdrawal from work. The relationship between boredom and perceived meaning of work has proven stronger than its relationship with work overload, suggesting that the experience of boredom in managerial roles is primarily related to a weakening meaning and value attributed to one's work, rather than solely to the workload level.
Originality/value: The study expands existing analyses of occupational boredom by introducing the managerial perspective and its links with the perceived meaning of work and burnout.
Keywords: managerial boredom, perceived meaning of work, burnout, managerial roles, work.
Category of the paper: Research paper.

1. Introduction

Contemporary work is increasingly associated with a high pace, pressure for results, and high expectations placed on employees. For this reason, researchers and practitioners are paying growing attention not only to work effectiveness but also to how individuals in

managerial roles experience their everyday professional lives. One important aspect of this experience is boredom at work, which is often analyzed in relation to burnout. This relationship is noteworthy because it cannot be reduced to a simple difference between underload and overload. In professional practice, the meaning of work, engagement, and exhaustion may occur simultaneously. Therefore, this article focuses on the subjective experience of boredom and burnout in the context of the managers' professional functioning.

In classical approaches, burnout was primarily understood as the result of overload and prolonged stress, leading to emotional exhaustion, cynicism, and reduced professional efficacy (Maslach et al., 2001). More recent perspectives indicate that burnout is also associated with a gradual loss of engagement and increasing emotional distance from work (Schaufeli et al., 2009; Schaufeli et al., 2020; Demerouti et al., 2021), which may be further intensified by experiencing occupational boredom (Toscanelli et al., 2024).

The relationship between boredom and burnout is complex. Research findings show that these are distinct yet related phenomena (Harju et al., 2023; Sousa, Neves, 2021). Experiencing boredom may contribute to deepening exhaustion, for example, by intensifying rumination and the feeling of being stuck in one's work (Sousa, Neves, 2021). On the other hand, exhaustion increases the tendency to distance oneself from work and weakens engagement (Maslach et al., 2001), which in turn may lead to experiencing boredom more frequently.

A particularly relevant context for analyzing these phenomena is the managerial role. Managers' work is often associated with a high level of responsibility, role conflict, and functioning under conflicting organizational expectations (Demerouti et al., 2001). In managerial roles, the apparent boredom may signal a weakening relationship between the effort invested and the subjective sense of meaning in work (Eastwood et al., 2012; Westgate, Wilson, 2018).

In this article, managerial boredom is analyzed as an emotional–motivational experience. It is linked both to burnout and to the perceived meaning of work. At the same time, it is assumed that it does not constitute a separate psychological construct but rather represents a form of professional experience associated with the individual's weakening relationship with their work, which may in turn signal emerging difficulties in a leader's professional functioning.

2. Literature review

2.1. The phenomenon of managerial boredom

Research on occupational boredom shows that it is not merely a state associated with a lack of activity but may also occur under conditions of sustained work engagement. This perspective is supported by empirical studies in which boredom and exhaustion are treated as related but

distinct elements of the work experience. This means that boredom is neither a simple opposite of engagement nor a direct equivalent of burnout, but rather an experience that may co-occur with exhaustion and appear alongside a decline in the quality of professional functioning (Harju et al., 2023; van Hooff, van Hooft, 2014; Junker et al., 2021).

Recent research indicates that boredom is primarily associated with difficulties in keeping focus and attributing meaning to ongoing activities. From a psychological perspective, boredom arises when an individual is unable to sustain cognitive engagement while simultaneously perceiving no realistic and satisfying alternatives for the activity (Westgate, 2020). In this approach, boredom may be understood as a signal of a weakening of the relationships between the individual and the work they perform, especially in the area of engagement and meaning attributed to work.

More recent perspectives describe boredom at work as an experience related less to the nature of tasks themselves and more to the quality of the individual's relationship with their work, particularly in relation to the subjective sense of meaning and agency (Harju et al., 2023; Westgate, Wilson, 2018).

It is increasingly emphasized that reducing occupational boredom solely to a lack of stimulation is insufficient, as it overlooks its dimensions related to meaning and relationships (Van Hooft, Van Hooff, 2024).

The concept of "managerial boredom" has not yet been clearly established in quantitative research nor explicitly defined in the existing literature. In this article, the term is used provisionally and analytically to describe specific forms of experiencing occupational boredom in the context of managerial roles.

In managerial work, boredom more often results not from monotony or quantitative underload but from a lack of stimulating challenges. It may involve the repetitiveness of decision-making, functioning under conflicting expectations, a limited sense of influence despite formal responsibility, or internal tension between role demands and one's professional identity (Van Hooft, Van Hooff, 2024).

2.2. Burnout as an organizational and individual phenomenon

In work psychology, burnout is understood as a long-term response to chronic work-related stress. Research shows that burnout does not emerge suddenly as a result of excessive workload but rather develops over time, leading to the depletion of energetic, cognitive, and emotional resources (Basińska, Gruszczyńska, 2020; Salmela-Aro, Upadyaya, 2018).

In process-oriented approaches, developed among others within the Job Demands–Resources model, burnout is described as a process involving changes in levels of engagement, emotion regulation strategies, and the meaning attributed to work (Bakker, Demerouti, 2017; Leclercq, Hansez, 2024).

The burnout process involves a transition from high engagement to increasing emotional distance and withdrawal (Basińska, Gruszczyńska, 2020; Leclercq, Hansez, 2024; Bakker, Demerouti, 2017). Particular attention is devoted to later stages of burnout, in which exhaustion itself is no longer the dominant experience. Instead, the factors gaining prominence are psychological distance from work, cynicism, and the loss of a subjective sense of meaning and importance of one's tasks (Schaufeli, De Witte, Desart, 2020; Leiter, Maslach, 2016).

2.3. Meaning of work as a factor in work engagement

The sense of meaning in work plays an important role in shaping psychological well-being, engagement, and the individual's relationship with work. In the literature, it is understood as a subjective belief that one's activities are meaningful, aligned with personal values, and have a real impact on the surrounding environment (Bailey et al., 2017; Lysova et al., 2019). Empirical research shows that a low level of meaning in work is associated with reduced engagement, increased withdrawal, and poorer psychological well-being. At the same time, it is accompanied by a stronger intention to leave the organization (Allan et al., 2019; Martela et al., 2021). More recent perspectives suggest that the sense of meaning may weaken in situations in which an individual experiences a limited sense of influence and a lack of alignment between personal values and the demands of the professional role (Hatami et al., 2024; Martela et al., 2021).

The lack of meaning attributed to one's activities constitutes one of the key factors preceding the experience of boredom, regardless of workload level or the intensity of performed tasks (Westgate, Wilson, 2018; Both-Nwabuwe et al., 2017).

The sense of meaning in work is dynamic and largely dependent on the organizational context. It may gradually weaken under conditions of limited autonomy, conflicting demands, and discrepancies between declared organizational values and everyday work practices (Albrecht et al., 2021; Svendsen, 2022; Martela et al., 2021). Such tensions are particularly visible in managerial roles, where formal responsibility is combined with navigating multiple stakeholders and with limited influence over some key decisions (Svendsen, 2022).

2.4. The managerial role as a context of emotional emptiness

Performing a managerial role is associated with a specific context for experiencing the meaning of work as well as with the risk of its gradual weakening. Research on leadership shows that managers operate under constant cognitive and emotional pressure, as they are simultaneously responsible for performance outcomes, relationships with people, and often conflicting expectations from different stakeholders (Andersone et al., 2023; Harms et al., 2017; Hoch et al., 2018). Also, from the perspective of occupational well-being, managers are increasingly described as a group at elevated risk of emotional exhaustion and psychological costs associated with the role, especially under conditions of ambiguity and limited influence over decisions (Maisonneuve et al., 2024; Ellis et al., 2025).

Despite the growing number of studies on occupational boredom, burnout, and the meaning of work, literature still lacks analyses that connect these phenomena with the specificity of the managerial role. Existing studies tend to focus primarily on the general employee population and on profiles of boredom and exhaustion (Harju et al., 2023). In particular, boredom is typically discussed in the context of operational work or at the level of entire organizations, with little attention given to the leadership perspective (Harju et al., 2023; Danckert, Elpidorou, 2023; Kaluza et al., 2021).

At the same time, research on leaders' functioning indicates that in contemporary organizations, decision pressure is increasing, cognitive overload is intensifying, and the sense of meaning at work is gradually weakening (Kniffin et al., 2021; Harms et al., 2017). In the case of managers, not only may boredom relate to workload, but also to changes in their relationship with work, including levels of burnout and the perceived meaning of their work. There is also a lack of studies that simultaneously consider the perspective of occupational boredom and leadership functioning within the managerial role. This gap justifies the need to identify and empirically examine managerial boredom.

3. Research methodology

The study aims to diagnose managerial boredom as an emotional–motivational experience and to determine its relationships with the level of burnout and the perceived meaning of work among individuals performing managerial roles.

Based on the literature review, the following research hypotheses were formulated:

H1: A higher level of managerial boredom is associated with a lower sense of meaning in work.

H2: The relationship between managerial boredom and the sense of meaning in work is significantly stronger than the relationship between managerial boredom and work overload.

H3: A higher level of sense of meaning in work is associated with a lower level of burnout.

H4: A higher level of managerial boredom is associated with higher levels of exhaustion and loss of engagement at work.

3.1. Study Sample Characteristics

The study involved 61 individuals performing managerial roles. The inclusion criterion for participation in the sample was the self-reported responsibility for managing the work of other employees. The sample consisted of 41 women (67.2%) and 20 men (32.8%). Detailed demographic and professional characteristics of the participants are presented in Table 1. Participants were recruited purposively using online channels and professional networks.

Participants were purposefully recruited using online channels and professional networks between 11 and 26 January 2026. The sample was non-probabilistic and cannot be considered representative of the population of individuals holding managerial roles in Poland.

Table 1.
Demographic characteristics of participants in managerial positions

		N	%
Age	30-39	20	32.8
	40-49	31	50.8
	50-59	10	16.4
Managerial position level	Lower management: immediately managing an operations team, no strategic responsibility (e.g. team leader)	14	23
	Middle management: managing teams or managers, implementing strategic goals, responsibility for an area/segment (e.g., department manager, unit head)	26	42.6
	Senior management: co-creating organizational strategy, responsibility for key decisions, the organization's results (e.g. CEO, board member)	21	34.4
How many employees do you manage directly?	1	3	4.9
	2-4	26	42.6
	5-10	14	23
	Over 10	18	29.5
How long have you been in a managerial role?	1-2 years	6	9.8
	3-5 years	18	29.5
	6-10 years	13	21.3
	Under 1 year	3	4.9
	Over 10 years	21	34.4
Industry	Public sector/administration	1	1.6
	Business consulting	21	34..4
	Energy / Utilities	2	3.3
	Finance / Banking / Insutance	9	14.8
	Retail and e-commerce	8	13.1
	Other	2	3.3
	IT / New technologies / Telecommunications	2	3.3
	Production / Industry	7	11.5
	Services (e.g. professional services, B2B, B2C)	7	11.5
	Health / Healthcare	2	3.3
Organization size	Up to 50 employees	9	14.8
	51-250	22	36.1
	251-500	9	14.8
	501-1000	8	13.1
	Over 1000	13	21.3
Dominant work mode	Hybrid	31	50.8
	On-site	24	39.3
	Remote	6	9.8

Source: own elaboration.

3.2. Selection of Research Instruments

To measure occupational boredom, the Dutch Boredom Scale (DUBS; Schaufeli, 2009) was used in the author's translation into Polish. The instrument was selected due to its concise format and its focus on the subjective experience of boredom in the context of professional work. The scale has previously been used in empirical studies on workplace boredom and demonstrates good psychometric properties (van Hooff, van Hooft, 2014). Due to the lack of

a Polish adaptation of the instrument and its prior use in studies conducted outside Poland, its use in the present study is exploratory in nature and should be interpreted with caution.

The scale consists of 8 items describing the subjective experience of boredom at work. Responses were provided on a seven-point frequency scale ranging from 0 ("never") to 6 ("always"). The arithmetic mean of the responses was used as the indicator of the level of occupational boredom. The reliability of the scale in the studied sample was assessed using Cronbach's alpha ($\alpha = 0.69$), indicating a satisfactory level of measurement reliability.

To measure burnout, the Oldenburg Burnout Inventory (OLBI; Demerouti et al., 2003) was used in the Polish adaptation by Chirkowska-Smolak (2013). The instrument was selected because of its two-dimensional conceptualization of burnout and the possibility of separately analyzing the components of exhaustion and disengagement. The instrument includes 16 items, with 8 items for each of the two subscales: exhaustion and disengagement.

Responses were given on a four-point Likert scale ranging from 1 ("strongly agree") to 4 ("strongly disagree"). Some items were reverse-coded in accordance with the scoring key of the instrument. The reliability of the exhaustion subscale was at $\alpha = 0.86$, while the disengagement subscale reached $\alpha = 0.78$, indicating a good level of measurement reliability.

To measure the sense of meaning in work, the Work and Meaning Inventory in the Polish adaptation (WAMI-PL; Puchalska-Kamińska, Czerw, Roczniewska, 2019) was used, developed based on the original scale (Steger, Dik, Duffy, 2012).

The questionnaire consists of 10 items. Responses were provided on a five-point scale ranging from 1 ("absolutely untrue") to 5 ("absolutely true"). The arithmetic mean of the responses was used for analysis after accounting for the reverse-coded item. The reliability of the WAMI-PL scale in the studied sample reached $\alpha = 0.87$ for the SPO dimension and $\alpha = 0.90$ for the SPG dimension, indicating a very good level of measurement reliability.

To measure work overload, the Work Pressure subscale from the Job Demands–Resources questionnaire (JD–R; Bakker, Demerouti, 2017) was used in a working Polish-language version prepared for the purposes of this study based on the original English version.

Due to the managerial character of the sample, the Work Pressure subscale was used as an indicator of quantitative workload, primarily capturing time pressure, the pace of task completion, and the subjective sense of an excessive number of professional duties. Responses were provided on a five-point frequency scale ranging from 1 ("never") to 5 ("very often"). The index value was calculated as the arithmetic mean of the responses. The reliability of the Work Pressure subscale was assessed using Cronbach's alpha ($\alpha = 0.92$).

4. Results

Statistical analyses were conducted using the **IBM SPSS software package**. The analyses included **descriptive statistics, tests of normality of distributions (the Shapiro–Wilk test), Pearson's r correlation analyses, stepwise linear regression analysis, and tests of between-group differences (the Kruskal–Wallis test)**. The **level of statistical significance** was set at **$\alpha = 0.05$**.

Table 2 presents the **basic descriptive statistics** and the **results of normality tests** for the analyzed variables.

Table 2.
Basic descriptive statistics of the analyzed quantitative variables in the group of employees in managerial positions

	M	***Me***	***SD***	***Sk.***	***Kurt.***	***Min***	***Max.***	***W***	***p***
Work pressure/overload	3.80	4	0.98	-0.26	-1.24	2	5	0.91	<0.001
Meaning of work in a personal perspective	3.88	3.83	0.81	-0.84	0.80	1.50	5	0.93	0.002
Meaning of work in global perspective	3.17	3.25	1.10	-0.30	-0.91	1	5	0.95	0.022
Boredom at work	1.36	1.38	0.75	0.98	1.87	0	3.88	0.94	0.003
Exhaustion from work	2.22	2.25	0.63	0.15	-0.68	1.13	3.63	0.98	0.248
Withdrawal from work	2.13	2.13	0.55	0.59	0.35	1.13	3.75	0.97	0.099

Source: own elaboration.

Verification of Hypothesis 1

Pearson's r correlation analyses were conducted, revealing statistically significant relationships both for the sense of meaning in work in the personal perspective ($r = -0.49$; $p < 0.001$) and in the global perspective ($r = -0.51$; $p < 0.001$). Both relationships were negative, which means that, in line with the hypothesis, a higher level of managerial boredom is associated with a lower sense of meaning in work.

The first relationship was moderately strong, while the second one was strong. The obtained results, illustrated in Figures 1 and 2, allow the proposed research hypothesis to be accepted.

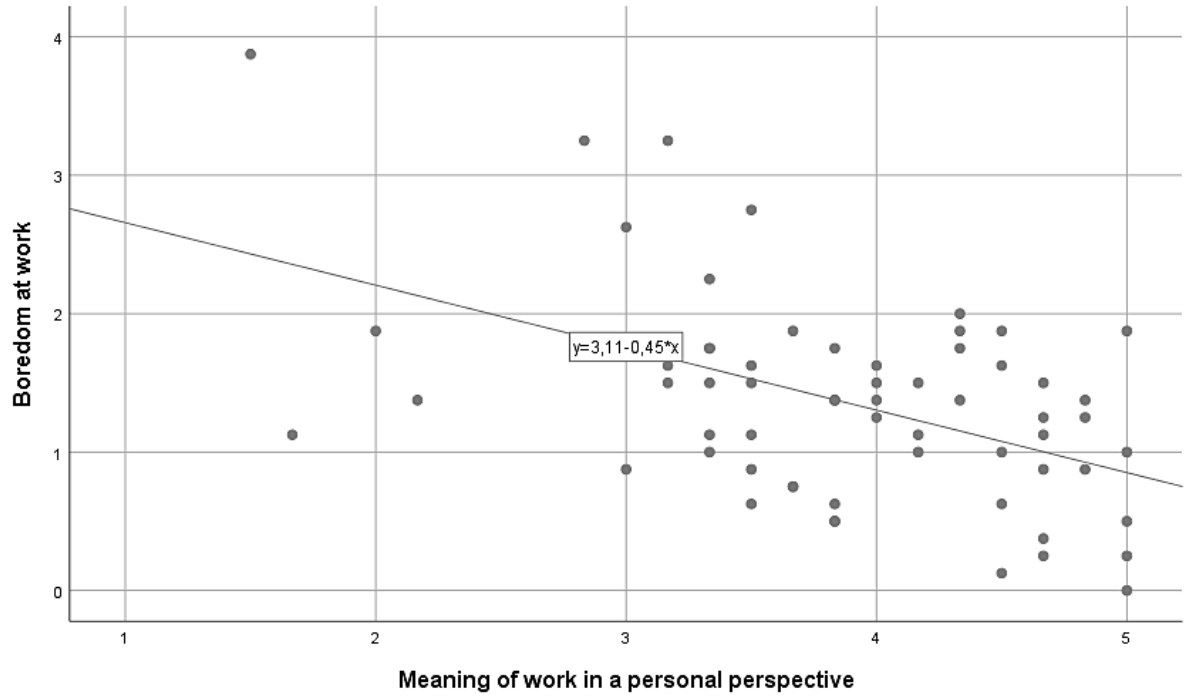


Figure 1. Scatter plot with a regression line showing the statistically significant relationship between the level of meaning of work (personal perspective) and the level of boredom at work.

Source: own elaboration.

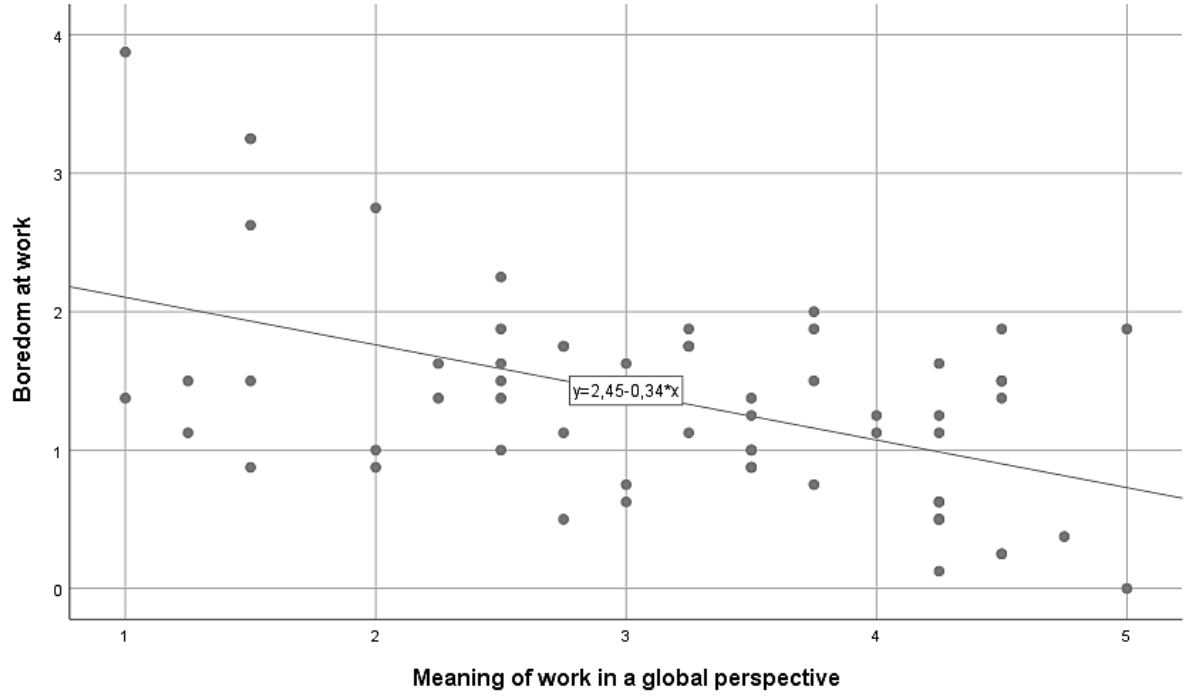


Figure 2. Scatter plot with a regression line presenting the statistically significant relationship between the **level of meaning of work in the global perspective** and the **level of boredom at work**.

Source: own elaboration.

Verification of Hypothesis 2

To test this hypothesis, a stepwise linear regression analysis was conducted. Two predictors were included in the model: the level of meaning in work in the global perspective and work incentives, $F(2, 58) = 13.44$; $p < 0.001$; $R^2 = 0.293$. A higher level of managerial boredom was explained by lower levels of both predictors. Although the level of meaning in work in the global perspective was entered into the model first, in the final model, both predictors demonstrated similar predictive power, as indicated by the standardized Beta coefficient values (Table 3).

The remaining variables were not included in the model, as they did not significantly improve the explained variance of the dependent variable. The obtained results allow for the acceptance of the second research hypothesis, according to which the relationship between managerial boredom and the sense of meaning in work is stronger than its relationship with work overload.

Table 3.
Stepwise regression analyses for the dependent variable: boredom at work

Variable	*B*	*SE*	Beta	*T*	*p*
(Constant)	2.80	0.29		9.59	<0.001
Meaning of work in a global perspective	-0.22	0.09	-0.32	-2.35	0.022
Work incentives	-0.20	0.09	-0.31	-2.30	0.025

Note: B – unstandardized coefficient; SE – standard error; Beta – standardized coefficient; t – t-test value; p – significance level.

Source: own elaboration.

Verification of Hypothesis 3

To test this hypothesis, Pearson's r correlation analyses were conducted. The obtained results (Table 4) show that a higher level of sense of meaning in work in both analyzed dimensions was associated with a lower level of burnout, both in terms of work-related exhaustion and withdrawal from work. All analyzed relationships were statistically significant.

The strength of the relationships between the sense of meaning in work and work-related exhaustion was moderately strong, whereas the relationships with withdrawal from work were strong. The obtained results confirm the third research hypothesis.

Table 4.
Pearson's r correlation coefficients for the relationships between the level of sense of meaning in work and the level of burnout

	Exhaustion from work	Withdrawal from work
Meaning of work in a personal perspective	-0.46***	-0.67***
Meaning of work in a global perspective	-0.44***	-0.64***

* p < 0.05; ** p < 0.01; *** p < 0.001.

Source: own elaboration.

Verification of Hypothesis 4

A higher level of managerial boredom is associated with higher levels of exhaustion and/or withdrawal from work, which constitute key components of burnout. To test this hypothesis, Pearson's r correlation analyses were conducted, revealing statistically significant positive relationships both between the level of boredom and work-related exhaustion (r = 0.28; p = 0.028) and between the level of boredom and withdrawal from work (r = 0.55; p < 0.001).

This indicates that a higher level of managerial boredom is associated with a higher level of burnout in both analyzed dimensions. The strength of the relationship between boredom and work-related exhaustion was low, whereas the relationship between boredom and withdrawal from work was strong. The obtained results confirm the fourth research hypothesis.

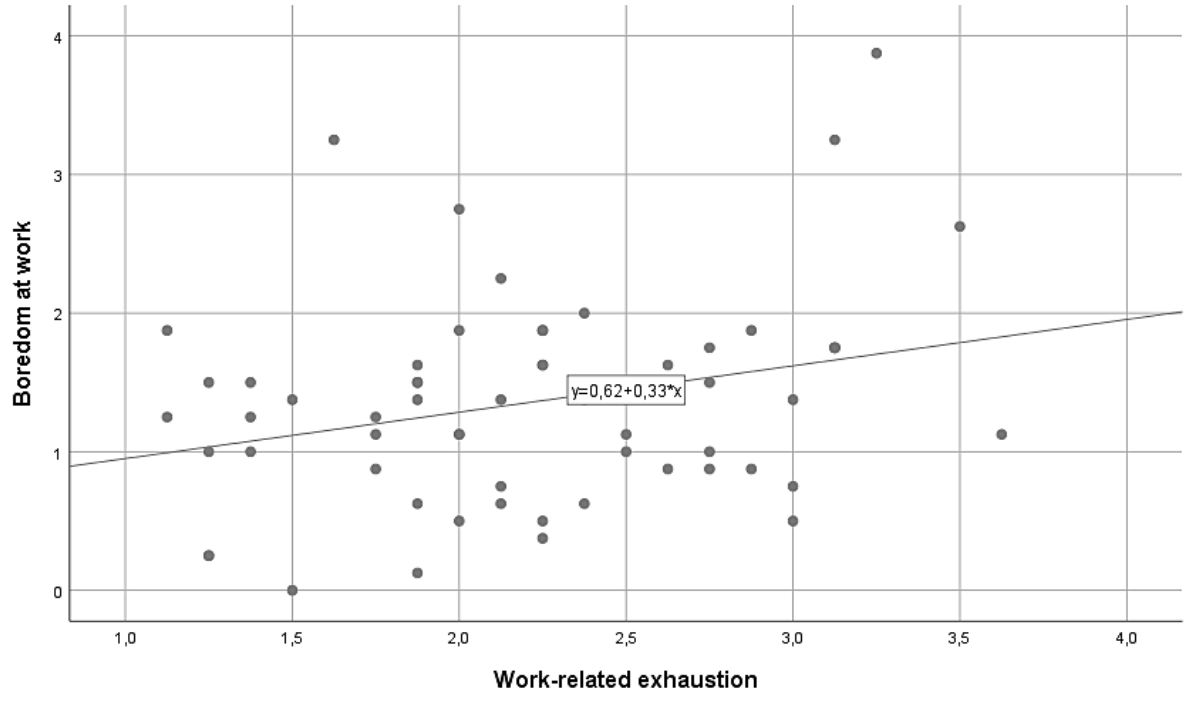


Figure 3. Scatter plot with a regression line presenting the statistically significant relationship between the level of work-related exhaustion and the level of boredom at work.

Source: own elaboration.

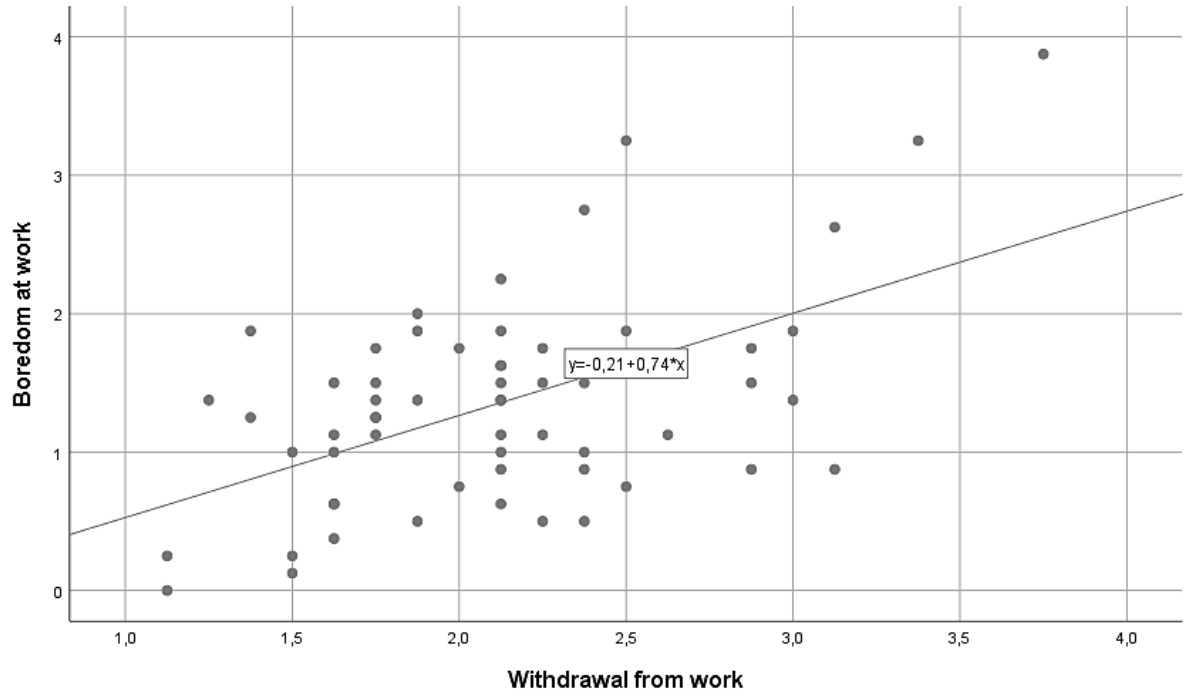


Figure 4. Scatter plot with a regression line presenting the statistically significant relationship between the level of withdrawal from work and the level of boredom at work.

Source: own elaboration.

5. Conclusion

The obtained results indicate that managerial boredom is significantly related to both the sense of meaning at work and burnout. The strongest relationship was observed between the level of boredom and a reduced sense of meaning at work, which supports the assumption that the experience of boredom at work cannot be explained solely by a lack of tasks but is also associated with a weakening of the meaning and value attributed to one's work (Eastwood et al., 2012; Westgate, Wilson, 2018). These findings are consistent with research showing that the sense of meaning in work constitutes a key resource protecting against declines in engagement and deterioration in professional functioning (Allan et al., 2019; Bailey et al., 2017; Martela et al., 2021).

The results suggest that among individuals performing managerial roles, a weakening of the sense of meaning in work may constitute an important mechanism contributing to the experience of boredom. From this perspective, managerial boredom may be interpreted as a signal of a weakened relationship between the effort invested and the subjectively experienced significance of work, rather than merely as the result of work overload or underload.

The results also indicate that the relationship between boredom and the sense of meaning in work is stronger than the relationship between boredom and work overload. This suggests that even under conditions of high professional activity and substantial organizational responsibility, the experience of boredom may still occur if the work performed ceases to be perceived as meaningful or contributing to one's development.

The findings also confirm a positive relationship between managerial boredom and burnout, particularly in the dimension of withdrawal from work. This relationship is consistent with earlier studies indicating the co-occurrence of boredom and burnout and their potentially mutual reinforcement (Harju et al., 2023; Sousa, Neves, 2021; Kim et al., 2025). In this context, boredom may be understood as an experience accompanying the process of one's gradual distancing from work and weakening engagement, rather than merely a temporary affective state.

The study has an exploratory character and is associated with several limitations. First, the study was conducted on a relatively small sample and used a cross-sectional design, which limits the possibility of drawing conclusions about the direction of relationships between the analyzed variables. Future research could benefit from longitudinal designs and a more in-depth analysis of the context of managerial work, including the specific nature of leadership roles, the scope of responsibility, and developmental opportunities. It is also advisable to include larger and more diverse samples and to further validate the Polish-language version of the occupational boredom scale.

Despite these limitations, the results allow managerial boredom to be considered an important signal of a weakening relationship with one's work and a potential indicator of declining occupational well-being. From the perspective of management practice, this implies the need to pay greater attention to the meaning-related dimension of managerial work, including opportunities for development, influence, and alignment between the activities managers undertake and organizational values and goals. In practice, reducing boredom may be supported by strengthening the sense of influence, the meaning of work, and the developmental nature of tasks.

References

1. Albrecht, S.L., Green, C.R., Marty, A. (2021). Meaningful work, job resources, and employee engagement. *Sustainability, 13*, 4045. https://doi.org/10.3390/su13074045
2. Allan, B.A., Batz-Barbarich, C., Sterling, H.M., Tay, L. (2019). Outcomes of meaningful work: A meta-analysis. *Journal of Management Studies*, *56*(3), 500-528. https://doi.org/10.1111/joms.12406

3. Andersone, N., Nardelli, G., Ipsen, C., Edwards, K. (2023). Exploring Managerial Job Demands and Resources in Transition to Distance Management: A Qualitative Danish Case Study. *International Journal of Environmental Research and Public Health, 20,* 69. https://doi.org/10.3390/ijerph20010069
4. Bailey, C., Madden, A., Alfes, K., Fletcher, L. (2017). The meaning, antecedents and outcomes of employee engagement: A narrative synthesis. *International Journal of Management Reviews, 19(*1*),* 31-53. https://doi.org/10.1111/ijmr.12077
5. Bakker, A.B., Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology, 22*(3), 273-285. https://doi.org/10.1037/ocp0000056
6. Basińska, B.A., Gruszczyńska, E. (2020). Burnout as a state: Random-intercept cross-lagged relationships between exhaustion and disengagement in a 10-day diary study. *Psychology Research and Behavior Management, 13*, 267-278. https://doi.org/10.2147/PRBM.S244397
7. Both-Nwabuwe, J.M.C., Dijkstra, M.T.M., Beersma, B. (2017). Sweeping the floor or putting a man on the moon: How to define and measure meaningful work. *Frontiers in Psychology, 8*, 1658. https://doi.org/10.3389/fpsyg.2017.01658
8. Chirkowska-Smolak, T. (2013). *Polska adaptacja Oldenburg Burnout Inventory (OLBI)* [source materials, unpublished]. Uniwersytet im. Adama Mickiewicza w Poznaniu.
9. Danckert, J., Elpidorou, A. (2023). In search of boredom: Beyond a functional account. *Trends in Cognitive Sciences, 27(5)*, 494-507. https://doi.org/10.1016/j.tics.2023.02.002
10. Demerouti, E., Bakker, A.B., Nachreiner, F., Schaufeli, W.B. (2001). The job demands–resources model of burnout. *Journal of Applied Psychology, 86(*3*)*, 499-512. https://doi.org/10.1037/0021-9010.86.3.499
11. Demerouti, E., Bakker, A.B., Peeters, M.C.W., Breevaart, K. (2021). New directions in burnout research. *European Journal of Work and Organizational Psychology, 30(5)*, 686-691. https://doi.org/10.1080/1359432X.2021.1979962
12. Demerouti, E., Bakker, A.B., Vardakou, I., Kantas, A. (2003). The convergent validity of two burnout instruments: A multitrait–multimethod analysis. *European Journal of Psychological Assessment, 19(*1*)*, 12-23. https://doi.org/10.1027/1015-5759.19.1.12
13. Eastwood, J.D., Frischen, A., Fenske, M.J., Smilek, D. (2012). The unengaged mind: Defining boredom in terms of attention. *Perspectives on Psychological Science, 7(5)*, 482-495. https://doi.org/10.1177/1745691612456044
14. Ellis, S.J., Khanagha, S., Aalbers, R., Tuertscher, P. (2025). Middle managers at the crossroads: Navigating legitimacy tensions in pursuit of radical innovation in nascent ecosystems. *Research Policy, 54*, 105287. https://doi.org/10.1016/j.respol.2025.105287
15. Harju, L., Seppälä, P., Hakanen, J.J. (2023). Bored and exhausted? Profiles of boredom and exhaustion at work and the role of job stressors. *Journal of Vocational Behavior, 144*, 103898. https://doi.org/10.1016/j.jvb.2023.103898

16. Harms, P.D., Credé, M., Tynan, M., Leon, M., Jeung, W. (2017). Leadership and stress: A meta-analytic review. *The Leadership Quarterly, 28(*1*)*, 178-194. https://doi.org/10.1016/j.leaqua.2016.10.006
17. Hatami, A., van der Heijden, B., Akkermans, J., De Vos, A. (2024). Experiencing meaningful work through corporate volunteering: A multi-source study. *Human Resource Development International, 27(*2), 198-219. https://doi.org/10.1007/s41463-024-00186-8
18. Hoch, J.E., Bommer, W.H., Dulebohn, J.H., Wu, D. (2018). Do ethical, authentic, and servant leadership explain variance above and beyond transformational leadership? A meta-analysis. *Journal of Management, 44(*2*)*, 501-529. https://doi.org/10.1177/0149206316665461
19. Junker, N.M., Kaluza, A.J., Häusser, J.A., Mojzisch, A., van Dick, R., Knoll, M., Demerouti, E. (2021). Is work engagement exhausting? *Applied Psychology, 70(*4*)*, 1508-1536. https://doi.org/10.1111/apps.12252
20. Kaluza, A.J., Weber, F., van Dick, R., Junker, N.M. (2021). When and how health-oriented leadership relates to employee well-being. *Journal of Applied Social Psychology, 51(*8), 404-417. https://doi.org/10.1111/jasp.12744
21. Kim, J., Kaplan, S.A., Aitken, J.A., Ponce, L. (2025). An examination of the daily relationship between job boredom and later burnout. *Current Psychology, 44*, 8807-8822. https://doi.org/10.1007/s12144-025-07788-x
22. Kniffin, K.M., Narayanan, J., Anseel, F., Antonakis, J., Ashford, S.P., Bakker, A.B., Bamberger, P., Bapuji, H., Bhave, D.P., Choi, V.K., Creary, S.J., Demerouti, E., Flynn, F.J., Gelfand, M.J., Greer, L.L., Johns, G., Kesebir, S., Klein, P.G., Lee, S.Y., Vugt, M.V. (2021). COVID-19 and the workplace. *American Psychologist, 76*(1), 63-77. https://doi.org/10.1037/amp0000716
23. Leclercq, C., Hansez, I. (2024). Temporal stages of burnout. *International Journal of Environmental Research and Public Health, 21,* 1617. https://doi.org/10.3390/ijerph21121617
24. Leiter, M.P., Maslach, C. (2016). Latent burnout profiles. *Burnout Research, 3(*4), 89-100. https://doi.org/10.1016/j.burn.2016.09.001
25. Lysova, E.I., Allan, B.A., Dik, B.J., Duffy, R.D., Steger, M.F. (2019). Fostering meaningful work in organizations. *Journal of Vocational Behavior, 110*, 374-389. https://doi.org/10.1016/j.jvb.2018.07.004
26. Maisonneuve, F., Groulx, P., Galy, A., Chênevert, D., Cossette, M. (2024). The cost of protecting resources: A cross-sectional study on the interaction between LMX and role ambiguity on work addiction and burnout among Canadian first-level healthcare managers. *Frontiers in Psychology, 15*, 1298001. https://doi.org/10.3389/fpsyg.2024.1298001
27. Martela, F., Gómez, M., Unanue, W., Araya, S., Bravo, D., Espejo, A. (2021). What makes work meaningful? Longitudinal evidence for the importance of autonomy and beneficence

for meaningful work. *Journal of Vocational Behavior, 131*, 103631. https://doi.org/10.1016/j.jvb.2021.103631

28. Maslach, C., Schaufeli, W.B., Leiter, M.P. (2001). Job burnout. *Annual Review of Psychology, 52*, 397-422. https://doi.org/10.1146/annurev.psych.52.1.397
29. Puchalska-Kamińska, M., Czerw, A., Roczniewska, M. (2019). Work meaning in self and world perspective: A new outlook on the WAMI scale. *Social Psychological Bulletin, 14*, e30207. https://doi.org/10.32872/spb.v14i1.30207
30. Salmela-Aro, K., Upadyaya, K. (2018). Role of demands–resources. *Journal of Vocational Behavior, 108*, 190-200. https://doi.org/10.1016/j.jvb.2018.08.002
31. Schaufeli, W.B. (2009). *The Dutch Boredom Scale (DUBS): Technical report*. Utrecht University.
32. Schaufeli, W.B., Desart, S., De Witte, H. (2020). Burnout Assessment Tool (BAT). *International Journal of Environmental Research and Public Health, 17,* 9495. https://doi.org/10.3390/ijerph17249495
33. Schaufeli, W.B., Leiter, M.P., Maslach, C. (2009). Burnout: 35 years of research and practice. *Career Development International, 14(*3), 204-220. https://doi.org/10.1108/13620430910966406
34. Sousa, T., Neves, P. (2021). Two tales of rumination and burnout. *Applied Psychology, 70(*3*)*, 1018-1044. https://doi.org/10.1111/apps.12257
35. Steger, M.F., Dik, B.J., Duffy, R.D. (2012). Measuring meaningful work: The Work and Meaning Inventory (WAMI). *Journal of Career Assessment, 20(*3*)*, 322-337. https://doi.org/10.1177/1069072711436160
36. Svendsen, M. (2022). Organizational democracy and meaningful work. *Frontiers in Psychology, 13*, 946656. https://doi.org/10.3389/fpsyg.2022.946656
37. Toscanelli, C., Urbanaviciute, I., De Witte, H., Massoudi, K. (2024). Better bored than burned-out? Cynicism as mediator between boredom at work and exhaustion. *British Journal of Guidance & Counselling, 52*(2), 274-285. https://doi.org/10.1080/03069885.2023.2219376
38. Van Hooff, M.L.M., van Hooft, E.A.J. (2014). Boredom at work. *Journal of Occupational Health Psychology, 19(*3*)*, 348-359. https://doi.org/10.1037/a0036821
39. Van Hooft, E.A.J., Van Hooff, M.L.M. (2024). Boredom at work. In: M. Bieleke et al. (Eds.), *The Routledge International Handbook of Boredom* (pp. 250-279). Routledge. https://doi.org/10.4324/9781003271536-19
40. Westgate, E. C. (2020). Why boredom is interesting. *Current Directions in Psychological Science, 29(*1*)*, 33-40. https://doi.org/10.1177/0963721419884309
41. Westgate, E.C., Wilson, T.D. (2018). Boring thoughts and bored minds. *Psychological Review, 125(*5), 689-713. https://doi.org/10.1037/rev0000097

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

THE IMPACT OF STUDENT EMPLOYMENT ON HIGHER EDUCATION DROPOUT. SELECTED ISSUES

Gabriela WRONOWSKA

Krakow University of Economics; wronowsg@uek.krakow.pl, ORCID: 0000-0001-9519-3690

Purpose: The aim of this study is to examine the extent to which student employment during studies at the Krakow University of Economics contributes to higher education dropout.
Design/methodology/approach: The analysis covers first-cycle study programs offered at the Krakow University of Economics in 2023 (N = 33). The evaluation was conducted after the first year of study for a cohort of students (N = 3790) enrolled in 2023. The conclusions are based on data obtained from the Social Insurance Institution (ZUS) and selected statistical measures.
Findings: The analysis confirms a statistically significant relationship between student employment and the risk of higher education dropout. At the level of individual study programs, the impact of employment on dropout varies considerably. For the entire population of working students, the probability of dropout is nearly five times higher than for non-working students. Other potential causes of dropout were also identified, although they were not analyzed in this study.
Research limitations/implications: The main limitation of this study is the use of registry data covering only student employment reported to the ZUS, which does not fully capture students' work activity. Future research should incorporate additional determinants of dropout and draw on alternative data sources to enable more comprehensive conclusions about the factors influencing higher education attrition.
Practical implications: Student employment is an important but not the only factor influencing dropout, indicating the presence of additional systemic and individual determinants. The findings may support higher education institutions in designing measures to reduce student attrition and in developing targeted support mechanisms tailored to student needs.
Originality/value: The study is based on the most recent available data and covers all first-cycle study programs offered in the 2023 intake at the Krakow University of Economics. The original contribution lies in the in-depth analysis of a comprehensive dataset, enabling a holistic assessment of dropout among working students and identifying fields of study particularly vulnerable to attrition**.**
Keywords: students, student employment, dropout.
Category of the paper: researches paper.

1. Introduction

In studies on higher education and the labor market, two research areas have been particularly active in recent years. The first focuses on students' situations in the labor market, that is, combining studies with work. This research area mainly examines students' motivations for working, as well as their preferences regarding the workplace and the characteristics of the job they choose. The second research area concerns the phenomenon of dropout. Studies in this area are important for identifying and understanding the causes and consequences of dropout, especially for universities in terms of financial and reputational losses. The practical results of research in this field can help suggest ways to reduce dropout rates, which in turn may lead to more efficient management of human and financial resources at universities. This study reviews the causes of dropout at Polish universities, with a detailed focus on first-cycle students admitted in 2023 at the Krakow University of Economics. The main aim is to examine to what extent their employment contributed to dropout.

2. Literature review

2.1. University dropout as a phenomenon

The phenomenon of dropout is observed in Poland as well as in other countries around the world. It is not a new issue and is understood as a process that leads a student to formally leave university. Dropout is a complex problem and usually results from several factors, such as feeling a lack of opportunities, losing motivation to study, or wanting a major change. Dropout is often a very difficult experience for young people and is sometimes seen as a failure (Ważna, 2025). It is one of the main challenges that universities face.

Dropout can be understood in different ways. In this study, four types are used, which can be seen as different study paths, although not all involve continuing education.

a) Dropout – leaving studies. This is the most common type. It refers to a student who started a program in a certain year but left it for more than 12 months without finishing or receiving a diploma. During the study period, they were not enrolled in any other program in Poland.
b) Dropout from parallel studies. This type occurs when a student is enrolled in more than one program and decides to leave one of them for more than 12 months without completing it. At the same time, they remain a student of another program in Poland.
c) Study break. This applies to a student who started a program but paused it for more than 12 months without completing it. within 12 months after the break, they were not

enrolled in any other program in Poland. During the observation period, they were at some point enrolled in a program.

d) Study correction. This occurs when a student leaves a program for more than 12 months without finishing it but then returns to any program in Poland within 12 months after leaving (OPI-PIB, 2023a).

The causes of dropout are varied and can be organized into different categories. One common classification divides the causes into two groups: institutional and individual factors (OPI–PIB, 2021). Institutional factors include, among others, the inefficient use of public funds, their loss, the lost opportunity for another person to take the place at the university, and the loss of the university's prestige. Individual factors relate to the personal situation of the student who leaves their studies. These include issues connected to the university and the chosen field of study. For example, students may feel disappointed with the university, experiencing a large gap between their expectations and reality. Other factors include lack of interest in the program, disappointment with the course, or choosing the wrong field. Another group of factors includes personal problems, financial difficulties, the need to work to support oneself, and challenges in combining work with studies. Research shows that decisions to leave are most often made during the first semesters (Nesterak, Kowalczyk, Kasalik-Kowal, 2023).

Another, more detailed classification looks at dropout from three perspectives: time, causes, and the nature of the phenomenon. The time perspective divides dropout into several periods: a very early period (within one month of starting studies), an early period (the following months), and a late period (toward the end of studies, before obtaining a diploma).

According to causes, dropout can be divided into three groups: systemic, institutional, and individual causes. Systemic causes are socio-economic conditions related to changes in the labor market, the decreasing value of a university diploma due to market realities that prioritize skills over diplomas, high living costs, and insufficient support such as educational counseling. Institutional causes come from the university itself, while individual causes relate to the student.

In terms of the nature of dropout, it can be: temporary - leaving studies for a period but returning later, permanent – a lack of motivation leading to a long-term or permanent exit from studies. and constructive dropout – when a student leaves one program or university to start studies at another university or in a different field (Pokorny, 2025).

In Poland, between 2012 and 2020, the dropout rate was about 39%, meaning around 1.3 million students left their studies for more than 12 months. The highest dropout rates were exact sciences (51%) and humanities (47%), while medical sciences and arts had lower rates (29%). Men and students living in cities were more likely to resign (Wiktorko et al., 2020, p. 10).

Dropout is therefore a common phenomenon, affecting young people who leave the education system and enter the labor market instead. Research shows that leaving second-cycle or long-cycle master's studies often has negative consequences for students' future labor market positions. One year after leaving studies, students who moved away from their university's

region had lower earnings and worse economic conditions than graduates. Graduates earned more than those who left. This suggests that the labor market values a university diploma.

Considering the research results, combining studies with work appears to be a better strategy for young people entering adulthood (OPI–PIB, 2025a). The impact of combining work and studies is mixed. Based on extensive literature (Triventi, 2014; Sanchez-Gelabert et al., 2017; Ostój, 2020), two main conclusions can be drawn: high-intensity work (over 16 hours per week) that is not related to the field of study negatively affects academic performance, while part-time work related to the field of study helps students gain experience and develop skills and competencies (Tur-Sinai et al., 2017, pp. 3328-3340; Crowley, 2024, pp. 3-28).

Based on research, it can be observed that almost 80% of students combine their studies with employment, and nearly 60% work during the semester. Students in Norway, the Czech Republic, Iceland, the Netherlands, Slovenia, Turkey, and Romania have the highest employment rates. In Poland, a similarly high proportion of students work, estimated at around 78% (Hauschildt et al., 2022, p. 146; Hauschildt et al., 2025, p. 146). Data for Poland, taken from report (OPI-PIB, 2025b), which included 310667 students admitted in 2023, show that 46.65% of them are registered with the ZUS, and over 33% were employed during their studies, including already in their first year. Employment during studies may represent a voluntary choice, a strategy to facilitate successful entry into the labor market after graduation, or a necessity due to insufficient financial resources to cover study and living costs.

3. Methodology

This study analyzed and assessed the impact of employment on first-cycle students at the Krakow University of Economics on dropout. The assessment was conducted after the first year of study. The research concerns only full-time programs. The study included students admitted in 2023 to first-cycle programs and long-cycle master's programs (N = 3790).

The research is based on a review of selected literature, and the data were obtained from the National System for Monitoring the Economic Outcomes of Higher Education Graduates. The reports, which were the main source of information, are generated using data from the Social Insurance Institution (ZUS) and the POL-on system. However, they do not fully reflect students' employment activity because they do not include jobs not reported to the ZUS (OPI–PIB, 2023b). This is a limitation of the study. It can be assumed that student employment is more common than indicated by the data used for analysis. The decision to use this database in the study was based on its comprehensiveness and reliability, as well as the lack of any suitable alternative.

Data from all programs (N = 33) offered at the first-cycle level in the 2023/2024 academic year at the university were analyzed. The Law program (long-cycle master's) was also included, as it started a new cycle of studies in the year under review.

To achieve the aim of the study, the following research questions were posed:

1. To what extent did the dropout phenomenon occur in the studied programs?
2. Which first-cycle programs at the Krakow University of Economics are most and least affected by dropout?
3. In which programs was the highest number of employed students leaving their studies recorded?
4. Was employment the main cause of dropout in the studied programs?

The study's hypothesis is that students who combine studies with work have a higher risk of dropping out compared to non-working students.

4. Findings and discussion

The analysis covers all programs offered in 2023 at the Krakow University of Economics, including first-cycle and long-cycle master's programs. To assess the intensity of dropout in these programs, the following scale was applied: below 10% – very low, 10-20% – moderate, 20-30% – elevated, above 30% – high, and above 40% – very high, which may indicate a systemic problem (Ważny, 2025).

Dropout at the university occurred in three forms: full dropout (complete withdrawal from studies), dropout due to transfer to another program, and study correction (changing programs at the same university). No dropout related to a study break was observed in any of the analyzed programs.

Figure 1 shows the intensity of dropout across all programs. Only two types of study changes are presented because they have the most significant consequences for the university: full dropout and study correction. In both cases, the university loses students, but the effects for the students differ. In full dropout, students leave the university entirely, while in study correction, they continue their studies in a different program or faculty.

The third type, dropout due to transfer to another university, was not included in the analysis because it does not affect the original institution. These students continue their studies, although they are now enrolled in fewer programs.

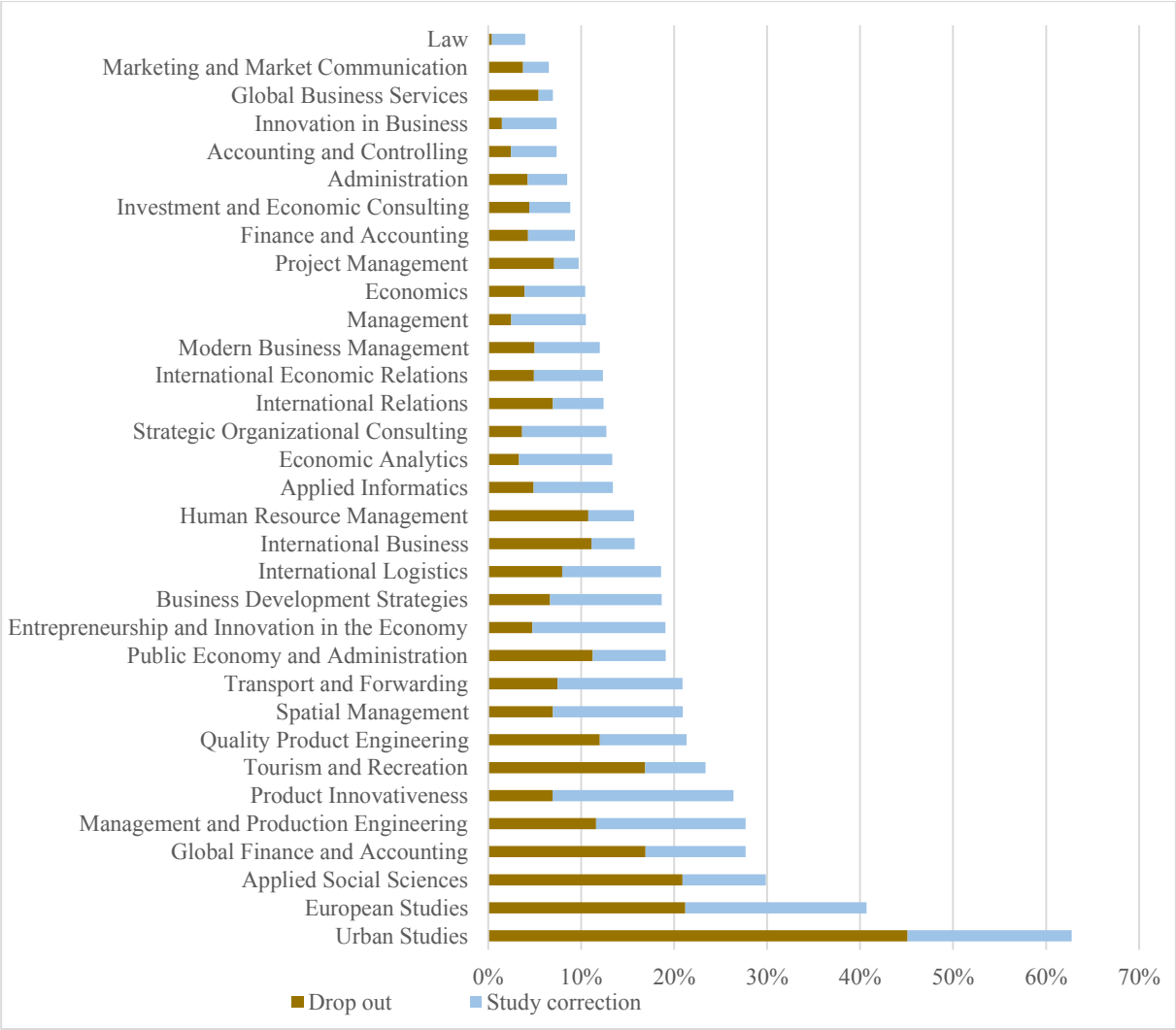


Figure 1. Intensity and types of dropout for first cycle programs at the Krakow University of Economics (2023 intake).

Source: own elaboration based on OPI – PIB (2025b).

The dropout phenomenon affected all fields of study, although with varying intensity. Based on the adopted scale, the level of dropout intensity in individual programs can be identified and classified into four groups.

Group A, characterized by a very low level of dropout (below 10%), included nine programs: Project Management, Finance and Accounting, Investment and Economic Consulting Administration, Accounting and Controlling, Innovation in Business, Global Business Services, Marketing and Market Communication, and Law.

Group B, the largest group, with a moderate level of dropout (10-20%), consisted of fourteen programs: Public Economy and Administration, Entrepreneurship and Innovation in the Economy, Business Development Strategies, International Logistics, International Business, Human Resource Management, Applied Informatics, Economic Analytics, Strategic Organizational Consulting, International Relations, International Economic Relations, Modern Business Management, Management, and Economics.

Group C, with an increased level of dropout (20–30%), included eight programs: Applied Social Sciences, Global Finance and Accounting, Management and Production Engineering, Product Innovativeness, Tourism and Recreation, Quality Product Engineering, Spatial Management, and Transport and Forwarding.

Group D included European Studies (40.7%) and Urban Studies (62.7%), characterized by high and very high levels of dropout. The intensity of the phenomenon in this group is alarming and indicates systemic problems. Programs in Group D are the most vulnerable to student attrition. Nearly three-quarters of the analyzed programs are affected by dropout at levels ranging from moderate to very high intensity.

Among the analyzed programs, three are taught in English: Global Finance and Accounting, Modern Business Management, and International Business (Groups B and C). Unlike the other programs, these are fee-based. Despite this, the level of dropout in these programs is moderate or elevated.

According to a report (Ćwiklicki et al., 2025) prepared for the internal purposes of the Krakow University of Economics, there are many reasons for student dropout, including a high level of difficulty, disappointment with studies, lack of motivation to learn, and difficulties in adapting to a new environment. However, the most frequently indicated reasons were financial difficulties and the high costs of living and studying. Students who financed their education independently had to take up employment, which, with a heavy weekly workload, often made it impossible to balance studies with professional responsibilities. It turns out that employment is one of the most frequently indicated causes of dropping out of studies.

The following part of the paper will examine the extent to which students in the analyzed programs combined work with their studies (Figure 2) and what their workload was during the analyzed period.

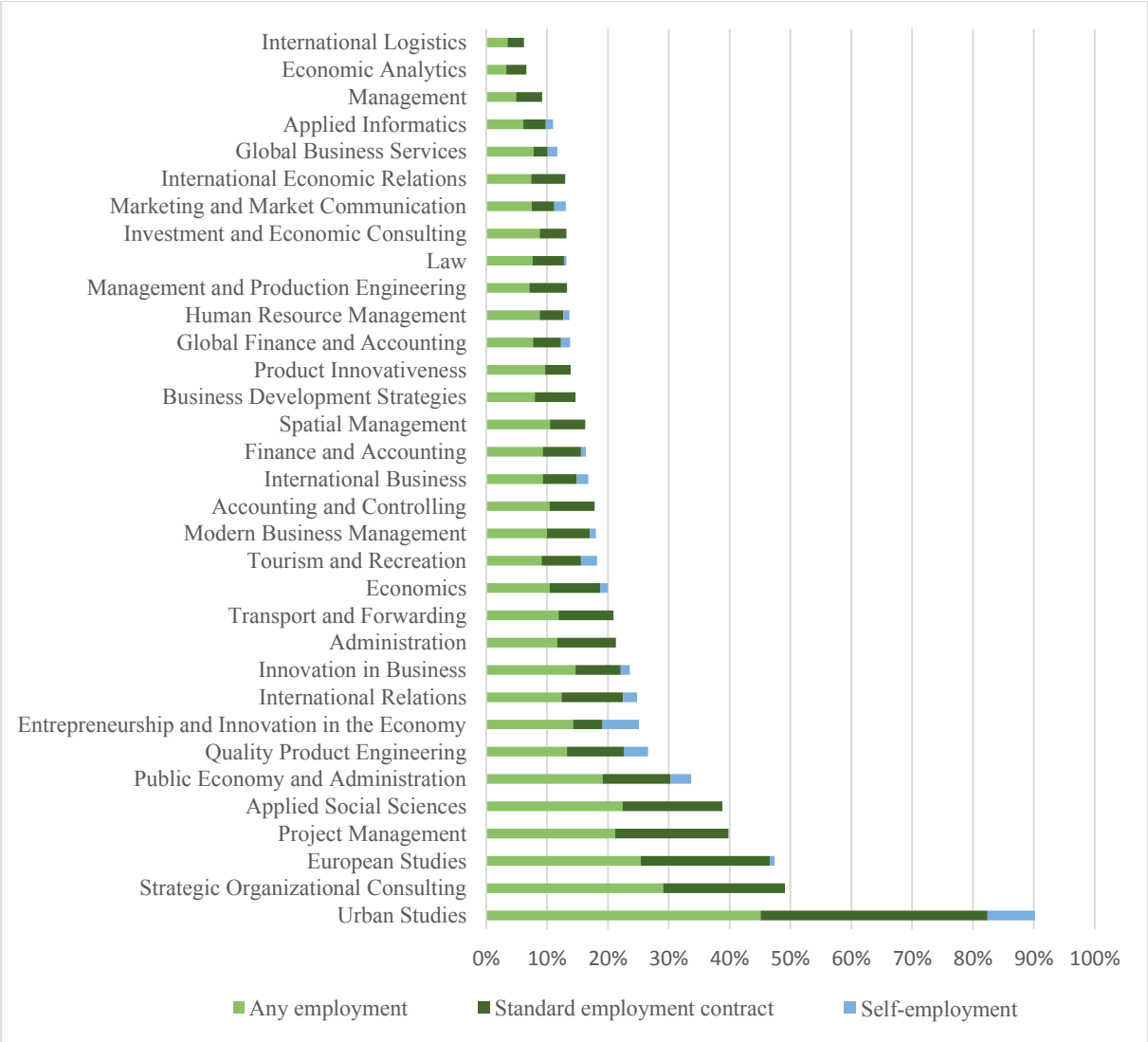


Figure 2. Percentage of first-cycle students at the Krakow University of Economics with work experience after the first year (2023 intake).

Source: own elaboration based on OPI – PIB (2025b).

Students across all programs combined their studies with employment. The most common form of work experience was holding any type of job, followed by employment under a standard contract, while self-employment played only a marginal role. In the vast majority of programs, approximately 20% of students were employed after the first year.

Exceptionally high levels of employment were observed in Urban Studies (90%), Strategic Organizational Consulting (49.1%), and European Studies (47.4%). In most programs, however, the intensity of employment was relatively low. For three-quarters of the programs, the proportion of months worked during the observation period did not exceed 10%. Exceptions were programs in which the vast majority of students were employed. Notably, in Urban Studies, students, on average, devoted over 70% of the months in the studied period to work, substantially more than to their studies.

Programs in Group D, which are the most vulnerable to student dropout, simultaneously exhibited the highest proportion of employed students and the highest average share of months dedicated to work. In this group, dropout attributable to employment was most likely.

Subsequently, the extent to which dropout was caused by students' employment was analyzed. Basic descriptive statistics were employed for the calculations, and the data used in the analysis are presented in Table 1.

Table 1.
Number of first-cycle students by employment status and dropout (2023 intake)

	Programs	Admissions in 2023	Employed	Non-employed	Dropouts	Employed dropouts	Non-employed dropouts	Employed dropouts (%)
1	Urban Studies	51	23	28	23	16	7	70%
2	Strategic Organizational Consulting	55	16	39	2	0	2	0%
3	Global Finance and Accounting	65	5	60	11	0	11	0%
4	Applied Social Sciences	67	15	52	14	6	8	40%
5	Transport and Forwarding	67	8	59	5	0	5	0%
6	Investment and Economic Consulting	68	6	62	3	0	3	0%
7	Innovation in Business	68	10	58	1	0	1	0%
8	Product Innovativeness	72	7	65	5	3	2	43%
9	Quality Product Engineering	75	10	65	9	6	3	60%
10	Business Development Strategies	75	6	69	5	1	4	17%
11	Tourism and Recreation	77	7	70	13	2	11	29%
12	Applied Informatics	82	5	77	4	0	4	0%
13	Entrepreneurship and Innovation in the Economy	84	12	72	4	1	3	8%
14	Spatial Management	86	9	77	6	1	5	11%
15	Public Economy and Administration	89	17	72	10	6	4	35%
16	Administration	94	11	83	4	0	4	0%
17	Modern Business Management	100	10	90	5	1	4	10%
18	Human Resource Management	102	9	93	11	2	9	22%
19	Marketing and Market Communication	107	8	99	4	0	4	0%
20	International Business	108	10	98	12	1	11	10%
21	Management and Production Engineering	112	8	104	13	2	11	25%
22	International Logistics	113	4	109	9	0	9	0%
23	Project Management	113	24	89	8	7	1	29%
24	European Studies	118	30	88	25	15	10	50%
25	Economic Analytics	120	4	116	4	1	3	25%
26	International Relations	129	16	113	9	1	8	6%
27	Global Business Services	129	10	119	7	1	6	10%
28	International Economic Relations	162	12	150	8	2	6	17%
29	Management	162	8	154	4	0	4	0%
30	Accounting and Controlling	163	17	146	4	1	3	6%
31	Economics	230	24	206	9	1	8	4%
32	Law	251	19	232	1	0	1	0%
33	Finance and Accounting	396	37	359	17	3	14	8%
	Total	3790	417	3373	269	80	189	

Source: own elaboration based on OPI–PIB (2025b).

Out of 3790 students admitted to the analyzed study programs in 2023, 269 dropped out. Among them, 80 were working students, representing almost 30% of all dropouts. Working students made up 11% of the total student population, yet they accounted for nearly 30% of all

dropouts. The dropout rate among working students reached 19%, meaning that working students left their studies more than three times as often as non-working students.

There was considerable variation between individual study programs. In one third of the analyzed programs, working students represented between 22% and 70% of all students who withdrew. In another third of the programs, working students accounted for only 4% to 17% of all dropouts. This shows that the variation between programs was very high.

The average dropout rate among working students was 16%, with a standard deviation of 19%. The coefficient of variation reached 117%, which indicates very high differences in dropout rates across the analyzed programs. The data show a large spread around the average, which may not represent all students. This suggests that the effect of being a working student on dropout risk is not the same for all programs.

In the remaining third of the programs, dropouts were recorded only among students who were not working. In these cases, leaving the program was not related to employment. It can be concluded that in two thirds of the programs, dropout was linked to being a working student, as shown in Figure 3.

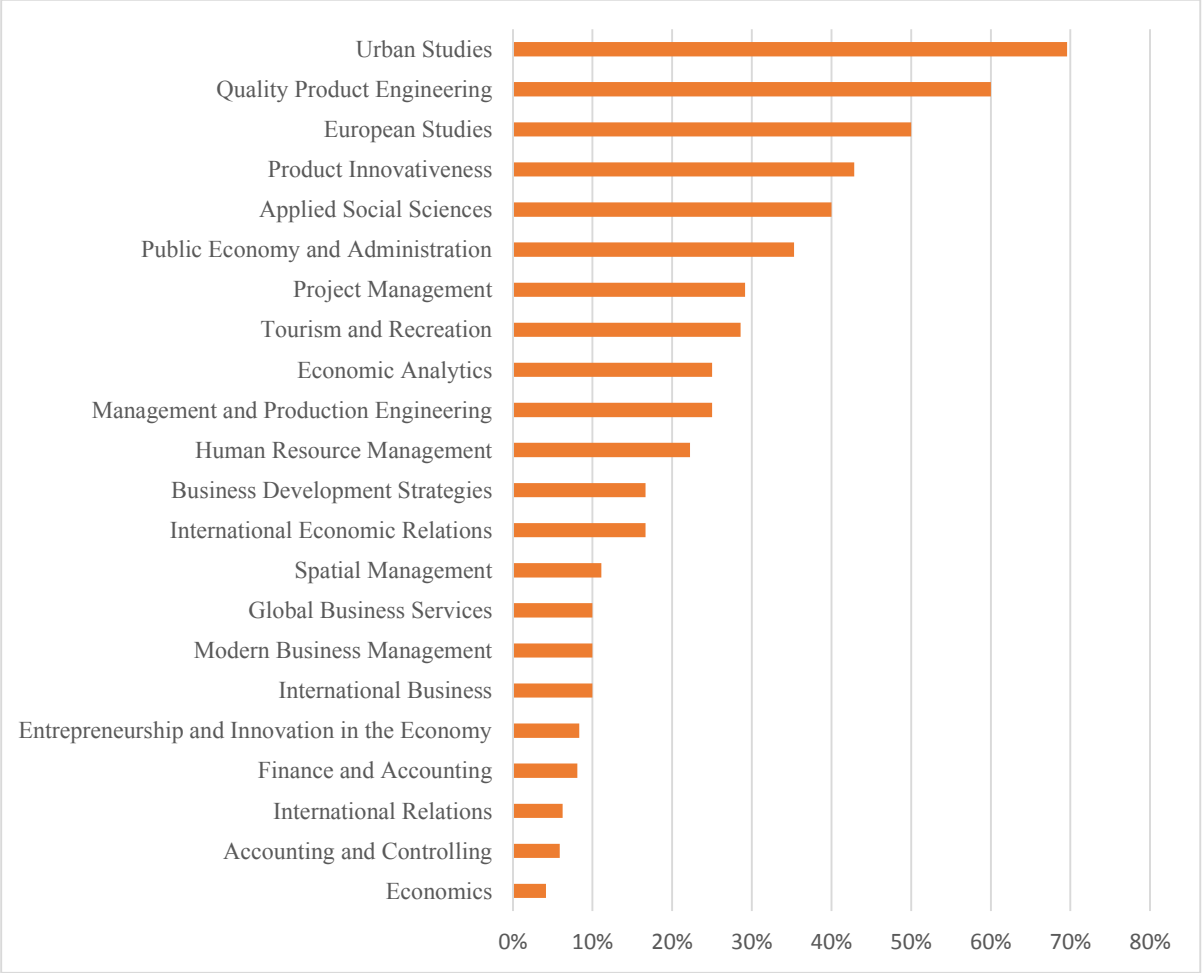


Figure 3. Percentage of employed first-cycle students in each program at the Krakow University of Economics who dropped out (2023 intake).

Source: own elaboration based on OPI–PIB (2025b).

The average odds ratio was 4.962, which indicates that the likelihood of dropping out among working students was approximately five times higher than among non-working students.

The correlation coefficient between working students and working students who dropped out was 0.56. This suggests that these phenomena occur together, although it does not confirm a causal relationship. Working students tend to drop out more often, but this does not necessarily mean that employment directly caused their withdrawal.

The correlation coefficient between the share of working students in a given programe and the overall dropout rate was 0.53, indicating a moderate relationship. In other words, programs with a higher proportion of working students also tend to show higher dropout rates.

The coefficient of determination was $R^2 = 0.28$, meaning that approximately 28% of the variation in dropout rates can be explained by the share of working students. The remaining variation is influenced by other factors. This relationship is statistically significant ($p < 0.01$).

Overall, the findings suggest that employment substantially increases the individual risk of dropping out. However, differences between programs are more complex. Employment is only one of several factors influencing students' decisions to leave their studies, and dropout may result from multiple reasons or a combination of factors.

5. Conclusion, limitations and future research

Based on the analysis, it can be concluded that all examined study programs were affected by dropout, although the intensity of this phenomenon varied significantly across programs. The analysis confirms a significant relationship between taking up employment and the risk of dropping out. The main findings are as follows:

Student employment is an important risk factor for dropping out at the individual level, which confirms the research hypothesis formulated in the study.

1. At the programme level, the impact of employment is not uniform. Some programs show a much higher dropout rate among working students, while others show only a minimal effect.
2. The average dropout rate and the odds ratio indicate that the overall risk for the entire population of working students is around 16%, and the likelihood of dropping out is almost five times higher than for non-working students.
3. The correlation coefficient between working students and working students who dropped out was 0.56. This indicates that these phenomena occur together, but it does not prove a causal relationship.
4. There are other factors, apart from employment, that influence students' decisions to leave their studies. The decision to withdraw may result from several causes or from the combined effect of multiple factors.

The main limitation of this study is the use of registry data covering only student employment reported to the ZUS, which does not fully reflect students' employment activity. Future research should include additional determinants of dropout and use alternative data sources to allow for more comprehensive conclusions about the factors influencing higher education attrition.

References

1. Crowley, L. (2024). *The changing face of the youth labour market*. London: Chartered Institute of Personnel and Development.
2. Ćwiklicki, M., Śmiech, S., Tyrańska, M., Ćwiertniak, R., Szydło, R., Bulira, M., Kuc, D., Nosal, H., Powroźnik, A., Smolińska, D. (2025). *Badanie przyczyn rezygnacji ze studiowania w Uniwersytecie Ekonomicznym w Krakowie w latach 2019-2024*. Kraków: Uniwersytet Ekonomiczny w Krakowie (unpublished material).
3. Hauschildt, K., Gwosć, Ch., Schirmer, H., Mandl, S., Menz, C. (2025). *Social and Economic Conditions of Student Life in Europe. EUROSTUDENT 8 Synopsis of Indicators 2021-2024.* German Centre for Higher Education Research and Science Studies. https://doi.org/10.3278/6001920ew
4. Hauschildt, K., Gwosć, Ch., Schirmer, H., Wartenbergh-Cras, F. (2022). *Social and Economic Conditions of Student Life in Europe. EUROSTUDENT VII Synopsis of Indicators 2018-2021.* Retrieved from: https://www.eurostudent.eu/download_files/documents/EUROSTUDENT_VII_Synopsis_of_Indicators.pdf, 26.02.2026.
5. Nesterak, T., Kowalczyk, K., Kasalik-Kowal, E. (2024). Problem rezygnacji z kontynuacji nauki na studiach wyższych – skala zjawiska, przyczyny, zapobieganie. *Eruditio et Ars*, *9*(2), 149-157. https://open.icm.edu.pl/handle/123456789/25750
6. Ośrodek Przetwarzania Informacji – Państwowy Instytut Badawczy (2023a). *Raporty studentów – Ogólnopolski system monitorowania ekonomicznych losów absolwentów szkół wyższych (ELA). Ministerstwo Nauki i Szkolnictwa Wyższego.* Retrieved from: https://ela.nauka.gov.pl/pl/experts/reports/students?searchType=STUDENTS&levelType=NATIONAL&offset=0&limit=10&graduationYear=2023, 24.02.2026.
7. Ośrodek Przetwarzania Informacji – Państwowy Instytut Badawczy (2025a). *Szukanie lepszej pracy po porzuceniu studiów – migracje dropouterów. Nowe dane jesiennej odsłony systemu ELA*. Retrieved from: https://ela.nauka.gov.pl/pl/labor-market/szukanie_lepszej_pracy_po_porzuceniu_studiow_migracje_dropouterow, 24.02.26.

8. Ośrodek Przetwarzania Informacji – Państwowy Instytut Badawczy (2023b). *ELA jako wsparcie dla uczelni – jesienna odsłona ósmej edycji systemu.* Retrieved from: https://ela.nauka.gov.pl/pl/labor-market/ela_jako_wsparcie_dla_uczelni, 26.02.2026.
9. Ośrodek Przetwarzania Informacji – Państwowy Instytut Badawczy (2021). *Zjawisko drop-outu na polskich uczelniach.* Retrieved from: https://irsw.pl/wp-content/uploads/2024/04/DROP-OUT_RAPORT-OPI-PIB.pdf, 26.02.2026.
10. Ośrodek Przetwarzania Informacji – Państwowy Instytut Badawczy (2025b). *Praca podczas studiów. Ogólnopolski system monitorowania ekonomicznych losów absolwentów szkół wyższych*. Retrieved from: https://ela.nauka.gov.pl/pl/experts/reports/students?searchType=STUDENTS&levelType=NATIONAL&offset=0&limit=10&graduationYear=2023, 28.02.2026.
11. Ostoj, I. (2020). The significance of motivations and selected effects of student employment in the course of studies: A case of an economics study program in Poland. *European Journal of Educational Research*, *9*(1), 165-177. https://doi.org/10.12973/eu-jer.9.1.165
12. Pokorny, P. (2025). *Zjawisko drop-outu na polskich uczelniach.* Ośrodek Przetwarzania Informacji – Państwowy Instytut Badawczy. Retrieved from: https://irsw.pl/raport-opi-pib-zjawisko-drop-outu-na-polskich-uczelniach/, 24.02.2026.
13. Sanchez-Gelabert, A., Figueroa, M., Elias, M. (2017). Working whilst studying in higher education: the impact on the economic crisis on academic and labour market success. *European Journal of Education, 52*(2), 232-245. https://doi.org/10.1111/ejed.12212
14. Triventi, M. (2014). Does working during higher education affect students' academic progression? *Economics of Education Review*, *41*, 1-13. https://doi.org/10.1016/j.econedurev.2014.03.006
15. Tur-Sinai, A., Romanov, D., Zussman, N. (2017). The true effect of students' employment on the duration of studies. *Applied Economics, 49*(33), 3328-3340. https://doi.org/10.1080/00036846.2016.1259749
16. Ważny, J. (2025). *Psychologia drop-outu. Jak odróżnić świadomą decyzję od ucieczki?* WSTiH. Retrieved from: https://wstih.pl/aktualnosci/psychologia-drop-outu-jak-odroznic-swiadoma-decyzje-od-ucieczki, 28.02.2026.
17. Wiktorko, P., Czarnocka-Cieciura, M., Feldy, M., Łobodzińska, A., Pawlik, B., Witkowska, E. (2020). *Zjawisko drop-outu na polskich uczelniach*. Raport opracowany na zlecenie Ministerstwa Nauki i Szkolnictwa Wyższego. Warszawa: Ośrodek Przetwarzania Informacji – Państwowy Instytut Badawczy.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

A METHOD FOR SELECTING CAX TOOLS FOR ERGONOMIC DESIGN DURING THE ESTABLISHMENT OF A DESIGN PRACTICE

Kamil WRÓBEL

Poznań University of Technology, Institute of Safety and Quality Engineering, Department of Ergonomics Applications; kamil.wrobel@put.poznan.pl, ORCID: 0000-0002-5883-5567

Purpose: The purpose of this paper is to develop an algorithmic decision-support method for selecting CAx tools that support ergonomic design at the stage of establishing a design practice, under conditions of high decision uncertainty and organizational constraints.
Design/methodology/approach: A multi-stage decision-making algorithm is proposed, integrating the identification of criteria, their prioritization using the Fuzzy AHP method, the evaluation of functional fit of CAx tools, and a selection procedure based on the aggregation of indicators and priority analysis. The method is illustrated using a realistic implementation scenario of a newly established design office in the furniture industry.
Findings: The simulation results indicate that, in the analyzed scenario, none of the considered CAx tools fully satisfies all critical criteria, confirming the validity of a compromise-based and adaptive approach. However, the proposed algorithm enables the comparison of alternatives and supports informed decision-making even when essential ("must-have") conditions are not fully met.
Research limitations/implications: The study is limited by the use of a single implementation scenario and reliance on expert-based data. Future research may include extending the method to additional industries and conducting empirical validation in real-world implementations.
Practical implications: The method may serve as a decision-support tool for SMEs, reducing the risk of arbitrary tool selection and supporting the rational planning of CAx environment development.
Social implications: The application of the method contributes to improving the quality of ergonomic design and promotes the early integration of human–machine–environment interactions.
Originality/value: The originality of the paper lies in combining an algorithmic decision-making approach with FAHP and FCM methods in the context of ergonomic design and the establishment of a design practice.
Keywords: CAx, ergonomic design, decision support, Fuzzy AHP, SMEs.
Category of the paper: Research paper.

1. Introduction

1.1. Justification for the Study

The establishment of a design office under conditions of digital transformation involves making technical, organizational, and strategic decisions that significantly shape the functioning of the organization (Balas et al., 2024; Abuamria et al., 2024; Mittal, 2025). One of the key areas of these decisions is the selection of computer-aided design tools (CAx), which determine the execution of design processes, the scope of engineering and ergonomic analyses, as well as the modes of team collaboration and project information management (Sacks et al., 2020; Balas et al., 2024). These decisions are often made under conditions of limited information, time pressure, and budget constraints, which increases the risk of arbitrary or suboptimal choices.

The importance of tool-related decisions stems from their long-term impact on the functioning and development of the design office. The CAx environment selected at the stage of establishing the organization affects the scalability of design processes, the possibility of integration with other information systems, and the ability to carry out projects of higher complexity, including those involving ergonomic considerations (Sacks et al., 2020). In design practice, a tendency can be observed to retain previously adopted tool solutions even when organizational needs evolve, which may lead to increasing costs of reorganizing the design environment and limit further development potential (Mandinach, Schildkamp, 2021).

A particular challenge is the selection of CAx tools from the perspective of ergonomic design (ED). Despite the growing availability of tools enabling advanced geometric modeling, biomechanical simulations, etc., engineering practice still lacks coherent, algorithmic methods supporting decision-making in tool selection in relation to the objectives of the design office (Rojek et al., 2021). Such decisions are often made intuitively, based on limited functional comparisons or licensing availability, without a systematic reference to ergonomic requirements, design stages, and the nature of the tasks being performed (Mandinach, Schildkamp, 2021).

Decisions regarding the selection of CAx tools are inherently multi-dimensional: they encompass not only technical and ergonomic aspects, but also organizational conditions such as implementation costs, availability of team competencies, system interoperability, and the possibility of further development of the digital environment (Balas et al., 2024). In particular, at the stage of establishing a design practice, under conditions of high uncertainty and immature organizational structures, the lack of systematic decision support may lead to limitations in the anticipated functional capabilities of the design office.

In this context, it becomes justified to develop a method supporting the selection of CAx tools that structures the decision-making process, integrates diverse technical, ergonomic, and organizational criteria, and enables rational decision-making even under conditions of limited information and high decision uncertainty.

1.2. Research Problem and Research Questions

Based on the analysis of the identified conditions, it can be concluded that a key challenge for contemporary design offices, particularly at the stage of establishing a design practice, is the lack of a structured approach to decision-making regarding the selection of CAx tools supporting ED.

The identified problem has both a cognitive and an application-oriented nature. On the one hand, it concerns the lack of coherent decision models integrating knowledge from ergonomics, engineering graphics, and project management. On the other hand, it relates to the practical difficulties faced by newly established organizations.

The research problem addressed in this paper can be formulated as follows: the lack of an algorithmic method supporting decision-making in the selection of CAx tools in ergonomic design, adapted to the specificity of establishing a design practice and conditions of high decision uncertainty.

In order to operationalize the research problem, the following research questions were formulated:

RQ1: What decision-making conditions and selection criteria for CAx tools are critical at the stage of establishing a design office oriented toward ergonomic design?

RQ2: How can the process of selecting CAx tools be structured in the form of a decision-making algorithm that takes into account different organizational objectives and relationships between decision variables?

RQ3: Which decision-support methods can be integrated within a single algorithm to improve the accuracy and transparency of tool selection decisions?

The formulated research questions serve an organizing and guiding function for the analysis and constitute a reference point for illustrating the application potential of the proposed approach.

1.3. Aim and Scope of the Paper

With reference to the identified research problem and the formulated research questions, the aim of this paper is to develop an algorithmic method for supporting decision-making in the selection of CAx tools for ergonomic design at the stage of establishing a design practice. The method is designed as a structured, multi-stage decision-making algorithm that takes into account diverse organizational objectives.

The paper presents the characteristics of a newly established design office and its decision-making context, as well as the assumptions of the method, the decision model, and the logic of successive stages of the algorithm leading to the evaluation and selection of CAx tools from the perspective of ED. The scope of the study particularly includes the stage of evaluating the functional fit of CAx tools to decision criteria and the stage of selecting the optimal solution. The logic of the algorithm is illustrated using a hypothetical yet realistic decision-making scenario, demonstrating the application potential of the method under conditions of high decision uncertainty, based on the example of a design office in the furniture industry.

2. Application of the Method in the Implementation of a Small Design Office

2.1. Characteristics of the Organization and Decision-Making Context

The analyzed case concerns a small design office (SME) specializing in the design of residential and office furniture, including built-in solutions, short production series, and product variation tailored to individual orders. The identification of requirements is based on defining typical and critical design tasks, as well as the nature of the analyzed human–machine–environment (H–M–E) interactions.

The organizational assumptions include a design team of 3-7 members, a workflow of approximately 8-12 projects per month, and the predominance of solution adaptation, product variation, and rapid design modifications. Cooperation with the manufacturing facility is carried out in a CNC subcontracting model with in-house assembly, which requires stable data formats, repeatable data exports, and unambiguous technical documentation. Tools with moderate costs and relatively low learning barriers are preferred.

The scenario distinguishes between typical tasks, characterized by high frequency of occurrence, and critical tasks, associated with an increased risk of cost or ergonomic errors. Key tasks include concept modeling and product variation, design of dimensions and usable space, design of joints and assembly details, preparation of documentation and data for CNC manufacturing, and evaluation of ergonomics in use, assembly, and maintenance.

Within the design office, ergonomics is primarily anthropometric and spatial in nature, and to a limited extent biomechanical, without the need for advanced CAE simulations.

2.2. Decision-Making Algorithm Procedure

2.2.1. Identification of Decision Criteria in the Furniture Industry

The identification of decision criteria for the implemented small design office in the furniture industry was carried out using informal analysis, complemented by selected elements of formal analysis. The starting point was the analysis of typical and critical design tasks, as well as the nature of H–M–E interactions, in particular relationships of the type human–product, human–space, and human–information technology, which determine the required scope of engineering and ergonomic functions.

In parallel, an analysis of the objectives of the design office was conducted, including both strategic and operational goals. Although these goals were not hierarchically weighted at this stage, they enabled the definition of the general decision-making profile of the organization and served as a filtering mechanism limiting the inclusion of criteria irrelevant to the planned scope of activities.

The process of identifying decision criteria was supported by typical requirements engineering techniques, in particular use case analysis and preliminary benchmarking of CAx tools. This made it possible to verify the availability of the required engineering and ergonomic functions in the analyzed solutions and their consistency with the specifics of projects carried out in the furniture industry, while simultaneously taking into account the organizational conditions of the design office.

2.2.2. Selection and Classification of Evaluation Sub-Criteria in the Furniture Industry

Based on the results of the previous stage of the algorithm, the method proceeds with the selection and classification of evaluation sub-criteria, which constitute the operational basis for the subsequent decision-making process. This stage corresponds to the transformation of variables describing the design activity into decision variables.

The starting point for the selection of criteria was the developed set of decision variables consisting of 44 sub-criteria and 13 strategic and operational objectives.

The outcome of this stage of the method is a matrix of decision criteria and CAx tool functionalities (Table 1).

Table 1.
Decision sub-criteria and CAx tool functionality matrix for the selection of CAx tools for a newly established design office

Category	Symbol	Subcategory	Assigned CAx Tool Functionality (based on the developed classification)
Organizational function variables in design (K1)	Z01	Industry	F8
	Z02	Typical H–M–E system	F28
	Z03	Role in the structure of the design system	F21
	Z04	Level of standardization of the ED process	F4

Cont. table 1.

Variables related to the core characteristics of the designed H–M–E system (K2)	Z09	Type of H–M–E system interaction	F21
	Z11	Level of ergonomics of the designed system	F22; F23
Operational variables (K3)	Z12	Cost of CAx tool license and implementation	F28
	Z13	Hardware requirements	F28
	Z14	Availability of technical support and updates	F28
Interoperability variables in production planning (K4)	Z15	Compatibility with PLM system	F17; F7
Implementation variables (K5)	Z20	Efficiency of H–M–E system implementation	F4; F17
	Z21	Design team experience in implementation and use of CAx tools	F4
	Z22	Level of ergonomics of the CAx tool interface	F4
Engineering functionality variables (K6)	Z23	Geometric modeling (solid, surface, etc.)	F8
	Z27	Technical visualization (rendering, 3D animation)	F12; F21
	Z30	Production cost analysis	F15
	Z31	Libraries of predefined design solutions	F16
	Z32	API	F17
	Z33	Interoperability with other CAx tools (data import/export)	F7
Ergonomic functionality variables (K7)	Z34	Anatomical modeling	F18
	Z37	Static and dynamic visualization (CAD, animation, VR/AR)	F21
	Z38	Ergonomic simulations (REBA, RULA, OWAS, spatial accessibility)	F22; F24; F25
	Z40	Ergonomic analysis (working postures, biomechanics, ergonomic risk)	F19; F22; F24; F25; F26
	Z41	Availability of ergonomic assessment methods and scales	F19; F22; F24; F25

Legend: F4 – CAx tool interface ergonomics; F7 – Interoperability with other CAx tools (import/export of DHM models); F8 – Geometric modeling (solid modeling, etc.); F12 – Technical visualization; F15 – Production cost analysis; F16 – Libraries of predefined design solutions; F17 – Automated generation of design documentation (API); F18 – Anatomical modeling (anthropometric models); F19 – Functional modeling (biomechanics, motion analysis, load analysis); F21 – Static and dynamic visualization; F22 – Ergonomic simulations; F23 – Input data modeling; F24 – Ergonomic analysis (working postures, biomechanics); F25 – Availability of ergonomic assessment methods and scales; F26 – Capability to predict health effects; F28 – Scalability of the CAx tool.

Source: Own elaboration.

To define the scope of criteria, an adaptive selection path was adopted, in which informal analysis played a dominant role, complemented by elements of requirements structuring. In order to organize the variables and assign them a decision-making structure, the sub-criteria were classified into categories and subcategories according to their nature and area of influence.

The process of selecting and classifying sub-criteria was further supported by requirements structuring techniques, in particular the MoSCoW method. This made it possible to preliminarily assign sub-criteria to the following categories: critical (Must), important (Should), and desirable (Could).

2.2.3. Ranking of Criteria and Sub-Criteria in the Furniture Industry

The ranking of criteria and sub-criteria was carried out using the Fuzzy AHP method. The results of the criteria ranking are presented in Table 2.

Table 2.
Ranking of Decision Criteria and Sub-Criteria for a Design Office in the Furniture Industry

Criterion symbol (Table 1)	Criterion weight	Sub-criterion symbol (Table 1)	Sub-criterion weight
K1	0.11	Z01	0.30
		Z02	0.25
		Z03	0.25
		Z04	0.20
K2	0.08	Z09	0.55
		Z11	0.45
K3	0.19	Z12	0.45
		Z13	0.30
		Z14	0.25
K4	0.06	Z15	1.00
K5	0.22	Z20	0.35
		Z21	0.25
		Z22	0.40
K6	0.18	Z23	0.28
		Z27	0.16
		Z30	0.14
		Z31	0.16
		Z32	0.16
		Z33	0.10
K7	0.16	Z34	0.20
		Z37	0.15
		Z38	0.25
		Z40	0.22
		Z41	0.18

Source: Own elaboration.

These results constitute a direct basis for the subsequent stage of the method, namely the evaluation of the fit of CAx tools to the decision criteria.

2.2.4. Evaluation of the Fit of CAx Tools to the Activities of the Established Design Office

The evaluation of the fit of CAx tools to the defined decision criteria and sub-criteria constitutes a key stage of the method. It has a tabular form and includes a comparison of criteria, their weights (determined using the FAHP method), the corresponding sub-criteria, and the functionality assessments of the analyzed CAx tools. In this way, a complete profile of the fulfillment of decision requirements is obtained for each tool.

The calculations are based on normalized weights of criteria and sub-criteria satisfying the following conditions:

$$\sum_{i=1}^{m} w_i = 1, \tag{1}$$

$$\sum_{j=1}^{n_i} w_{ij} = 1. \tag{2}$$

They constitute the input data for further calculations.

For each sub-criterion c_{ij} the functionality assessments assigned to the set of variables Z_{ijk}, where $k = 1, \ldots, K_{ij}$, are aggregated. This yields a representative value:

$$\bar{s}_{ij}(t) = \frac{1}{k_{ij}} \sum_{r=1}^{k_{ij}} s_{ij}^{(r)}(t). \tag{3}$$

In the case where a sub-criterion is associated with a single functionality of a CAx tool ($k_{ij} = 1$), the aggregation reduces to a single value.

Next, the normalized evaluation of the CAx tool functionality is calculated with respect to the evaluation scale:

$$\hat{s}_{ij}(t) = \bar{s}_{ij}(t)/s_{max}, \tag{4}$$

where $s_{max} = 4$ for the adopted four-level scale.

The partial evaluation with respect to a sub-criterion is defined as:

$$f_{ij}(t) = W_i \cdot wij \cdot \hat{s}_{ij}(t). \tag{5}$$

All partial values are then aggregated using the following equation:

$$F(t) = \sum_{i=1}^{m} \sum_{j=1}^{n_i} W_i \cdot w_{ij} \cdot \hat{s}_{ij}(t) \tag{6}$$

The evaluation takes values in the interval [0,1] and constitutes a synthetic indicator of fit. This value allows for the comparison and classification of tools—for example, values close to 1 indicate a very good fit, whereas values close to 0 indicate a poor fit.

However, this aggregated indicator may obscure significant discrepancies in the fulfillment of priority criteria. Therefore, several additional measures were introduced, including the Priority Satisfaction Index (PSI), defined as:

$$PSI(t) = \frac{\sum_{(ij)\in p} w_1 w_{ij} \hat{S}_{ij}(t)}{\sum_{(jj)\in P} w_1 w_{ij}} \tag{7}$$

where P denotes the set of priority sub-criteria (e.g., the top 30% in terms of weights). Values close to 1 indicate a high level of priority fulfillment.

Another measure is Must-Have Compliance (MHC), which verifies whether all sub-criteria marked as essential achieve values greater than or equal to the acceptance threshold γ. Formally, it is expressed as:

$$MHC(t) = \Pi_{\{ij\}\in M} 1\{\hat{S}_{ij}(t) \geq \gamma\}. \tag{8}$$

A value of 1 indicates that all conditions are satisfied, while 0 indicates non-compliance in at least one criterion.

A related measure is the Priority Gap (PG), expressed as the average deficit in meeting threshold values for priority criteria:

$$PG(t) = \frac{\Sigma_{(ij)\in P} W_i w_{ij}\, max\{0, \gamma - \hat{s}_{ij}(t)\}}{\Sigma_{[ij]\in P} W_j w_{ij}} \tag{9}$$

This is complemented by the analysis of partial contributions:

$$c_{ii}(t) = W_i w_{ij} \hat{s}_{ij}(t) \tag{10}$$

which allows for assessing the concentration of the result. By calculating the share of the largest components (e.g., Top-5), it is possible to determine whether a tool achieves a high score due to a balanced fulfillment of multiple criteria or due to very strong performance in a limited set of functionalities.

For a complete assessment, the minimum realization within priority criteria is also analyzed:

$$\left(MinP(t) = min_{(ij)\in p} \hat{S}_{ii}(t)\right) \tag{11}$$

in order to identify the weakest element within the most important areas.

The application of the set of indicators F(t), PSI(t), MHC(t), PG(t), MinP(t), and B(t) enables the evaluation of both the overall quality of CAx tools and their compliance with strategic and priority requirements, reducing the risk of favoring solutions that meet only a narrow range of functionalities.

Table 3.
Evaluation of the Functional Fit of CAx Tools to the Adopted Criteria and Sub-Criteria

	N4	**N14**	**N8**	**N9**	**N5**	**N16**	**N7**	**N15**	**N2**
F(t)	0.39	0.20	0.37	0.37	0.39	0.20	0.38	0.20	0.46
PSI(t)	0.17	0.08	0.17	0.17	0.17	0.08	0.17	0.08	0.20
MHC(t)	0	0	0	0	0	0	0	0	0
PG(t)	0.52	0.60	0.52	0.52	0.52	0.60	0.52	0.60	0.52
MinP(t)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B(*t*)=1−*Top5%*(*t*)	0.37	0.17	0.33	0.33	0.37	0.17	0.36	0.17	0.32
	N12	**N1**	**N11**	**N3**	**N13**	**N6**	**N18**	**N17**	**N10**
F(t)	0.30	0.46	0.30	0.45	0.23	0.39	0.19	0.20	0.34
PSI(t)	0.11	0.20	0.11	0.20	0.08	0.17	0.08	0.08	0.14
MHC(t)	0	0	0	0	0	0	0	0	0
PG(t)	0.57	0.52	0.57	0.52	0.60	0.52	0.60	0.60	0.54
MinP(t)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B(*t*)=1−*Top5%*(*t*)	0.35	0.32	0.35	0.32	0.22	0.37	0.12	0.17	0.41

Source: Own elaboration.

For the analyzed design office in the furniture industry, the acceptance threshold was set to $\gamma = 0{,}65$, the set of critical criteria was defined as M = {Z12, Z14, Z20, Z22, Z23, Z32, Z33}, and the set of priority sub-criteria as P = {Z11, Z13, Z15, Z21, Z27, Z30, Z31, Z34, Z37, Z38, Z40, Z41}. The results of the functional fit evaluation of CAx tools are presented in Table 3.

2.2.5. Selection of the Best Tool

To avoid a situation in which the decision-maker is required to interpret several separate numerical values, a complementary selection procedure was proposed, incorporating both elimination mechanisms and the aggregation of indicators into a single meta-evaluation.

In the first stage of the procedure, simple rejection rules are applied. If a tool does not meet the must-have requirements, i.e., $MHC(t) = 0$, it is eliminated from further analysis.

In the second stage, the indicators are divided into two groups. Group A includes decisive measures, namely $PSI(t)$, $MinP(t)$, and $1-PG(t)$, i.e., those directly related to priority requirements. Group B includes supporting indicators: $F(t)$, $B(t)$, reflecting the overall quality and functional balance.

Within each group, a partial score is calculated as a weighted average of its components:

$$U_{A(t)} = \alpha_1 PSI(t) + \alpha_2 MinP(t) + \alpha_3[1-PG(t)], \sum \alpha_k = 1, \quad (12)$$

$$U_{B(t)} = \beta_1 F(t) + \beta_2 B(t), \sum \beta_k = 1. \quad (13)$$

Next, both groups are combined into a single final evaluation using the parameter $\lambda \in [0,1]$, which reflects the relative importance assigned to priorities:

$$U(t) = \lambda U_A(t) + (1-\lambda) U_B(t). \quad (14)$$

For greater flexibility, the evaluation may be further modified by penalty functions for not meeting threshold values, for example:

$$U^{\star}(t) = U(t) \cdot min\left(1, \frac{Psi(t)}{\tau_P si}\right) \cdot min\left[1, \frac{n_1 n_^{P(t)}}{\tau x}\right] \quad (15)$$

The resulting final value $U^{\star}(t)$ enables the creation of a ranking of alternative tools or tool sets, taking into account both overall performance and the fulfillment of key criteria. This approach reduces the risk of the "average trap", as elimination and penalty mechanisms prevent results from being artificially inflated by less important aspects.

To select the best CAx tool, it is also necessary to define the algorithm parameters. In this case, the following input data were adopted:

1. thresholds: 1) $MHC(t) = 0$, elimination of the CAx tool; 2) $\tau PSI = 0.65$ (i.e. $PSI(t) \geq 0.65$); 3) $\tau min = 0.25$ (i.e. $MinP(t) \geq 0.25$),
2. weights within groups: 1) group A: $U_A(t) = 0.4 \cdot PSI(t) + 0.3 \cdot MinP(t) + 0.3 \cdot [1 - PG(t)]$; 2) group B: $U_B(t) = 0.6 \cdot F(t) + 0.4 \cdot B(t)$,
3. aggregation parameter: $\lambda = 0.65$: $U(t) = 0.65 \cdot UA(t) + 0.35 \cdot UB(t)$,
4. penalty function: $U\backslash^*(t) = U(t) \cdot \min(1, PSI/\tau PSI) \cdot \min(1, MinP/\tau min)$.

Table 4 presents the results and ranking of the CAx tools.

The analyzed case represents a relatively specific situation, as the decision-maker defined a large set of must-have and should-have requirements, resulting in three alternative solutions. Consequently, none of the CAx tools achieved $MHC(t) = 1$ and $U^*(t) > 0$. In such a case, to enable the selection of the best solution, it is recommended to base the ranking on the values of $U(t)$.

Table 4.
Ranking of CAx Tools for Selection in a Design Office in the Furniture Industry

Ranking [U(t)]	Tool (symbol from Table 3)	UA(t)	UB(t)	U(t)
1	ErgoReality (VR CAE) **(N1)**	0,23	0,40	0,29
2	Siemens Tecnomatix Jack **(N2)**	0,23	0,40	0,29
3	DELMIA **(N3)**	0,23	0,40	0,29
4	SolidWorks + HumanCAD-MQSW **(N4)**	0,21	0,38	0,27
5	Siemens NX / Tecnomatix (Process Simulate X Human) **(N5)**	0,21	0,38	0,27
6	Navisworks + TechViz **(N6)**	0,21	0,38	0,27
7	CATIA **(N7)**	0,21	0,37	0,27
8	SolidWorks + BodyWorks 2000 **(N8)**	0,21	0,35	0,26
9	PTC Creo + Human Factors Extension / Analysis Extension **(N9)**	0,21	0,35	0,26
10	Immersive VR design reviews (VR+Navisworks) **(N10)**	0,20	0,37	0,25
11	Parametric biomechanical CAD simulation **(N11)**	0,17	0,32	0,22
12	Ansys + Humanetics RAMSIS **(N12)**	0,17	0,32	0,22
13	Revit **(N13)**	0,15	0,22	0,18
14	SolidWorks + Zygote Human Factors **(N14)**	0,15	0,19	0,17
15	Ansys LS-DYNA + Hans HBM **(N15)**	0,15	0,19	0,17
16	SketchUp **(N16)**	0,15	0,19	0,17
17	IrisVR / The Wild (with BIM support) **(N17)**	0,15	0,19	0,17
18	BCF / Revit Families / RD Studio **(N18)**	0,15	0,16	0,16

Source: Own elaboration.

2.2.6. Prediction of Problems Using FCM

At this stage, potential problems related to the implementation and use of the selected CAx tool or tool set are identified using decision scenarios, a database of variables and relationships, and simulation techniques. Problem prediction complements the evaluation and selection procedure, enabling the analysis of solution behavior under conditions of uncertainty and variability in the design environment.

The analysis is based on an FCM model, in which nodes represent decision variables and edges represent cause–effect relationships with defined strength and direction. The model reflects the logic of the decision system and allows the effects of changes in its elements to be examined through simulation.

This enables the identification of critical points, the evaluation of alternative scenarios, the prediction of side effects of decisions, and the analysis of trade-offs and synergies between strategic and operational criteria.

The integration of FCM into the method supports decision-makers under conditions of uncertainty by indicating areas of increased risk and possible directions for adapting the tool environment.

2.2.7. Development of a Plan for Further Evaluation and Updating

In the final stage of the method, the implementation of KPI-based evaluation is assumed, referring to strategic and operational objectives and enabling systematic monitoring of the effectiveness of the applied CAx tools in practice.

The plan for further evaluation and updating performs both control and adaptive functions, allowing results to be compared with organizational goals, critical points to be identified, and the design environment to be adjusted to changing technological and market conditions.

The process is cyclical and includes the collection of empirical data, evaluation of goal achievement based on KPIs, updating of decision criteria and weights, and re-evaluation of tool fit. On this basis, it becomes possible to introduce adjustments, including the modification or replacement of CAx tools and the expansion of the design environment.

The implementation of this plan ensures that the method is iterative and remains consistent with the long-term development strategy of the organization, providing continuity of the decision-making process and flexibility under dynamic conditions.

3. Conclusions

The aim of this paper was to develop an algorithmic method for supporting the selection of CAx tools for ergonomic design at the stage of establishing a design practice. This objective was achieved by proposing a multi-stage decision-making algorithm integrating the identification and ranking of criteria (Fuzzy AHP), the evaluation of the functional fit of CAx tools, and a selection procedure based on the aggregation of indicators. The method was illustrated using a realistic implementation scenario of a small design office in the furniture industry.

The simulation results indicate that under conditions of high decision uncertainty and organizational constraints typical of newly established design offices, none of the analyzed CAx tools fully satisfies all critical criteria. This confirms the usefulness of the proposed method, which enables the identification of compromise solutions and supports informed decision-making even when must-have conditions are not fully met. The ranking based on the U(t) indicator identified VR and CAE environments, including ErgoReality, Siemens Tecnomatix Jack, and DELMIA, as relatively best suited to the analyzed decision context.

The obtained results are consistent with literature and industry sources indicating increasing interest in VR and CAE tools in furniture design, particularly in the SME sector, due to their potential for early ergonomic evaluation, reduction of prototyping costs, and support of design communication (Wolfartsberger, 2019; Vlah, Čok, Urbas, 2021; Kačerová et al., 2022; Praj et al., 2023). At the same time, studies emphasize that VR tools are currently used primarily as a complement to traditional CAD and CAE systems rather than as their full replacement (Berg, Vance, 2017; Horvat et al., 2019; Wolfartsberger, 2019).

From a practical perspective, the proposed method may support decision-makers in SMEs by reducing the risk of arbitrary tool selection and supporting the rational planning of CAx environment development. The originality of the paper lies in combining an algorithmic

approach with decision-support methods (FAHP, FCM) and ergonomic design in the context of establishing a design practice.

The obtained results also allow for a direct reference to the research questions formulated in the paper. The analysis demonstrates that the selection of CAx tools in a newly established design office requires consideration of both organizational conditions and the scope of engineering and ergonomic functionalities supporting the design of human–machine–environment systems. The proposed decision-making algorithm integrating Fuzzy AHP and relational analysis elements enables the structuring of the decision-making process and increases its transparency under conditions of high uncertainty.

However, several limitations of the study should also be noted. The presented application of the method is based on a single implementation scenario and on expert-based evaluations of CAx tool functionality. Therefore, further research should include empirical validation of the method in real design organizations, extension of the analysis to other industries, and further development of the decision variable relationship model, including the use of FCM-based simulations.

Acknowledgements

The article was written as part of the research project of the Faculty of Management Engineering, Poznań University of Technology, 0811/SBAD/1106.

References

1. Abuamria, A. et al. (2024). Digital transformation in project management: a comprehensive exploration. *Project Management Journal*.
2. Balas, V.E., Emilia, V., Balas, D., Belciug, S. (2024). *Decision Making and Decision Support in the Information Era*.
3. Berg, L.P., Vance, J.M. (2017). Industry use of virtual reality in product design and manufacturing: a survey. *Virtual reality*, *21*(1), 1-17.
4. Horvat, N., Škec, S., Martinec, T., Lukačević, F., Perišić, M.M. (2019, July). Comparing virtual reality and desktop interface for reviewing 3D CAD models. *Proceedings of the design society: international conference on engineering design, Vol. 1, No. 1*. Cambridge University Press, pp. 1923-1932.
5. Kačerová, I., Kubr, J., Hořejší, P., Kleinová, J. (2022). Ergonomic design of a workplace using virtual reality and a motion capture suit. *Applied Sciences*, *12*(4), 2150.

6. Kaljun, J., Dolšak, B. (2012). Ergonomic design knowledge built in the intelligent decision support system. *International Journal of Industrial Ergonomics*, *42*(1), 162-171.
7. Mandinach, E.B., Schildkamp, K. (2021). The complexity of data-based decision making: An introduction to the special issue. *Studies in Educational Evaluation, 69*, 100906.
8. Mittal, P. (2025). *Digital transformation in project management: revolutionizing practices for modern execution*. IGI Global.
9. Praj, F., Prajová, V., Košťál, P., Čambál, M. (2023). *Application of selected digital enterprise tools in small and medium-sized industrial enterprises*.
10. Rojek, I., Macko, M., Mikołajewski, S., Burczyński, T. (2021). *Modern methods in the field of machine modelling and simulation.* BazTech Bulletin.
11. Sacks, R., Brilakis, I., Pikas, E., Xie, H.-S., Girolami, M. (2020). Construction technologies for digital transformation. *Automation in Construction, 115,* 103279.
12. Vlah, D., Čok, V., Urbas, U. (2021). VR as a 3D modelling tool in engineering design applications. *Applied Sciences*, *11*(16), 7570.
13. Wolfartsberger, J. (2019). Analyzing the potential of Virtual Reality for engineering design review. *Automation in construction*, *104*, 27-37.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

THE SILVER GENERATION IN A COMPANY – AN ASSET OR A BURDEN?

Katarzyna ZADROS

Politechnika Częstochowska; katarzyna.zadros@pcz.pl, ORCID: 0000-0003-4130-5567

Purpose: Diagnosis of the barriers and benefits associated with the functioning of Silver employees in the work environment, which influence managers' evaluations of their position within employee teams.
Design/methodology/approach: A literature review and a pilot survey study were conducted. Quantitative statistical analysis was used in the data analysis.
Findings: Interest in the research topic was observed. Respondents' evaluations indicate an average level of the use of age management solutions by managers, while at the same time recognizing the benefits associated with the functioning of age-diverse teams. Based on the pilot study, it is not possible to determine which attitudes toward Silver employees dominate or what factors condition them; therefore, it is recommended to continue the research on a representative sample.
Research limitations/implications: The study was of a pilot nature, and its results can only be referred to the research sample. Continuing the study on a representative sample will make it possible to determine which factors shape managers' attitudes toward the oldest employee groups and how these attitudes can be modified.
Practical implications: Verification of the pilot study and continuation of the research on a representative sample will, in the future, make it possible to formulate recommendations for managers responsible for designing and implementing HR policies in the area of age management.
Social implications: Identification of the conditions for extending the professional activity of older workers, as well as their effectiveness and self-fulfillment in employment, as factors preventing their socio-economic marginalization.
Originality/value: Refinement of the research gap enabling the undertaking of a comprehensive study based on a representative sample, as well as the possibility of modifying the research instrument in line with changes in the employment structure and the age structure of the workforce.
Keywords: company, Silver employees, age management, manager, human resource management.
Category of the paper: Research paper.

1. Introduction

Population ageing leads to significant changes in the age structure of the workforce; therefore, employees belonging to older age groups are playing an increasingly important role in organizations. This phenomenon encourages both researchers and management practitioners to reflect more broadly on the significance of employees referred to as the Silver generation (aged 50+) in the work environment.

The literature emphasizes that these employees can constitute a valuable source of experience, knowledge, and organizational stability for companies. At the same time, it points to barriers affecting their functioning in the workplace, including age-related stereotypes, generational differences, and the impact of technological changes on employee requirements. Consequently, the question increasingly arises as to whether the presence of Silver employees in an organization represents developmental capital or a burden.

In analyses of this issue, particular importance is attached to examining the attitudes and opinions of managers responsible for the functioning of age-diverse teams. Their experiences and evaluations may indicate both the benefits and the barriers associated with employing older workers. An analysis of these opinions makes it possible to better understand the mechanisms of intergenerational team functioning as well as the determinants of effective age management in organizations.

Therefore, the aim of the presented article is to present managers' opinions on the benefits and barriers they identify in relation to the employment of Silver generation workers. As the presented results are based on a pilot study, they should be treated as a starting point for further research on the role of this group of employees in organizations and on the development of solutions supporting effective management of age-diverse workforces.

2. Factors shaping the professional activity of Silver employees – a literature review

In the context of accelerated population ageing in Europe and shrinking labour resources, the question of the role of employees aged 50+ is no longer merely a theoretical consideration but is becoming a strategic issue for organizations and social policy. In all EU countries, including Poland, the number of workers aged over fifty has clearly increased over the past decade, while at the same time various barriers to this group's access to employment, development opportunities, and occupational mobility remain evident (Eurofound, 2024; Eurofound, 2025; Bazydło-Egier, Krawczyk-Dąbrowska, Ulicz, 2025). On the other hand, attention is drawn to the unique characteristics of this group of employees, which not only

distinguish them in the labour market but also make them resources with distinctive skills, qualifications, and ways of functioning in the work environment, thereby increasing their attractiveness. Increasingly, they themselves feel fully capable of working, wish to remain professionally active longer than required by legal regulations, and seek self-fulfilment and development at work.

Demographic processes related to increasing life expectancy and the improving health status of older workers contribute to growing pressure to extend working lives and to introduce changes in age management within companies (GUS, 2024, 2025; Bazydło-Egier, Krawczyk-Dąbrowska, Ulicz, 2025). At the same time, management practice indicates discrepancies between the stereotype-based perception of mature employees as carriers of experience, stability, and organizational knowledge, and concerns regarding costs, absenteeism, adaptation to technological changes, or lower learning flexibility (Stawiarska-Klasa, Wons, 2024, p. 579; Asiamah, 2024; McCaughey et al., 2025).

Contemporary international literature identifies three complementary streams of research on employees aged 50+. First, there is a strong focus on ageism in the workplace and the consequences of age-related stereotypes for the functioning of older workers and the quality of HR decisions (Bae, Choi, 2023; Burn, 2023; Funk, Lorenz, 2024). Studies on discrimination in recruitment show that age, compared to other applicant characteristics, is often one of the strongest factors negatively differentiating candidates (PARP, 2024; Qvist, Larsen, 2025). Second, there is a growing body of research on successful ageing at work and the determinants of maintaining work ability and motivation in later life, as well as person-environment fit (Kooij et al., 2020; Debelak, 2024; Meng et al., 2025; Eurostat, 2025). Particular importance is attached to HR practices designed to be age-inclusive and to strengthen career sustainability, well-being, and the willingness to remain professionally active for longer (Dublanka, 2024; Cui et al., 2025; Hou et al., 2025; Song, 2026). The third area concerns research on age-diverse teams and their functioning. Researchers point out that the effects of age diversity depend on organizational climate, leadership quality, and solutions supporting cooperation and knowledge transfer (Waligóra, 2024b; Zellman, 2025; Tóthová, Kučera, 2025; Li et al., 2025). At the same time, findings on development decisions indicate a risk of accumulating inequalities, as managers may prefer investing in training for "more employable", younger workers, while age may reduce the perceived value of such investments for employees approaching retirement (Lössbroek, Schippers, 2025). The issue of intergenerational learning is further explored in studies on reverse mentoring as a tool for reducing the digital skills gap and strengthening bidirectional knowledge exchange (Li et al., 2024; Gordon, 2025).

Similarly, in Poland, the issue of age management in the workplace is gaining importance both in academic research and in reports by public institutions analysing the labour market. Publications by GUS and other institutions systematize the picture of the situation of older people and their activity in the labour market (GUS, 2024; MRPiPS, 2024; PARP, 2024; CIOP-PIB, 2025). They point, among other things, to the need for employer actions aimed at reducing

stereotypes and strengthening the use of the potential of employees aged 50+ (Bazydło-Egier et al., 2025). Research also shows that for the effective functioning of modern organizations, not only the age structure of employees matters, but also the way age diversity is managed, including building an inclusive climate and applying HR practices that mitigate negative intergenerational tensions and foster organizational identification (Waligóra, 2024a, p. 91; Mori et al., 2024; Waligóra, 2025, p. 158; Song et al., 2026). At the same time, managers differ in their assessments of the competencies and professional situation of Silver employees, which justifies the need for a deeper diagnosis of this issue among decision-makers (Schulz, 2024; Guzal-Dec, Jaśkiewicz, 2025; Song et al., 2026). As a result, it is reasonable to examine to what extent perceiving this group as either a developmental asset or a burden stems from actual managerial experience, and to what extent it results from cognitive biases, organizational conditions, cost pressures, lack of age management tools, or limitations in job design.

These premises, in the author's view, justify undertaking research focused on managers, as it is their beliefs and workplace practices that determine whether Silver employees participate in recruitment processes, remain employed, and develop professionally. Their decisions determine whether the potential of the mature segment of human capital is activated or lost. Conducting empirical research on this issue may provide a basis for designing evidence-based HR practices aimed at increasing productivity and well-being in both the professional and private lives of Silver employees, as well as reducing legal and reputational risks associated with age discrimination (Eurofound, 2024; Eurofound, 2025).

3. Methods

When designing the empirical study, it was considered essential to determine how managers define the role of Silver employees within their teams and which factors influence their evaluations. The aim of the study was to validate a survey questionnaire designed to identify the benefits and barriers associated with the employment of workers aged 50+ from the perspective of managing age-diverse teams. This should enable the conduct of broader research in the future and the collection of empirical material allowing for the formulation of recommendations and guidelines for age management in HR policy. The applied dimension of the study included the verification of research assumptions and the research instrument, enabling the future implementation of representative studies that would provide information for identifying factors and business arguments supporting the prevention of age discrimination and exclusion in organizations.

To achieve this aim, four research questions were formulated:

1. What barriers and benefits related to the employment of Silver employees are identified by managers?
2. What actions do managers take to reduce the risk of ageism and age discrimination?
3. What age management solutions do managers implement to support the productivity and well-being of Silver employees?
4. What factors and business arguments facilitate the implementation of strategies preventing age discrimination and exclusion in organizations?

Answers to these questions were sought through an empirical study conducted using the diagnostic survey method and an online questionnaire technique, for which an original questionnaire was developed. It consisted of 5 demographic questions and 5 substantive questions, each including from 5 to 9 statements related to the research problems. For each statement, respondents selected an answer on a five-point Likert scale, where 1 indicated "strongly disagree" and 5 indicated "strongly agree." These questions were preceded by a screening question regarding whether the respondents' organizations employ individuals aged over 50.

The survey was made available to internet users between 7 January and 15 January 2026. The invitation to participate specified that it was intended for individuals holding managerial positions. After closing the survey, the results were recorded in an Excel spreadsheet. Statistical analysis was conducted using the arithmetic mean ($\bar{x}$) and standard deviation (σ). The results of this analysis are presented in the following section of the article.

4. Analysis of the research results

The processing and analysis of the statistical data obtained in the study began with a characterization of the participants, based on responses to the demographic and screening questions. Complete responses were obtained from 116 respondents, of whom 4 indicated that there were no employees aged over 50 in their organizations. This means that the final sample consisted of 112 participants (Table 1).

Women predominated in the sample – 75 respondents (67%) – as well as individuals aged 40 to 50 years – 55 respondents (49.11%). The mean age of the respondents was 47.5 years, with a standard deviation of 8.76. The average tenure in a managerial position was 10.21 years, with a standard deviation of 6.4.

In the substantive part of the questionnaire, respondents were first asked to assess the extent to which they agreed with statements concerning the benefits of employing Silver workers, such as bringing professional experience to the team, stabilizing its functioning, transferring knowledge to younger employees, building a culture of responsibility and loyalty,

work engagement, intergenerational cooperation, and supporting younger employees in developing their experience.

Table 1.
Demographic characteristics of the respondents

Characteristic		Number of responses	Total
sex	women	75 (66,96%)	112 (100%)
	man	37 (33,04%)	
age	up to 30 years old	0 (0%)	
	31-40 years old	11 (9,82%)	
	41-50 years old	55 (49,11%)	
	51-60 years old	41 (36,61%)	
	over 60 years old	5 (4,46%)	
	$\bar{x}$(σ)	***47,5 (8,76)***	
length of service in a managerial position	up to 5 years	27 (24,11%)	
	6-10 years	39 (34,82%)	
	11-15 years	29 (25,89%)	
	over 15 years	17 (15,18%)	
	$\bar{x}$(σ)	***10,21 (6,4)***	
company size	up to 49 employees	31 (27,68%)	
	50-249 employees	65 (58,03%)	
	250 or more employees	16 (14,29%)	
industry	production	28 (25%)	
	services	31 (27,68%)	
	trade	16 (14,29%)	
	public administration	11 (9,82%)	
	other	26 (23,21%)	

Source: own elaboration.

The second issue concerned the analysis of the impact on the functioning of the teams managed by the respondents of barriers related to the employment of Silver workers. Respondents referred to such problems as adaptation to new technologies, generational differences in teamwork, age-related stereotypes, difficulties in accepting organizational changes, participation in training, manifestations of discrimination, as well as differences in communication styles between older and younger employees.

The next issue addressed the actions undertaken by respondents to prevent ageism and age-based discrimination, including those promoting cooperation among employees of different ages, ensuring equal development opportunities, raising awareness of ageism, and taking into account the needs of different age groups in team management.

Subsequently, respondents were asked about solutions aimed at enhancing the productivity and well-being of Silver workers in the workplace, such as offering flexible working arrangements, mentoring, training tailored to the needs of employees of different ages, supporting their health and well-being, adjusting tasks to their competencies and capabilities, encouraging knowledge and experience sharing, recognizing them as valuable resources contributing to organizational effectiveness, and incorporating age management into HR policy.

The final issue concerned measures implemented within organizations to support Silver workers at work, including the use of mentoring and reverse mentoring, training to enhance digital competencies, flexible forms of work, adapting workplaces to the needs of older employees, and age management programs. Mean scores for each research area were calculated and presented in Table 2.

Table 2.
Practices related to age management and the prevention of ageism in the respondents' organizations

Factors		Assessment $\bar{x}$ (σ)
benefits of employing Silver workers	contributed experience	4,2 (1,25)
	team stability	3,1 (1,09)
	knowledge transfer	3,9 (2,1)
	organizational culture	2,8 (1,23)
	team effectiveness	2,4 (2,11)
	lower risk of errors	2,9 (1,41)
	total	***3,22 (1,53)***
barriers related to the functioning of Silver workers in organizations	lower ability to adapt to new technologies	4,3 (1,08)
	intergenerational differences within the team	3,7 (0,96)
	the persistence of stereotypes	4,3 (1,42)
	difficulties in accepting change	4,6 (0,48)
	lower participation in training	3,8 (1,16)
	discrimination against older employees	2,4 (0,82)
	differences in communication styles	3,8 (1,91)
	total	***3,84 (1,12)***
reducing ageism and age-based discrimination	prevention of discrimination by managers	3,7 (1,19)
	promoting intergenerational cooperation	2,9 (1,02)
	ensuring equal development opportunities	4,2 (0,77)
	combating ageism	3,7 (1,31)
	taking into account the needs of all employees	4,3 (0,83)
	total	***3,76 (1,02)***
measures to enhance the productivity and well-being of Silver workers	flexible forms of work	2,1 (0,47)
	assigning mentoring roles	2,4 (0,57)
	training tailored to employees' needs	3,3 (0,83)
	supporting health and well-being	2,7 (0,91)
	adjusting tasks to employees' capabilities	3,9 (0,96)
	encouraging knowledge sharing	4,3 (0,81)
	treating them as a valuable resource	3,8 (1,58)
	treating age diversity as a factor enhancing effectiveness	3,7 (1,16)
	including age management in HR policy	2,2 (0,46)
	total	***3,16 (0,86)***
measures supporting Silver workers in the workplace	mentoring	2,9 (0,79)
	reverse mentoring	1,7 (0,67)
	training to enhance digital skills	3,9 (0,93)
	flexible forms of work	1,4 (0,54)
	workplaces adapted to employees' needs	2,6 (0,86)
	age management programs	1,3 (0,83)
	total	***2,3 (0,77)***
∑		***3,26 (1,06)***

Source: own elaboration.

The overall mean for the entire study was 3.26, with a standard deviation of 1.06. Particular attention should be paid to the results concerning the part of the study that addressed actions undertaken by respondents' organizations to support Silver workers in the workplace. Here, there is a clear predominance of ratings indicating a lack of activity in this area – mean score of 2.3, with a standard deviation of 0.77.

In the remaining areas, despite differences in ratings for individual factors, the mean values across specific domains do not show significant variation. At the same time, the relatively low variability of responses is noteworthy, with most answers clustering around the value corresponding to the statement "difficult to say." This suggests the need to modify the rating scale by introducing a forced-choice format, achieved through the use of an even number of response options.

5. Summary

In conclusion, it can be stated that the subject of the study is becoming an increasingly important area of scientific inquiry, and therefore its continuation should be considered justified. Based on the pilot results, preliminary answers to the research questions and conclusions regarding further work were formulated. It was identified which benefits and barriers related to the employment of workers aged 50+ were perceived by the managers participating in the study. According to their assessments, the key benefits include the opportunity to share experience and the intergenerational transfer of knowledge. Among the barriers, the most important were identified as a lower level of acceptance of change and adaptation to new technologies, as well as communication problems between older and younger employees resulting from differences in communication styles.

Among the actions most frequently undertaken to reduce the risk of ageism and age-based discrimination in the workplace, respondents indicated taking into account the needs of all employees and adjusting working conditions accordingly. However, it is not possible to clearly determine what additional measures, beyond those already indicated, are taken by surveyed managers to support the productivity and well-being of Silver workers, or which workplace factors are used to prevent age-based discrimination and exclusion in their organizations.

In line with the research objective, the research gap was specified more precisely, which made it possible to modify the questionnaire so that it would fully enable the identification of benefits and barriers associated with the functioning of Silver workers from the perspective of managing age-diverse teams. The results of the pilot study did not provide a clear answer to the question of whether Silver workers in the respondents' organizations are perceived as an asset or a burden. Answering this question requires extending the study so that it becomes representative of the entire managerial population in Polish companies.

References

1. Asiamah, N., Sarpong, E., Baidoo, U.Y., Eku, E. (2024). Discrimination of older peers is associated with workplace age discrimination: moderation by occupational health literacy. *BMC Psychology, 12*(1), 14. https//doi.org/10.1186/s40359-024-02163-0
2. Bae, S., Choi, M. (2023). Age and Workplace Ageism: A Systematic Review and Meta-Analysis. *Journal of Gerontological Social Work, 66*(25), 724-738. https//doi.org/10.1080/01634372.2022.2161685
3. Bal, P.M., Boehm, S.A. (2017). How Do I-Deals Influence Client Satisfaction? The Role of Exhaustion, Collective Commitment, and Age Diversity. *Journal of Management, 45*(4), 1-47. https//doi.org/10.1177/0149206317710722
4. Bazydło-Egier, D., Krawczyk-Dąbrowska, A., Ulicz, E. (2025). *Siła wieku – osoby 50+ na rynku pracy. Report*, CIOP-PIB. Retrieved from: https://www.ciop.pl/CIOPPortalWAR/file/101063/Raport-Sila-Wieku-osoby-50plus-na-rynku-pracy-CIOP-PIB2025.pdf, 1.02.2026.
5. Beier, M.E., Kanfer, R., Kooij, D.T.A.M., Truxillo, D.M. (2022). What's age got to do with it? A primer and review of the workplace aging literature. *Personnel Psychology, 75*(4), 779-804.
6. Burn, I., Firoozi, D., Ladd, D., Neumark, D. (2023). Age Discrimination and Age Stereotypes in Job Ads. *FRBSF Economic Letter, 6*(7).
7. Cui, G., Kooij, D.T.A.M., Zhang, Y., Liu, D., Pan, J., (2025). Building an age-inclusive workplace for older workers: A dual pathway of age-inclusive HR practices to facilitate successful aging at work. *Human Resource Management Review, 161*, 104148. https//doi.org/10.1016/j.jvb.2025.104148.=
8. Debelak, K., Grah, B., Penger, S., (2024). Successful Aging at Work: A Comprehensive Literature Review. *ENTRENOVA, 10*(1), 191-203. https//doi.org/10.54820/entrenova-2024-0017
9. Dublanka, D. (2024). 50+ to nowe 30+: czyli siła, która drzemie w dojrzałych pracownikach. *Personel i Zarządzanie, 9*, 60-63.
10. Eiffe, F.F., Adăscăliței, D., Fric, K., Muller, J., Contreras, R.R., Weber, T. (2025). *Keeping older workers in the labour force.* Luxembourg: Publications Office of the European Union, 1-86.
11. *Employment rate of older workers, age group 55-64* (2026). Retrieved from: https://ec.europa.eu/eurostat/ databrowser/product/page/tesem050, 1.02.2026.
12. Farr-Wharton, B., Bentley, T., Onnis, L.-A. et al. (2023). Older Worker-Orientated Human Resource Practices, Wellbeing and Leave Intentions: A Conservation of Resources Approach for Ageing Workforces. *International Journal of Environmental Research and Public Health, 20*(3), 2725. https//doi.org/10.3390/ijerph20032725

13. Funk, M., Lorenz, T. (2024). Assessing age discrimination in workplaces: psychometric exploration of the Workplace Age Discrimination Scale (WADS-G). *Frontiers in Psychology, 15*, 1345923. https//doi.org/10.3389/fpsyg.2024.1345923
14. Gordon, P. (2025). Reverse Mentoring: Transforming Learning at Individual, Team, and Organizational Levels to Build Belonging in the Workplace. *International Journal of Human Resource Development (Sciendo), 9*(1), 53-60. https//doi.org/10.2478/ijhrd-2025-0006
15. Guzal-Dec, D., Jaskiewicz, N. (2025). Premises and Conditions for the Professional Activity of Seniors from the Eastern Poland Macroregion. *European Research Studies Journal, 2*8(4), 446-458, https//doi.org/10.35808/ersj/4123
16. Hou, L., Shi, R., Wang, Z., Zhang, J. (2025). How age-inclusive human resource practices relate to career sustainability: the role of work-family enrichment and protean career orientation. *Frontiers in Psychology, 16*, 1564719. https//doi.org/10.3389/fpsyg. 2025.1564719
17. *Informacja o sytuacji osób starszych w Polsce za 2024 r.* (2025). Warszawa: MRPiPS.
18. Jurek, Ł. (2024). Starzenie się populacji w wieku produkcyjnym w Polsce: perspektywa teoretyczna i implikacje praktyczne. *Polityka Społeczna, 7,* 1-7, https//doi.org/10.5604/01.3001.0054.7577
19. Kooij, D.T.A.M., Zacher, H., Wang, M., Heckhausen, J. (2020). Successful aging at work: A process model to guide future research and practice. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 13*(3), 1-50, https//doi.org/10.1017/iop.2020.1
20. *Labour Market and Wage Developments in Europe 2024, European Commission* (2024). Eurostat (2025). Retrieved from: https://op.europa.eu/webpub/empl/lmwd-annual-review-report-2024/chapter3/the-labour-force-participation-and-employment.html, 1.02.2026.
21. Li, M., Gu, J., Zou, Ch., Yin, J. (2025). The Impact of Reverse Mentoring on Employees' Innovative Behavior: Evidence from Chinese Technology Enterprises. *Sustainability, 17(1),* 6. https//doi.org/10.3390/su17010006
22. Lössbroek, J., Schippers, J. (2025). Managerial decisions on older workers' training: A vignette study on the interplay of worker and manager characteristics. *Research in Social Stratification and Mobility, 97*, 01045. https//doi.org/1016/j.rssm.2025.101045
23. McCaughey, M., Eiffe, F.F., Karel, E. (2025). *Episode 31 – How can Europe adapt to an ageing workforce?* [podcast]. Eurofound, 10.04.2025. https://www.eurofound.europa.eu/en/resources/podcast/2025/episode-31-how-can-europe-adapt-ageing-workforce
24. Meng, H., Liang, Y., Ma, H. (2025). A meta-analysis of correlates of successful aging at work-related outcomes. *Educational Gerontology, 14*, 503. https//doi.org/10.1080/03601277.2025.2578218

25. Mori, K., Odagami, K., Inagaki, M. et al. (2024). Work engagement among older workers: a systematic review. *Journal of Occupational Health, 66*(1), uiad008, https//doi.org/10.1093/joccuh/uiad008
26. Neumark, D., Burn, I., Button, P. (2019). Is It Harder for Older Workers to Find Jobs? New and Improved Evidence from a Field Experiment. *Journal of Political Economy, 127(2),* 6496. https//doi.org/10.1086/701029
27. Nowak, W. (2023). Elderly employment in the European Union: Active aging or overcoming poverty? *Acta Universitatis Wratislaviensis, no. 4161. Ekonomia – Wroclaw Economic Review, 29(1),* 53-68. https//doi.org/10.19195/2084-4093.26.2.1
28. *Osoby powyżej 50. roku życia na rynku pracy w 2021 roku* (2022). GUS. Retrieved from: https://stat.gov.pl/obszary-tematyczne/rynek-pracy/opracowania/osoby-powyzej-50-roku-zycia-na-rynku-pracy-w-2021- roku,19,6.html, 1.02.2026.
29. Qvist, J.Y., Larsen, Ch.A. (2025). Age discrimination in hiring: Relative importance and additive and multiplicative effects. *Social Science Research, 126*, 103135, https//doi.org/10.1016/j.ssresearch.2024.103135
30. *Rekomendacje dla przedsiębiorców dotyczące zatrudniania osób starszych*. Report PARP, 23.09.2024. Retrieved from: https://www.parp.gov.pl/component/content/article/87213:rekomendacje-dla-przedsiebiorcow-dotyczace-zatrudniania-osob-starszych, 1.02.2026.
31. Schulz, M. (2024). The professional situation of seniors in their opinions and the opinions of employers. *Scientific Papers of Silesian University of Technology. Organization and Management Series, 205*, 563-581. https//doi.org/10.29119/1641-3466.2024.205.34
32. Song, M., Xia, Y., Qi X., Wang, Z., Gao, Y. (2026). Unleash the potential: how age-inclusive HR practices drive innovative work behavior of older employees. *Cogent Psychology, 13*(1), 2612389. https//doi.org/10.1080/23311908.2025.2612389
33. Stawiarska-Klasa, E., Wons, J., (2024). Methods of managing multigenerational human resources in the era of the fourth industrial revolution – research results. *Scientific Papers of Silesian University of Technology. Organization and Management Series, 204*, 575-595. https//doi.org/10.29119/1641-3466.2024.204.34
34. *Sytuacja demograficzna Polski* (2025). Report GUS 2023-2024. Warszawa. Retrieved from: https://rrl.stat.gov.pl/Files/raporty/Sytuacja_Demograficzna_Polski_2023-2024%20internet%20%2013%2011%20ok.pdf, 1.02.2026.
35. *Sytuacja osób starszych w Polsce w 2024 r. Report GUS*. Warszawa.
36. Szukalski, P. (2024). Przemiany demograficzne a nieoczywiste wyzwania polityki społecznej w Polsce. *Polityka Społeczna, 11-12*, 28-33, https//doi.org/10.5604/01.3001.0054.8494
37. Tóthová, V., Kučera, J. (2025). Multigenerational workplace and the demands placed on the leader resulting from it. *EAI Endorsed Transactions on Smart Business and Innovation, 1*(1).

38. Waligóra, Ł. (2024a). *Employees' age diversity − between supportive workplaces and organizational outcomes.* Katowice: Publishing House of the University of Economics in Katowice.
39. Waligóra, Ł. (2024b). The impact of workforce age diversity on non-financial organizational outcomes considering the role of knowledge transfer. *Scientific Papers of Silesian University of Technology. Organization and Management Series*, *199*, 633-645. https//doi.org/10.29119/1641-3466.2024.199.47
40. Waligóra, Ł. (2025). The Influence of Age Diversity on Organizational Identification. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, 69*(2). https//doi.org/10.15611/pn.2025.2.13
41. *Work after retirement more common among self-employed. Eurostat News.* Retrieved from: https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20250606-1, 1.02.2026.
42. Zellman, E., Andrei, D., Parker, S. (2025). Leadership, follower age, and age-diversity: a systematic review and future directions. *Work, Aging and Retirement,* 1-27. https//doi.org/10.1093/workar/waaf014
43. Zieliński, M. (2024). Zarządzanie wiekiem w warunkach starzejącej się ludności. *Zarządzanie Zasobami Ludzkimi*, *5*, 70-83. https//doi.org/10.5604/01.3001.0054.8736

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

THE IMPACT OF LEADERSHIP ON BUILDING TRUST IN A CRISIS SITUATION

Wiesława ZAŁOGA

Military University of Technology; wieslawa.zaloga@wat.edu.pl, ORCID: 0000-0001-7758-0187

Purpose: The aim of the article is to identify the mechanisms through which leadership influences the building of employee trust in crisis situations, and to determine the significance of this process for the development of human capital in enterprises and the economy.
Design/methodology/approach: The article employs a critical analysis of Polish and international literature in the fields of crisis management, organizational psychology, and human capital theory. A diagnostic survey method was used, applying the CAWI (Computer-Assisted Web Interviewing) technique. The research sample was purposive and consisted of 300 leaders from medium and large enterprises operating under conditions of increased market uncertainty in Poland.
Findings: The analysis indicates that a leadership style based on transparent communication, accountability, and emotional support significantly strengthens employee trust. Trust reduces the level of uncertainty, increases engagement, and helps maintain team productivity. In crisis situations, the leader becomes a key stabilizing element of the organization's human capital, limiting employee turnover and a decline in motivation.
Research limitations/implications: The study is cross-sectional in nature and is based on respondents' self-reported data.
Practical implications: The research findings indicate that developing leadership competencies in crisis communication and employee emotion management can enhance an organization's resilience to market disruptions. The deliberate cultivation of a culture of trust supports employment stability and improves the economic efficiency of enterprises.
Social implications: Strong leadership that fosters trust helps limit the negative social effects of economic crises, such as occupational stress and job insecurity. This contributes to labor market stability, the economic security of households, and the strengthening of social capital.
Originality/value: The article integrates contributions from management science, economics, and organizational psychology, highlighting the interdisciplinary role of leadership in protecting human capital under crisis conditions.
Keywords: leadership, trust, capital, crisis, management.
Category of the paper: Research paper.

1. Introduction

Human capital constitutes a key resource of modern organizations and a foundation of economic development. In times of crisis, its importance increases, as employees' ability to adapt and learn determines the continuity of business operations. Crisis generates uncertainty, lowers team morale, and weakens organizational ties. Under conditions of growing informational uncertainty, an organization's ability to counteract disinformation and strengthen the credibility of internal communication becomes particularly important. Disruptions in the flow of reliable information weaken social and organizational trust, negatively affecting the stability of institutional structures and relationships among organizational members (Załoga, 2022, pp. 43-62).

In such conditions, leadership becomes especially important. Leaders stabilize employees' emotions, set directions for action, and build a sense of security. The contemporary organizational environment requires leaders to possess well-developed communication competencies, particularly in the digital sphere. The ability to manage information, select it appropriately, and counter information threats supports the credibility of superiors and strengthens employees' trust in managerial decisions (Załoga, 2022, p. 36). A key mechanism of leadership influence is organizational trust, which fosters cooperation, knowledge transfer, and the maintenance of employee engagement.

Crisis situations generate negative psychosocial consequences, such as increased stress, job insecurity, decreased motivation, and weakened cooperation and organizational ties. In such conditions, leadership plays a crucial role in stabilizing employees' emotions, setting directions for action, and aligning organizational goals with team needs. An important mechanism of leader influence is the building of organizational trust, which reduces uncertainty, strengthens engagement, and supports the effective functioning of the enterprise.

Trust is an important component of an organization's social capital and conditions effective cooperation, knowledge transfer, and employee engagement (Sztompka, 2007, p. 69). It forms the foundation of relationships based on predictability of actions, credibility of communication, and a belief in mutual loyalty among organizational members. In the workplace, a high level of trust fosters open communication, facilitates problem-solving, and enhances team innovation. A lack of trust, on the other hand, leads to decreased productivity, increased internal conflicts, limited information flow, and a rise in opportunistic behaviors. A deficit of trust also weakens organizational ties and increases employees' propensity to seek alternative employment, resulting in the loss of valuable knowledge capital (Bryczek-Wróbel, Moszczyński, Załoga, 2025, pp. 86-103).

From a macroeconomic perspective, the consequences of declining trust extend beyond individual enterprises. Employment instability, reduced work efficiency, and decreased innovation negatively affect economic competitiveness and the pace of economic growth. Therefore, building trust within organizations is not only a managerial challenge but also an important element of human capital development policy at the level of the entire economy.

In light of the above considerations, the aim of the article is to analyze the impact of leadership on building trust in crisis situations. Understanding the social and organizational mechanisms that determine the level of trust makes it possible to design effective human capital management strategies and strengthen organizational resilience to future disruptions. Based on the literature review, the following hypotheses were formulated:

H1: Transparent communication by the leader positively affects the level of employee trust.

H2: Leader empathy positively affects the level of employee trust.

H3: Consistency of the leader's actions increases the level of organizational trust.

H4: Organizational trust mediates the relationship between leadership and employee engagement.

2. The role of leadership in building trust during a crisis

Leadership in crisis situations differs from management under stable conditions, as it requires operating under high uncertainty, decision-making pressure, and emotional tension. An effective leader then assumes the role of an emotional stabilizer of the organization, combining strategic competencies with social skills such as empathy and communication.

Recent studies indicate that authentic and adaptive leadership are of particular importance in crisis situations. These approaches are based on transparency of actions, consistency of values, and flexible responses to changing environmental conditions (Northouse, 2022, p. 43). A leader's authenticity fosters their perception as credible and predictable, which forms the foundation for building interpersonal trust (Sztompka, 2027, pp. 23-31). Employees are more willing to accept difficult decisions if they perceive them as consistent with the organization's declared values and principles of procedural justice (Blustein, 2019, pp. 236-253). Adaptiveness in leadership, in turn, refers to the ability to modify one's leadership style depending on the dynamics of the crisis, the level of threat, and the needs of employee teams (Yukl, Gardner, 2023, pp. 383-412).

An important mechanism for building trust in crisis remains leadership communication (Northouse, 2022, p. 43). Under conditions of informational uncertainty, employees actively seek reliable sources of knowledge, and a lack of information encourages the spread of rumors and interpersonal tensions (Załoga, 2022, pp. 541-552). Transparent communication encompassing the regular sharing of reliable information, explaining the reasons behind decisions, and openly acknowledging cognitive limitations reduces organizational stress (Blustein, 2019, pp. 236-253). It is emphasized that effective crisis communication is not limited to the transmission of data but also involves addressing the emotions of recipients and creating space for dialogue. Leaders who actively listen to employees and enable them to express concerns strengthen employees' sense of agency (Northouse, 2025, pp. 43-46).

Leadership empathy, understood as the ability to recognize and respond appropriately to employees' emotions, enhances teams' psychological safety. This fosters open communication, cooperation, and increases employees' willingness to take initiative and engage in corrective actions.

Consistency in a leader's actions plays a key role in building trust, while discrepancies between declarations and actual behavior lead to a loss of credibility and an increase in cynical attitudes. Consistency, accountability, and the ethical dimension of leadership strengthen the perceived reliability of the leader, which is particularly important in times of crisis.

From the perspective of human capital, trust-based leadership helps limit talent outflow and the loss of organizational knowledge. Trust strengthens employees' identification with the organization and increases their loyalty to the employer, even under deteriorating economic conditions. Employment stability enables the continuity of organizational processes and reduces the costs of recruitment and onboarding of new employees (Mrówka, 2025, pp. 67-86). Moreover, a high level of trust promotes the sharing of tacit knowledge, enhancing the organization's capacity for learning and adaptation.

From an interdisciplinary perspective, leadership that builds trust serves as a protective mechanism for human capital, limiting the negative effects of economic and organizational crises. Trust stabilizes working relationships, reduces conflicts, and strengthens teamwork, which translates into higher organizational effectiveness. Consequently, leadership competencies in communication, empathy, and accountability become a strategic resource for enterprises operating in turbulent environments.

3. Leadership and human capital – an interdisciplinary perspective

The analysis of the relationship between leadership and human capital requires an interdisciplinary approach integrating insights from economics, management sciences, organizational psychology, and the sociology of work. Contemporary concepts of organizational development indicate that human capital is not merely the sum of employees' competencies, but a dynamic resource encompassing knowledge, skills, experience, mental health, and the ability to cooperate. In conditions of increasing economic uncertainty, the quality of this resource determines enterprises' capacity to adapt and maintain a competitive advantage. Leadership, in turn, serves as a mechanism that integrates individual potential with organizational goals, influencing the effective utilization of human resources (Northouse, 2022, pp. 43-63).

From the perspective of institutional economics, trust reduces transaction costs, improves coordination of activities, and accelerates decision-making processes. It also promotes the effective use of human capital, increases the willingness to cooperate and share knowledge, and reduces employee turnover costs.

Organizational psychology emphasizes that leadership based on empathy, emotional support, and the creation of psychological safety fosters employee well-being, reduces stress, and prevents burnout. A trust-based environment enhances motivation, creativity, and employee resilience, which is particularly important in times of crisis.

From a management science perspective, leadership is a tool for shaping an organizational culture based on cooperation, accountability, and shared values. Leaders influence organizational norms by modeling desired attitudes and behaviors among employees. Consistency between the values declared by management and actual managerial practices strengthens employees' identification with the organization and builds long-term engagement. Contemporary management concepts also highlight the importance of inclusive leadership, which strengthens the sense of belonging and enables fuller utilization of the potential of diverse teams. Such an approach fosters a work environment based on mutual respect and trust.

The sociology of work, in turn, indicates that leadership influences the quality of social relations within an organization, affecting the level of social capital. Strong social ties and a high level of trust promote cooperation, reduce interpersonal conflicts, and strengthen employee solidarity (Blustein, 2019, pp. 236-253). In times of crisis, the importance of social capital increases, as it enables the mobilization of organizational resources and more effective coping with uncertainty. Leadership based on dialogue and employee participation supports the development of a sense of community and increases acceptance of difficult restructuring decisions.

An interdisciplinary perspective makes it possible to see that the impact of leadership on human capital extends beyond the boundaries of a single enterprise. Employment stability, the quality of work relations, and the level of organizational trust influence the functioning of the labor market and the condition of entire economic sectors (Mrówka, 2025, pp. 67-86). Organizations that develop leadership competencies conducive to building trust demonstrate greater resilience to economic shocks and adapt more quickly to technological changes. Consequently, leadership becomes one of the key factors strengthening the sustainability of knowledge-based economic systems.

Contemporary research also confirms that investing in the development of leadership competencies is an important element of human capital management strategies. Developing communication skills, emotional intelligence, and the ability to build a culture of trust increases team effectiveness and improves long-term organizational performance. Leadership that fosters cooperation stimulates organizational learning processes, strengthens knowledge transfer, and enhances enterprises' capacity for innovation (Yukl, Gardner, 2023, pp. 383-412). Thus, leadership competencies should be treated as a strategic intangible resource determining the pace of development of modern organizations and economies.

4. Discussion of results

The empirical study was conducted using a diagnostic survey method with the CAWI (Computer-Assisted Web Interviewing) technique. The research sample was purposive and included 300 leaders from medium and large enterprises operating in Poland under conditions of increased market uncertainty.

In the sample structure, 58% were men and 42% were women, while the average managerial tenure was 8.6 years. Respondents represented the manufacturing sector (34%), services (41%), and IT (25%).

The research instrument was a questionnaire consisting of 25 items measured on a Likert scale (1-5). The following variables were analyzed: leadership communication, leader empathy, consistency of actions, organizational trust, and employee engagement.

Data analysis employed Pearson's correlation coefficient, linear regression analysis, and mediation analysis.

Significant positive relationships were found between the analyzed variables.

Table 1.
Correlation Matrix (r Pearsona)

Predictor	Communication	Empathy	Consistency	Trust	Engagement
Communication	1,00	0,54	0,57	0,62	0,48
Empathy	0,54	1,00	0,52	0,58	0,46
Consistency	0,57	0,52	1,00	0,65	0,51
Trust	0,62	0,58	0,65	1,00	0,60
Engagement	0,48	0,46	0,51	0,60	1,00

Note. All correlation coefficients are statistically significant at the level of $p < 0.01$.

Source: own elaboration based on the author's research.

All correlation coefficients are statistically significant at the level of $p < 0.01$. Table 1 presents the relationship between leadership communication and the level of employee trust. The obtained results indicate significant positive relationships between the analyzed variables, particularly between communication, empathy, and consistency of the leader's actions and the level of organizational trust. These findings provide preliminary support for hypotheses H1, H2, and H3.

Table 2.
Results of linear regression (dependent variable: trust)

Predictor	β	b	SE	t	p
Communication	0,31	0,42	0,08	5,25	<0,001
Empathy	0,27	0,35	0,07	4,89	<0,001
Consistency	0,38	0,49	0,09	5,67	<0,001

Note. The regression model is statistically significant ($F = 108.3$; $p < 0.001$), and the coefficient of determination is $R^2 = 0.52$.

Source: own elaboration based on the author's research.

The regression model is statistically significant ($F = 108.3$; $p < 0.001$), and the coefficient of determination is $R^2 = 0.52$. The strongest predictor of trust was the consistency of the leader's actions. The results of the regression analysis indicate that communication ($\beta = 0.31$; $p < 0.001$), empathy ($\beta = 0.27$; $p < 0.001$), and consistency of the leader's actions ($\beta = 0.38$; $p < 0.001$) are significant predictors of organizational trust. The strongest effect was observed for the consistency of the leader's actions. These results support the acceptance of hypotheses H1, H2, and H3.

Table 2a.
Results of linear regression (dependent variable: engagement)

Predictor	β	b	SE	t	p
Communication	0,12	0,15	0,07	2,10	0,036
Empathy	0,10	0,13	0,06	1,95	0,052
Consistency	0,15	0,18	0,08	2,25	0,025

Note. The regression model is statistically significant ($R^2 = 0.61$; $F = 118.4$; $p < 0.001$).

Source: own elaboration based on the author's research.

The regression model is statistically significant ($R^2 = 0.61$; $F = 118.4$; $p < 0.001$). The results of the regression analysis indicate that organizational trust is the strongest predictor of employee engagement ($\beta = 0.52$; $p < 0.001$). At the same time, the influence of leadership variables weakens, which suggests their indirect effect through trust. These findings provide a basis for further mediation analysis.

Table 3.
Mediation analysis using bootstrapping (5,000 samples)

Efekt	β	SE	95% CI	p
Direct effect (c′)	0,29	0,07	[0,15; 0,43]	<0,001
Indirect effect (a × b)	0,18	0,05	[0,09; 0,28]	<0,001
Total effect (c)	0,47	0,08	[0,32; 0,62]	<0,001

Note. The indirect effect was considered statistically significant because the 95% confidence interval (CI) does not include zero.

Source: own elaboration based on the author's research.

The indirect effect was considered statistically significant because the 95% confidence interval (CI) does not include zero. The results of the mediation analysis confirm the significance of the indirect effect ($\beta = 0.18$; 95% CI [0.09; 0.28]), indicating the mediating role of organizational trust in the relationship between leadership and employee engagement. At the same time, the significance of the direct effect ($\beta = 0.29$; $p < 0.001$) points to partial mediation. These findings support the acceptance of hypothesis H4.

The conducted empirical analysis allowed for the verification of all formulated research hypotheses. Hypotheses H1–H3, concerning the impact of leadership styles on organizational trust, were confirmed in the regression analysis, while hypothesis H4, regarding the mediating role of trust, was confirmed in the mediation analysis.

The obtained results confirm the validity of the adopted theoretical assumptions and align with contemporary research on organizational leadership and human capital management under conditions of uncertainty. The observed relationships indicate that leadership competencies oriented toward transparent communication, empathy, and responsible decision-making contribute to strengthening organizational trust, which serves as a key mechanism stabilizing employee behavior in crisis situations. This means that the effectiveness of leaders' actions extends beyond the operational dimension of management and includes shaping a work environment conducive to psychosocial safety and team cohesion.

The findings correspond with literature emphasizing the importance of authenticity and the ethical dimension of leadership as determinants of leader credibility. It was also confirmed that organizational trust fosters increased employee engagement, reduces turnover intentions, and strengthens identification with the organization, which is crucial for maintaining the continuity of enterprise operations. It can therefore be concluded that values-based leadership is an important factor in minimizing the risk of work disorganization during periods of economic instability.

From a strategic management perspective, the results indicate that trust should be treated as an intangible resource that enhances organizational resilience. This mechanism plays a particularly important role under conditions of market disruption, when traditional control instruments prove insufficient. A high level of trust reduces coordination costs, supports knowledge exchange, and enables faster implementation of adaptive actions. In this sense, trust can be interpreted as a factor that increases organizational flexibility, facilitates more efficient responses to environmental changes, and shortens decision-making time.

The literature also emphasizes that social resilience to informational threats and destabilizing external influences is strongly linked to the level of trust and the cohesion of social relations. These mechanisms are also reflected in the organizational environment, where trust constitutes the foundation for effective cooperation and adaptation to changing conditions. This means that organizations characterized by high levels of trust demonstrate greater capacity to absorb shocks and maintain the stability of management processes despite environmental pressures.

From a psychological perspective, the results confirm the importance of psychological safety as a factor reducing occupational stress and strengthening employees' willingness to take initiative. A trust-based organizational environment fosters open communication and teamwork, which enhances the organization's ability to generate innovative solutions under pressure. Thus, psychological safety can be seen as a catalyst for organizational learning processes, supporting creativity and experimentation even under unfavorable conditions.

The analysis also points to significant macroeconomic implications. The stabilization of human capital within enterprises translates into reduced employment fluctuations, increased productivity, and strengthened competitiveness of economic sectors. Therefore, leadership focused on building trust can be seen as a factor supporting the resilience of economic systems to crisis shocks. Organizational trust reduces the social costs of economic crises, such as structural unemployment, labor market inactivity, and the loss of employee competencies.

The findings also highlight the need to redefine the role of leaders in organizations operating in turbulent environments. Leadership is no longer merely a supervisory function but becomes a process of social influence aimed at building relationships based on credibility, responsibility, and mutual respect. Leaders act as moderators of collective emotions, architects of organizational culture, and integrators of human resources, which increases the importance of soft skills in management structures.

At the same time, it should be emphasized that the results should be interpreted with consideration of methodological limitations. The declarative nature of survey data may lead to subjective assessments of supervisors' behaviors and distortions resulting from the tendency to provide socially desirable responses. Another limitation is the cross-sectional nature of the study, which does not allow for a clear determination of the durability of the observed relationships over time.

Future research should consider the use of mixed methods, including organizational observations, case studies, and longitudinal analyses enabling the assessment of changes in trust levels over time. It would also be valuable to expand the analysis to include contextual variables such as organizational culture, industry, level of digitalization, and cross-cultural conditions. This would allow for a more comprehensive explanation of the mechanisms through which leadership influences the stabilization of human capital across different types of organizations and environmental conditions.

5. Summary

The conducted analysis confirms that leadership plays a fundamental role in shaping mechanisms for protecting human capital in crisis conditions, constituting one of the key factors stabilizing the functioning of modern organizations. In situations of increased economic and organizational uncertainty, leaders act as integrators of human resources, coordinators of adaptive processes, and moderators of psychosocial tensions arising in the workplace. Their actions influence not only the operational efficiency of enterprises but also the quality of social relations, the level of employee engagement, and the durability of organizational structures.

The findings indicate that organizational trust is a central mediating mechanism between leadership and the effectiveness of human capital utilization. Leadership based on decision-making transparency, axiological consistency, accountability, and empathy fosters the strengthening of organizational ties and limits the negative effects of crises, such as work disorganization, decreased motivation, and increased employee turnover. Trust reduces the perceived risk of operating in uncertain environments, supports the acceptance of difficult managerial decisions, and enhances employees' willingness to cooperate and engage in adaptive actions.

An interdisciplinary research perspective shows that the impact of leadership on human capital extends beyond the level of a single organization. The economic significance of trust is reflected in reduced transaction costs and increased efficiency in resource allocation, while its psychological dimension includes strengthening employee well-being and resilience to occupational stress. From a management perspective, leadership serves as an instrument for shaping an organizational culture that promotes cooperation, learning, and innovation. Thus, leadership competencies should be viewed as a strategic intangible resource determining the sustainability and competitiveness of enterprises in turbulent environments.

The analysis also indicates that effective leadership in crisis situations helps limit the loss of organizational knowledge and stabilizes employment, which is crucial for maintaining the continuity of operational processes. A high level of trust strengthens employees' identification with the organization, increases their loyalty, and sustains motivation to achieve strategic goals despite unfavorable external conditions. Consequently, leadership focused on building trust becomes a significant factor enhancing organizational resilience and the long-term development capacity of enterprises.

In conclusion, leadership should be treated as a key determinant of the quality of human capital and the socio-economic stability of organizations operating under crisis conditions. Developing leadership competencies in communication, employee emotion management, building a culture of trust, and responsible decision-making should constitute an integral part of human capital management strategies. In the context of increasing environmental volatility, the ability to build organizational trust becomes not only a managerial challenge but also a prerequisite for the sustainability and competitiveness of modern enterprises and knowledge-based economies.

References

1. Blustein, D.L. (2019). *The Psychology of Working in Practice*. New York: Routledge, 236-253.
2. Bryczek-Wróbel, P., Moszczyński, M., Załoga, W. (2025). *Odporność polskiej świadomości społecznej na rosyjską propagandę rozpowszechnianą przez Internet*. Rzeszów: Wydawnictwo Uniwersytetu Rzeszowskiego.
3. Mrówka, R. (2025). Przywództwo w kryzysie w perspektywie zarządzania kapitałem ludzkim. *Studia i Prace KZiF SGH*, *3*, 67-86.
4. Northouse, P.G. (2022). *Leadership: Theory and Practice*. Thousand Oaks: Sage Publications.
5. Sztompka, P. (2007). *Zaufanie: fundament społeczeństwa*. Kraków: Znak.
6. Yukl, G., Gardner, W.L. (2023). Leadership in organizations: current developments. *Annual Review of Organizational Psychology and Organizational Behavior*, *10*, 383-412.
7. Załoga, W. (2022). Digital competences of the information society era in the aspect of safety in cyberspace. Scientific Papers of Silesian University of Technology. *Organization and Management Series*, 541-552.
8. Załoga, W. (2022). Disinformation in the age of the digital revolution in the aspect of state security. *Wiedza Obronna*, *280*(3), 43-62.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

THE IMPACT OF AI ON WORK IN THE CREATIVE AND CULTURAL INDUSTRIES

Kamil ZAWADZKI

Nicolaus Copernicus University in Torun; kamzaw@umk.pl, ORCID: 0000-0002-1935-3952

Purpose: The paper addresses the research gap in studies on generative AI and work in the Cultural and Creative Industries (CCI) by proposing an integrated model of AI-driven substitution, augmentation and resilience in creative labour markets. It aims to analyse the vulnerability of CCI occupations to AI, stratify them into three subsectors (zones) and explain how AI reshapes employability, unemployment risk, and the qualitative features of creative work, including AI-infected creative precarity and the "humanity bonus".
Design/methodology/approach: The paper is a theoretical study developing the CCI AI Vulnerability Model. It operationalises three main risk determinants – occupational exposure to AI (replacement–augmentation–resilience), the emotional and authentic value of work for clients, and regulatory barriers – and assigns selected CCI occupations to vulnerability zones.
Findings: The model shows an impact of AI on CCI labour markets: a zone of high substitution (e.g. translators, stock illustrators or voice-over artists); a zone of transformation and augmentation (e.g. journalists or architects) where AI automates technical tasks and compresses junior roles; and a zone of resilience (e.g. star actors, fine artists or creative directors) where authenticity, biography and leadership protect labour demand. AI intensifies creative precarity through invisibilised labour, the erosion of authorship, the "junior trap" in entry-level positions, and certain psychological effects. The identified humanity bonus shows that consumers are willing to pay more for clearly human‑made works.
Research limitations/implications: The model is based on current evidence, so its long-term validity is uncertain due to rapid technological change and evolving regulations. Future research should longitudinally measure creative precarity and the size of the humanity bonus across CCIs.
Practical implications: The paper proposes several measures, including copyright protection, mandatory "Human-Made" labelling, and the design of retraining programmes.
Social implications: The findings suggest that generative AI may deepen social and economic inequalities within CCI, but that recognising the humanity bonus through transparency and labelling could help preserve human agency, diversity and trust in creative production.
Originality/value: The paper introduces a novel three-zone CCI AI Vulnerability Model that integrates substitution, augmentation and resilience mechanisms with the concepts of invisibilised labour, creative precarity and the humanity bonus.
Keywords: generative artificial intelligence; creative precarity; Cultural and Creative Industries; labour market polarisation; humanity bonus.
Category of the paper: research paper; conceptual paper.

1. Introduction – research gap, aim and problems

Labour market transformations in the Cultural and Creative Industries (CCI) under generative AI mark a fundamental shift in how creative value is produced and rewarded. Though earlier automation in CCI mainly affected routine waves, manual, and cognitive tasks, generative AI directly challenges the creative core of artistic professions. The literature reveals a research gap addressed in this paper: existing studies tend to focus either on aggregate employment statistics or individual case analyses, lacking an integrated model that captures substitution, augmentation, and resilience dynamics within the creative labour market.

The paper's primary objective is to assess the CCI sector's vulnerability to AI by identifying how AI influences work through automation, augmentation, and resilience mechanisms, and by categorising the sector into three subsectors. Granted, the CCI Sector AI Vulnerability Model was developed to account for employability, unemployment risks, and qualitative shifts in the nature of creative work.

The following research questions were formulated:

Q1: Is the AI's impact on labour demand in CCI polarised or equally distributed?

Q2: What is the role of invisibilised labour in mechanisms of AI-driven labour market degradation?

Q3: To what extent is the origin of the creative products (human-made vs AI-made) important for consumers and, consequently, impacts the labour demand?

2. Theoretical framework

For decades, creative labour has been perceived as largely unproductive (especially in the performing arts, following Baumol's cost disease), creative – where creativity is celebrated as the core of production and human capital – and precarious, marked by weak social protection, poor work–life balance, and job insecurity. The notion of modern, AI-infused creative precarity reframes occupational risk as the erosion of creativity's monopoly, once shielding artists from automation. AI demonstrates how easily technology can emulate creative processes, potentially devaluing labour by showing that creative output can be produced without human labour. This framework challenges traditional human capital theory by positioning AI as a competitor rather than merely a tool (Lee, 2024).

According to the OECD, generative AI possesses the defining traits of a general-purpose technology – pervasiveness, continuous improvement, and the potential to spawn innovation (Calvino et al., 2025). Its influence extends to creative sectors, from skill augmentation to full automation. The shift from human–AI collaboration to substitution is becoming visible,

particularly in entry-level roles, as AI's capacity to replicate stylistic elements disrupts traditional apprenticeship models (Erickson, 2024).

Exposure to AI-driven automation varies across industries and professions but remains widespread. ILO research finds that one in four workers worldwide are in occupations with some degree of exposure to generative AI (Gmyrek et al., 2025). Earlier studies revealed that "clerical support workers" face the highest risk, with 24% of tasks highly and 58% moderately exposed, followed by "technicians", "professionals", "service and sales workers", and "managers". Certain CCI professions – such as programmers, librarians, authors, web and multimedia developers, software engineers, and translators – are likewise vulnerable (Gmyrek et al., 2023; 2025). Moreover, microdata from 59 countries highlight gendered risk patterns: female-dominated, even high-income, professions are more susceptible to automation (Gmyrek et al., 2023). OECD data estimate that high-risk occupations account for about 27% of employment (OECD, 2023), noting that while AI-related job losses remain limited, freelance wages – common in CCI – face mounting pressure from AI-driven cost reductions.

3. Methodology

This article is theoretical and systematising in nature. Its goal is to create a CCI Sector AI Vulnerability Model and prepare an up-to-date list of selected CCI occupations classified according to this model. A review of the latest literature and international reports was used to prepare an analytical model. An analysis of the main risk determinants was implemented. These determinants include occupational exposure to AI (according to the axis: replacement – augmentation (or transformation) – resilience), the emotional and authentic value of work for the client, and regulatory and protective barriers. Creative occupations were assigned to three risk zones based on these main dimensions.

4. Results: The three-zone vulnerability model

4.1. The Red Zone – high replacement risk

AI image generators can replace stock photo banks and handle entry-level graphic design projects, such as logos, game backgrounds, and storyboards. According to the Society of Authors (2024), a quarter of illustrators and over a third of translators have already lost work due to generative AI. 8% of translators and every twentieth of illustrators said they have used generative AI in their work because their publisher or commissioning organisation asked them to. Today, the post-editing machine translation (PEMT) has become the new standard.

The only task for a human (post-editor) is to verify and correct the text being prepared by the LLM. Besides, AI is widely used to generate subtitles and dubbing. Translators and adaptors for dubbing and subtitling will be strongly affected, with 56% of their revenue at risk by 2028 (CISAC, 2024). That is why the role of translators must shift from translation to cultural auditing.

The next areas at risk of mass replacement by AI are mass-market voice actors and library music composers (who create production music specifically designed for licensing in television, film, advertising, and other media projects). Voice cloning and text-to-speech (TTS) have been commonly used in advertisements, e-learning, and video games. There is a growing risk of biometric identity theft. That is why work remains only for top voices with legal protection, and "long-tail voice actors" face critical vulnerability. (Sharma et al., 2025). The conclusion is that market inequality increases, and middle-tier voice actors will disappear. As regards library music, AI generates unlimited tracks in any given style without licensing fees, posing a critical threat to independent composers. CISAC studies (2024) show that AI will strongly impact the streaming and music library markets. By 2028, Gen AI music is projected to account for approximately 20% of traditional music streaming platforms' revenues and around 60% of music libraries' revenues.

4.2. The Red Zone – summary

The CCI areas, here called the Red Zone, are highly susceptible to AI's impact. Modern algorithms deliver a "good enough" product at a drastically lower cost and significantly shorter "creative" time. Demand for human labour is shrinking to a niche or, at most, a supervisory role. This will result in a significant (estimated at over 20 per cent) decline in revenues for creators and music and audiovisual professionals over the next 2-3 years. Table 1 presents selected groups of creative professions, the mechanisms for automating their tasks, and the consequences for the labour market in each subsector.

Table 1.
The Red Zone – CCI jobs at high risk of automation and diminishing labour demand

Jobs	Substitution mechanism	Consequences
Commercial and audiovisual translators	Automation of the preparation of subtitles for films, technical translations and manuals.	Drastic decline in labour demand. The correction function will remain.
Stock and commercial illustrators	Image generators replace purchases from photo banks and simple graphic orders.	A significant decline in demand for work. The mass-produced graphics market will disappear, leaving only recognised, legally protected creators.
Voice-over artists for the mass market	Voice cloning and speech synthesis will dominate the markets for audiobooks, advertising, e-learning, and NPCs (non-playable characters) in games.	A significant decline in demand for work. The market for mass-market voiceover artists will disappear, leaving only recognised, legally protected creators.

Cont. table 1.

Library music creators	AI generates songs in a given style without licensing fees	Drastic decline in labour demand and income.
Copywriters (SEO content)	Generating mass marketing texts, product descriptions, and social media posts	A significant drop in demand. An experienced editor oversees content previously generated by a team of people.

Source: own elaboration.

4.3. The Yellow Zone – work transformation and augmentation

To the hybrid, Yellow Zone of the model, professions such as sound engineers and video editors, journalists, copywriters, screenwriters and authors, architects and interior designers can be assigned.

Implementing AI in video production radically optimises creative processes, shortening project timelines from weeks to hours. A notable example is the AI modules in DaVinci Resolve, which automate colour grading through intelligent scene analysis, reducing the editor's workload by more than half (Gavran et al., 2025). In sound engineering, AI accelerates noise reduction, preliminary mixing, and footage sorting, boosting productivity while shrinking technical teams. In "yellow" jobs, technical tasks give way to artistic decisions, creating new competency requirements.

Another Yellow Zone field is journalism and copywriting. AI is widely used for data analysis and drafting news content, streamlining repetitive tasks such as transcription, translation, and archival research. It also helps journalists expand their reach across languages and formats (Dodds et al., 2025). These advances, however, raise concerns about declining demand in junior positions, even as investigative journalism gains value. Similarly, Hollywood writers fear replacement as AI can analyse scripts, comedic patterns, and audience responses to generate engaging narratives. Industry unions mitigate this threat by providing safeguards (BBC News, 2023). Thus, journalism faces polarisation: basic content is easily replaced, while demand for insightful opinions and sound analysis grows.

Screenwriters and authors also belong to the Yellow Zone. AI increasingly supports the creation of episode structures, dialogues, and plots, prompting companies to cut costs by limiting human participation. Entry-level screenwriter positions are particularly threatened. Although film graduates bring storytelling and technical skills, opportunities to apply them are shrinking (League of Filmmakers, 2025). Still, the industry largely agrees that human creativity and logic remain irreplaceable (Cheng, 2024). However, effective legal regulation of AI use in film production is essential to prevent market degradation.

The final Yellow Zone group comprises architects and interior designers. AI generates multiple visualisation options and optimises layouts, revolutionising design by enabling real-time monitoring and process optimisation. By analysing structural behaviour under various conditions, AI helps create safe, efficient, and sustainable buildings while improving material use and system performance. However, architects stress that AI designs lack "soul" and human qualitative value. It cannot translate intuition, especially for unique projects with limited data

(Almaz et al., 2024). Hence, AI should serve only as a “co-pilot”, with humans retaining legal and ethical responsibility. A major challenge for professionals and design education is learning to use these tools effectively.

4.4. The Yellow Zone – summary

The Yellow Zone encompasses CCI areas where AI takes over technical and tedious tasks but cannot deliver final value without a human expert. Demand for labour there is relatively stable, but the skill requirements for creators (the need to operate AI) are increasing. While complete technological unemployment in the Yellow Zone of the CCI sector is unlikely, it is worth being aware of the threat of de-skilling and polarisation, where a narrow elite of "super-creators" manages an army of algorithms, and the middle class of creators is relegated to the role of "AI operators" or proofreaders. Estimates suggest that in the United States alone, over 21% of all film, television, and animation jobs (i.e., 120,000) are likely to be disrupted by generative AI by 2026 (CVL Economics, 2024).

Table 2.
The Yellow Zone – jobs transformation or augmentation via AI

Jobs	The role of AI in the work process	Consequences
Sound engineers and editors	Automation of noise cleaning, material sorting, and pre-mixing	Possible slight decline in demand for labour due to increased productivity of specialists having more time for artistic decisions
Architects and interior designers	Generating visualisation variants, optimising room layouts, and adaptation	Demand for labour is stable. AI is a tool that accelerates the conceptual phase, but legal and construction responsibility remains with humans
Journalists and reporters	AI analyses data, transcribes, and drafts texts	The impact on the professional group is mixed. Increased demand for investigative and opinion-forming journalism
Film and television screenwriters	AI can generate ideas, structure episodes and suggest dialogues for soap operas	The impact is mixed and depends on the strength of industry trade unions

Source: own elaboration.

4.5. The Green Zone – resilience and humanity bonus

The group of professions in the CCI sector that can be considered (at least for a while) immune to the influence of AI are well-known theatrical and film actors, fine arts artists with a personal brand, literary translators for high literature, as well as creative directors and lead designers.

The audience in theatres or cinemas is willing to pay for authentic emotions and to participate in the "star culture". Studies show that live performances evoke stronger emotional and physiological engagement than their recorded counterparts, even under identical viewing conditions. The findings highlight the unique impact of performer-audience interaction and suggest that digital media cannot fully replicate the emotional richness of live experiences (Gabriel, 2025). Cultural economists also point to a greater willingness to pay for live performances. Besides, the value of live contact in the age of digital fakery increases.

This is why AI's impact on entertainment jobs shows acting as relatively protected, while the physical presence of a particular performer is seen as an irreplaceable value.

Fine arts are relatively resistant to AI because their value is derived mainly from the creator's biography and physical execution. The collector art market relies primarily on human authorship, and the monopoly and value come from the biographical authenticity. Until now, AI as "the author" has been treated as a curiosity (Horton et al., 2023). Despite this, two-thirds of fiction writers and 57% of non-fiction writers believe that generative AI will negatively impact future income from their creative work (Society of Authors, 2024).

Literary translators for high literature also appear to remain resistant to AI. In that kind of work, there is a need to interpret cultural nuances, humour, idioms, and archaisms. The AI's translation mechanisms remain weak, and it cannot handle deep literary semantics (Belhassem et al., 2025). This is why the niche seems to be stable.

High‑level creative leadership roles – such as creative directors and lead designers – continue to focus on distinctly human abilities: articulating a vision, managing complex multidisciplinary teams, and assuming ethical and artistic responsibility for outcomes. Current AI systems can produce options and streamline workflows, but they lack genuine creative intention, moral agency, and the ability to lead people. Therefore, they are unlikely to replace human creative leaders in the foreseeable future (Anantrasirichai, Bull, 2022).

4.6. The Green Zone – summary

The Green Zone encompasses CCI subsectors that rely on unique human expression, physical presence, empathy, and name recognition. AI is not a substitute for humans in this labour market, and its use as a tool is also limited.

Table 3.
The Green Zone – CCI jobs resilience against AI

Jobs	Protection mechanism	Consequences
Theatre and film actors with leading roles	Personal brand, "celebrity", authentic emotions, physical presence on stage	There may even be an increase in demand, and face-to-face contact with a real person will be perceived as a luxury
Directors and creative directors	The need to manage complex teams of people and make artistic and ethical decisions. AI lacks leadership skills	Stable demand
Fine arts artists	The value of a work stems from the charisma and story of its creator. Context and physical, personal execution are important	Stable demand
Translators of fiction	The need to interpret and find cultural analogies, humour, archaisms, regionalisms	Demand is stable, although niche

Source: own elaboration.

5. Discussion: Invisibilised labour vs humanity bonus

5.1. Invisibilised labour as the source of creative precarity

The mechanism of "invisibilized labour" explains how AI degrades work quality without causing immediate unemployment. As Erickson (2024) notes, in creative SMEs, AI implementation may even increase total labour hours, yet shifts work from creative authorship to technical data cleaning and output refinement. Sometimes this human effort is intentionally hidden from clients and staff to preserve the "magic of AI technology" narrative. Notably, similar issues emerged earlier during the digitisation of work, before the rise of artificial intelligence (Justesen, Plesner, 2024).

Psychological effects of AI in CCIs include a loss of agency, alienation from work, and burnout, even amid greater productivity. Hye-Kyung Lee (2024) calls this phenomenon "creative precarity." Generative AI enables automation and higher productivity but also causes job losses, an unequal distribution of gains, changed creative roles, reduced control over copyright, and a deeper disconnection between creative identity and cultural labour. It also heightens uncertainty about audience responses. Moreover, generative AI's growing creative capacity may further marginalise human labour and accelerate its assimilation into capital, reinforcing creative precarity in the sector.

On the macroeconomic level, AI may slow employment growth rather than trigger job losses. This occurs when firms reduce junior recruitment, creating a "junior trap" as entry-level positions vanish. Research by the ECB (Albanesi et al., 2025) suggests that new technologies mainly slow employment growth in creative sectors and concentrate human capital at the upper skill levels, without immediate job destruction.

5.2. Humanity bonus as a market defence mechanism

Evidence shows that consumers are willing to pay markedly less for AI-labelled works, even when they are visually identical to human-made works. This willingness-to-pay gap represents a measurable "humanity bonus". Yet when audiences are unaware of a work's origin, they prefer AI-created works nearly half the time (Hall, Schofield, 2025).

A new phenomenon – moral evaluation of art – has also emerged. Awareness of AI authorship reduces empathy and appreciation for the creator's effort, transforming artworks into utilitarian products. Granted, human authorship functions as a market premium: works marked "AI-made" receive lower aesthetic and moral ratings than identical pieces labelled "human-made" (Horton et al., 2023; Bara et al., 2025).

These findings carry policy implications. The humanity bonus indicates that mandatory labelling of AI-generated content could help safeguard human creators.

6. Conclusions, recommendations and limitations

The three-zone model illustrates that AI's impact on CCI labour markets is deeply polarising. Craft-based creative work is vanishing, and the gap between creators who effectively use AI and those who do not is widening. The Red Zone faces substantial AI-human substitution; the Yellow Zone undergoes a competency transformation; and the Green Zone retains labour demand through an authenticity premium, as certified Human-Made content gains value amid the flood of AI-generated works. Yet across all zones, the overarching threat remains creative precarity – the erosion of work quality and professional identity.

Several policy recommendations arise from this model. First, copyright protection should extend to artistic style and voice to prevent AI training without creator consent; otherwise, the sector risks economic degradation, reduced to a data source for AI systems. Second, mandatory labelling or "watermarking" should implement a "Human-Made" certification to capture the humanity bonus. Third, the CCI requires large-scale reskilling, with funding focused on AI management and cultural auditing rather than purely technical skills. Finally, artist and creator unions must strengthen collective bargaining to protect against AI-driven invisible labour exploitation. Artists' and creators' unions should focus more on cataloguing the threats of copyright infringement to recommend to legislators laws that adequately address the social risks faced by creators. Laws currently lag behind technological advancements, but if enacted alongside a community that can identify and name threats, they can minimise the negative consequences of the progress being observed.

The three-zone AI-vulnerability model is based on current data on AI capabilities and skills. However, given the rapid pace of technological change, long-term effects on CCI labour markets remain uncertain. Future research should monitor the evolution of creative precarity and measure the humanity bonus across cultural sectors, while continuously examining how regulatory frameworks interact with technological development.

References

1. Albanesi, S., Dias da Silva, A., Jimeno, J.F., Lamo, A., Wabitsch, A. (2025). New technologies and jobs in Europe. *Economic Policy*, *40*(121), 71-139.
2. Almaz, A.F., El-Agouz, E.A.E.A., Abdelfatah, M.T., Mohamed, I.R. (2024). The future role of Artificial Intelligence (AI) design's integration into architectural and interior design education is to improve efficiency, sustainability, and creativity. *Civil Engineering and Architecture*, *12*(3), 1749-1772.

3. Anantrasirichai, N., Bull, D. (2022). Artificial intelligence in the creative industries: a review. *Artificial intelligence review*, *55*(1), 589-656.
4. Bara, I., Ramsey, R., Cross, E.S. (2025). AI contextual information shapes moral and aesthetic judgments of AI-generated visual art. *Cognition*, *257*, 106063.
5. BBC News (2023, July 26). *Hollywood writers fear losing work to AI.* https://www.bbc.com/news/business-66289583
6. Belhassen, S., Hakami, A., Alzobidy, S., Hamda, A. (2025). Navigating the complexities of AI-driven literary translation: Challenges and perspectives across diverse user groups. *International Journal of Innovative Research and Scientific Studies*, *8*(3), 3571-3580.
7. Calvino, F., Haerle, D., Liu, S. (2025). Is generative AI a General Purpose Technology?: Implications for productivity and policy. *OECD Artificial Intelligence Papers*.
8. Cheng, G. (2024). Research on the Displacement Impact of Artificial Intelligence on the Film Industry. *Highlights in Business Economics and Management*, *28*, 48-53.
9. CISAC (2024). *Global economic study shows human creators' future at risk from generative AI.* https://www.cisac.org/Newsroom/news-releases/global-economic-study-shows-human-creators-future-risk-generative-ai
10. CVL Economics (2024). *Future unscripted: The impact of generative artificial intelligence on entertainment industry jobs*. https://shorturl.at/D0vfA
11. Dodds, T., Zamith, R., Lewis, S.C. (2025). The AI turn in journalism: Disruption, adaptation, and democratic futures. *Journalism,* 14648849251343518.
12. Erickson, K. (2024). AI and work in the creative industries: digital continuity or discontinuity? *Creative Industries Journal*, 1-21.
13. Gabriel, D., Devos, J., Chapuis, S., Comte, A., Billot, P.E. (2025), Watching Live Performances Promotes Subjective and Physiological Emotional States Compared to the Same Version on Screen. *Available at SSRN 5210467*.
14. Gavran, I., Honcharuk, S., Mykhalov, V., Stepanenko, K., & Tsimokh, N. (2025). The impact of artificial intelligence on the production and editing of audiovisual content. *Preservation, Digital Technology & Culture*, *54*(3), 223-235.
15. Gmyrek, P., Berg, J., Bescond, D. (2023). Generative AI and jobs: A global analysis of potential effects on job quantity and quality. *ILO Working Paper*, *96*.
16. Gmyrek, P., Berg, J., Kamiński, K., Konopczyński, F., Ładna, A., Nafradi, B., Troszyński, M. (2025). *Generative AI and jobs: A refined global index of occupational exposure. ILO Working Paper, No. 140*.
17. Hall, J., Schofield, D. (2025). The value of creativity: Human produced art vs. AI-generated art. *Art and Design Review*, *13*(1), 65-88.
18. Horton Jr, C.B., White, M.W., Iyengar, S.S. (2023). Bias against AI art can enhance perceptions of human creativity. *Scientific reports*, *13*(1), 19001.
19. Justesen, L., Plesner, U. (2024). Invisible Digi-Work: Compensating, connecting, and cleaning in digitalized organizations. *Organization Theory*, *5*(1), 26317877241235938

20. League of Filmmakers (2025, 20 August). *How AI is severing the entry-level bridge for aspiring screenwriters.* www.leagueoffilmmakers.com
21. Lee, H.K. (2024). Reflecting on cultural labour in the time of AI. *Media, Culture & Society*, *46*(6), 1312-1323.
22. OECD (2023). *OECD Employment Outlook 2023: Artificial Intelligence and the Labour Market.* OECD Publishing.
23. Sharma, T., Zhou, Y., Berisha, V. (2025). PRAC3 (Privacy, Reputation, Accountability, Consent, Credit, Compensation): Long Tailed Risks of Voice Actors in AI Data-Economy. *arXiv preprint arXiv:2507.16247*.
24. Society of Authors (2024). *Survey reveals translators and illustrators losing work to AI.* European Writers Council. https://europeanwriterscouncil.eu/soa-survey-uk-ai-2024/

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

THE WORK CULTURE OF GENERATION Z AND THE ISSUE OF WORK ETHICS

Halina ZBOROŃ

Poznań University of Economics and Business; halina.zboron@ue.poznan.pl, ORCID: 0000-0002-8399-6709

Purpose: To discuss the changes currently taking place in the culture of work, which are linked to Generation Z's different values regarding work. These issues are of particular interest primarily because the choices they make seem to differ significantly from the preferences attributed to previous generations. This raises the question of whether and how this new generation will bring about a change in the way work is valued.
Design/methodology/approach: Critical analysis of literature and secondary research, which was theoretically confronted with Zygmunt Bauman's concept of liquid modernity.
Findings: An analysis of the characteristics and beliefs that define Generation Z, based on the theoretical assumptions of Zygmunt Bauman's concepts of liquid modernity and the postmodern work ethic, has shown that they are consistent. Theoretical considerations on the anticipated directions of change in thinking and attitudes in times of liquid modernity may provide a basis for interpreting the characteristics of Generation Z.
Originality/value: The issue of Generation Z's functioning in the labor market has been interpreted with reference to their own worldview, which allows us to demonstrate the consistency of their views on the value of work and their vision of a good life. In turn, reference to Zygmunt Bauman's concept allows us to understand the context of the generational change that has taken place in recent years.
Keywords: Generation Z, value of work, generational change, work ethic.
Category of the paper: Research paper.

1. Introduction

Discussions regarding the characteristics of Generation Z have intensified in recent years, a trend I attribute to the arrival of the first cohorts of this generation in the labor market (see Benitez-Marquez, Sanchez-Teba, Bermudez-Gonzalez, Nunez-Rydman, 2022). Research on the competencies, attitudes, preferences, and perceptions of the so-called "good life" among Generation Z is conducted primarily to develop effective human resource management methods within organizations. The findings of these studies are applied in planning changes to HR practices, which seems important given the need to account for the coexistence in the labor

market of three or even four generations with distinct characteristics (employee profiles) (cf. Bencsik, Horváth-Csikós, Juhász, 2016).

The discussion presented in this text addresses a broader issue—it is not so much about work-related values, but rather the value of work itself: how Generation Z ranks work within its hierarchy of existential values and how it perceives its own life in relation to its worldview. Rather than asking, therefore: what is Generation Z like and how can we effectively manage their work, we will focus on the following question: what is Generation Z like and how can it contribute to changing our thinking regarding the concept of the "good life," values, and the work ethic. Going further, we can consider the possibility of developing an approach—different from the current one—to the issue of humanity's responsibility toward the environment, one's own life, attitudes toward material goods, professional careers, and social advancement. What values will define the concept of the "good life"? Will we abandon existing indicators such as: the level of material prosperity achieved, professional success, and social advancement?

2. The work culture of Generation Z

According to the standard established by the Pew Research Center, Generation Z is defined as those born between 1997 and 2012. It is projected that by 2030, Generation Z will account for 30% of the global workforce (A-Gen-Z report, 2023). Currently, the workforce includes representatives of four generations: baby boomers, Generation X, millennials (Generation Y), and Generation Z. An important characteristic of the youngest generation in the labor market is the significant homogeneity of this social group, as noted by researchers: despite the significance of demographic, political, and cultural factors in shaping the diversity of today's youth, their impact is less pronounced compared to previous generations (Yanitskyij, Seryy, Braun, 2020; Lazar, Zbuchea, Pinzaru, 2023). This is confirmed by the results of a study conducted by Forbes Magazine on a group of 49,000 young people from various regions of the world. These findings suggest that Generation Z is the first truly global generation (Bencsik, Horváth-Csikós, Juhász, 2016).

The youngest generation is viewed in relation to earlier generations, and especially the one immediately preceding it. Comparisons of Gen Z with millennials reveal certain similarities—particularly regarding technological competence—but even in this area, those born after 1996 stand out significantly: this is the first generation for whom the digital world is a natural environment and where they spend the most time (Hysa, 2016; Bielen, Kubiczek, 2020), which may, however, negatively affect their participation in real-life social interactions (cf. Bencsik, Horváth-Csikós, Juhász, 2016). Their attitude is practical; they are more intelligent than wise, they are bold and like to take the initiative, they are more impatient than their

predecessors, but in turn they are more flexible, they are not afraid of new challenges, and they constantly need new inspiration and impetus to act (Csiszárik-Kocsír, Garia-Fodor, 2018). They are credited with entrepreneurial skills that surpass even those observed in Generation Y. At the same time, they seem to assess their prospects in the labor market more realistically (less optimistically), particularly when it comes to the possibility of long-term, secure employment with a single company. An alternative for them is the concept of a non-linear career with a flexible approach to offers of job changes and shifts in the nature of work (Maloni, Hiatt, 2019). Generation Z is driven by its own goals and chooses a career path that aligns with their interests. They are ready for frequent changes; moreover, they tend to quit a job immediately if something does not suit them. It is important to them to do meaningful work in a well-functioning team (Benitez-Marquez, Sanchez-Teba, Bermudez-Gonzalez, Nunez-Rydman, 2022; Maloni, Hiatt, 2019). They are strongly internally motivated, but they are not focused on meeting the expectations placed on them; at the same time, they accept what is offered and adapt to real-world conditions (Messyasz, 2021). Their creativity and ambition are emphasized, but so is their impatience (Graczyk-Kucharska, Erickson, 2020). Maintaining a balance between their professional and private lives is extremely important to them (cf. Lazar, Zbuchea, Pinzaru, 2023; Bencsik, Horváth-Csikós, Juhász, 2016), and at the same time, they care about maintaining consistency between the two through the ability to uphold the same values—Generation Z members seek employment where they will not experience a conflict of their held beliefs (Żarczyńska-Dobiesz, Chomątkowska, 2014).

Older workers perceive their younger colleagues as overly confident, uncommitted, and undisciplined (see Bencsik, Horváth-Csikós, Juhász, 2016). There are also doubts regarding their communication skills and ability to form social relationships (Benitez-Marquez, Sanchez-Teba, Bermudez-Gonzalez, Nunez-Rydman, 2022; Bencsik, Horváth-Csikós, Juhász, 2016). They are attributed with a desire to achieve success without effort and an inability to persevere in building a professional career step by step, as well as a lack of interest in stability, fleeing from routine in search of variety (Hysa, 2016; Graczyk-Kucharska, Erickson, 2020). When asked about the distinguishing characteristics of their own generation, members of Generation Z themselves expressed rather critical views: they described themselves as cunning, pretentious, entitled, lazy, reluctant to become independent, and lacking motivation (cf. Żarczyńska-Dobiesz, Chomątkowska, 2014; Kukla, Nowacka, 2019a). Generation Z is described as rather externally driven and reactive: it requires feedback and exhibits difficulties in making independent decisions and taking the initiative (Kwiecińska, Teneta D, 2024).

Note that the description of Generation Z presented above is interpreted through the lens of beliefs attributed to earlier generations, which, on the one hand, highlights generational differences and, on the other, gives it a negative connotation. Let’s try to neutralize this critical judgment. By setting aside our traditional beliefs about work, we can see in the description of Generation Z a common-sense approach, stemming from the realization that following traditional models of professional work is no longer possible due to profound changes in the

labor market, primarily linked to the acceleration of technological progress. For it would be irrational to value job stability in the age of "liquid modernity", when change is its defining feature. Planning and consistently pursuing a career path, building the foundations of a lasting identity, identifying with a single, clearly defined specialization—shaping one's thinking according to traditional models no longer guarantees success. It therefore seems that what is viewed critically in the context of the established practices of previous generations may, in light of contemporary circumstances, be regarded as a strategy for adaptation. Members of Generation Z are children of their time—as Messyasz (2021) writes—their micro-worlds have been shaped by the macro-structures of late-capitalist society and the economy. The anxiety of older generations regarding Generation Z's questioning of the wisdom of choosing so-called future-proof professions that guarantee job and income stability, as well as their aversion to long-term planning, is rooted in beliefs about the stability of the present and the predictability of the future. Meanwhile, the younger generation is entering adulthood amid a serious crisis of values and of social and political order that has severely shaken the foundations of the Western world. In light of the fluid nature of modernity[1], the volatility of political, economic, and social conditions, and the prevailing uncertainty, the choice of a "drifting strategy" is not a sign of immaturity or irresponsibility, but of prudence. We are witnessing an ongoing postmodern transformation of values (Yanitskyij, Seryy, Braun, 2020) or the emerging metamodernism—a cultural phenomenon resulting from rapid social changes leading to the transformation of institutions and organizations (Tirochi, 2024). It is therefore important that we be able to look at Generation Z through their own eyes—setting aside our attachment to the values recognized by previous generations, let us reflect on what constitutes the worldview-based source of their beliefs: what constitutes the source of a good life, and what is important in our lives? In other words, what remains under consideration is what we might call a philosophy of life and the positioning of work within a hierarchy of values.

3. Values at work versus the value of work. How does Generation Z rank work in its hierarchy of values?

Research on life preferences indicates that work is not as important to Generation Z as it was to their predecessors (Kukla, Nowacka, 2019a, 2019b; A-Gen-Z report, 2023). More specifically, they are less inclined to see value in work for its own sake: the importance of work in an individual's life is linked to the necessity of securing a livelihood and is therefore

[1] This concept was introduced by Zygmunt Bauman (2000) and refers to the characteristics of contemporary social reality identified by the researcher: changeability, the absence of stable social structures, and strong individualism. The result is a breakdown of continuity and the impermanence of relationships, identities, and institutions.

viewed instrumentally. They are significantly less likely to view work as an opportunity for self-fulfillment or to attribute value to it in connection with achieving social goals or building social relationships through work. In other words, work is merely work and serves to obtain financial benefits, and the relatively high importance of work is not linked to the appreciation of values such as career and professional success or social respect and recognition (Kukla, Nowacka, 2019a, 2019b). Other studies, however, show that Generation Z has high expectations regarding work: they seek meaningful work that allows them to pursue important goals and grow professionally, and they expect a flat management structure and an inclusive approach that is open to diversity (Graczyk-Kucharska, Erickson, 2020; Lazar, Zbuchea, Pinzaru, 2023). It can therefore be concluded that although work is not highly ranked in the hierarchy of values, the conditions it offers are not without significance. What may encourage Generation Z members to stay with a company is, above all, compensation and opportunities for growth (Bencsik, Horváth-Csikós, Juhász, 2016). Analyzing the above research findings, we can conclude that a consistent picture emerges of a generation that views work primarily as a means of earning an income, and considers a professional career valuable only to the extent that it facilitates personal growth. Money and material status are valued much less highly than peace of mind and harmony. They consider the social commitment of the companies they work for to be important and tend to make ethical consumer choices (Benitez-Marquez, Sanchez-Teba, Bermudez-Gonzalez, Nunez-Rydman, 2022; Bieleń, Kubiczek, Żarczyńska-Dobiesz, Chomątowska, 2014). The fact that they take jobs primarily for financial reasons does not mean that the material aspects of life are their top priority. Rather, it is about securing financial independence (self-sufficiency) and obtaining the means to pursue their own authentic goals unrelated to material possessions. This is evidenced by the fact that they have moderate salary expectations: in a study by Żarczyńska-Dobiesz and Chomątowska (2014), 75% of respondents indicated a fair wage, while 32% of respondents expected a high salary. Many academic and journalistic texts point to Generation Z's tendency to quit their jobs without hesitation (even if it is financially risky) when they perceive negative working conditions or the nature of the work, or when they feel that the company does not embrace values that are important to them (see Graczyk-Kucharska, Erickson, 2020; Csiszárik-Kocsír, Garia-Fodor, 2018).

It is essential to note an important characteristic of the worldview held by this generation: they view their lives as an integral whole that is guided by specific values—what is important in their personal lives is also important in their professional lives. Hence, such great emphasis is placed on maintaining harmony—the coherence of respected values (Bieleń, Kubiczek, 2020; Domagalska-Grędys, 2017; Żarczyńska-Dobies, Chomątkowska, 2014). The search for consistency in values and the strong integration of both areas—work and private life—reflects the need to be authentic across the entire spectrum of life: who I am, what I believe in, and what is important to me—all of this translates into the choices I make. Perhaps, then, instead of attributing negatively perceived traits to Generation Z—such as inconsistency, carefreeness, a lack of stability and loyalty, and an inability to perform routine and repetitive tasks—

we should instead recognize that they are characterized by a need to be true to themselves, to live life on their own terms, and to take actions that are purposeful and meaningful. This is the first generation whose members are strongly self-oriented, which in turn translates into reluctance to conform to the goals and methods imposed by organizations, institutions, and society. Prioritizing opportunities for growth, a better work-life balance, transparency, personalized attention, the democratization of information, and equal treatment—these are important for their own sake (A-Gen-Z report, 2023).

The answer to the question of what Generation Z is like and how they prioritize work in their hierarchy of values can be found in a report based on a survey of 10,000 young people in the United Kingdom and the United States (A-Gen-Z report, 2023). In the opening section, we find a significant statement that the report demonstrates just how much Generation Z will transform many important aspects of our lives: "Gen Z will profoundly change how we live, work, shop, invest, interact, react, stay healthy, and stay informed" (A-Gen-Z report, 2023, p. 5). It is also telling how the chapters addressing issues related to the value of work and worldview choices are titled: "Work matters, but the world matters more" and "Working to live". The titles alone indicate the significance of work for Generation Z and how vastly different this is from the beliefs of previous generations.

Above all, work is not a central focus around which their lives revolve; they reject the choices of their parents, who placed work at the center of their lives and viewed a professional career as a form of self-fulfillment. Life—according to Generation Z—should not be subordinated to work: to climbing the corporate ladder or pursuing higher-paying jobs. Work is viewed instrumentally—as a necessary means of securing one's livelihood. In this regard, members of Generation Z are pragmatic and realistic—work is meant to cover daily expenses and allow them to pursue life passions that hold greater meaning than work itself. Generation Z approaches work transactionally: they are not interested in (or at least it is not the most important thing) achieving success; for them, professional achievement metrics are not a measure of satisfaction. They do not identify with the company or their coworkers; they do not expect team-building events, joint celebrations, or perks such as relaxation areas at work: "They want to clock in and clock out, and aren't interested in small talk or fraternizing with co-workers over beers" (ibid., p. 75). They do not want to work under corporate conditions, but on their own terms; they do not want to be modern-day slaves driven by personal ambitions to achieve the highest possible material status. When accused of not being willing to work as hard as their predecessors, they respond that they are acting in accordance with their salary (ibid., p. 75).

The report also contains a very telling statement: "Boomers and Gen Xers shouldn't view Gen Zers as the enemy but rather as the enablers, since their demands for better benefits and workplace standards will be acted on broadly" (ibid., p. 81). This statement refers to the issue of developing more favorable working conditions for employees, but it is worth considering it more broadly: for it seems that Generation Z, through its uncompromising life choices,

is reviving the pre-modern view that private life and work are two spheres, of which the former is more important. A strong conviction regarding the primacy of home and family life makes them true pioneers of a genuine work-life balance, which in turn strengthens mental well-being by freeing up time for regeneration and living life in harmony with oneself.

4. Generation Z and the postmodern work ethic

Observations regarding Generation Z's work culture lead to the obvious conclusion that a shift in values is underway—a reversal of the hierarchical order regarding the importance of work in our lives. Generation Z is entering the labor market with a different vision—rejecting the traditional approach rooted in the era of industrial modernity, it is becoming an advocate for a postmodern value system.

Let us refer here to the works of Zygmunt Bauman (1994, 2006, 2018), which are so helpful in understanding this transformation. In his book "Work, Consumerism, and the New Poor", Bauman explains the scope and function of work ethic in its traditional form, as respected by the Baby Boomer and Generation X generations: the grandparents and parents of Generation Z. During the industrial era, work ethic valued work as a path to a better life, measured by increased consumption. Thus, the work ethic became linked to the belief that placed material prosperity at the top of the hierarchy of values. The desire to secure a higher material status reinforced the belief in the value of work as a path to prosperity. At the same time, especially during the period of primitive accumulation of capital, the work ethic served a controlling function—it was a tool for disciplining wage laborers into working hard and responsibly. Compliance with its moral imperatives was linked to the belief that social advancement could be achieved through one's professional career. Work was viewed as a path to higher social status and a marker of social identity and self-esteem.

The controlling functions of work ethics were concealed behind a narrative proclaiming that work is a value in itself and that working ennobles a person. The ennoblement of work also lies in the recognition that work is a contribution to the common good; it is creative in the sense that it contributes to social development (identified with increased prosperity). The nobility of work is linked to fulfilling obligations toward others—it is an expression of solidarity with others—together we work for the benefit of us all; those who do not work live at the expense of others, refuse to participate in the collective endeavor, and think only of themselves.

In the era of late/liquid modernity, the beliefs upon which the concept of work ethic was built are being undermined: above all, the focus has shifted—from the individual as a producer to the individual as a consumer. Social status is now determined by one's level of consumption, rather than by the type of work performed or one's position. It is also questionable to build identity based on professional work—long-term, systematic, and consistent career development

is not possible today, and maintaining such a belief is irrational[2]. If the present is characterized by uncertainty, fluidity, the blurring of values, instability, transience, and changeability, then the message of traditional work ethics regarding the ethos (values) of work loses its power of influence.

When reading Bauman (1994, p. 16) describing the postmodern personality, it is hard to resist the impression that he is characterizing Generation Z: "…different traits than in the past now contribute to success in life: not consistency in behavior, stubborn adherence to a predetermined goal, persistent specialization, or the accumulation of qualifications with a distinct profile—but flexibility of interests and the speed with which they change, adaptability, a willingness to learn, and the ability to forget what has already fallen out of use. […] Those who fare best are individuals whose freedom of movement is not constrained by precise specialization, who are not in the habit of focusing their attention on a single subject for too long, who do not become overly attached to the matters that need to be addressed at any given moment, and who maintain emotional distance and restraint toward whatever they are engaged in at any given moment. A truly postmodern personality is distinguished by a lack of identity". Bauman's predictions have become a reality, epitomized by Generation Z.

5. Summary

The perceived characteristics of Generation Z evoke strong emotions because we relate them to socially entrenched beliefs shared by members of previous generations. However, by shifting the interpretive framework to their own axiological perspective, we can see that Generation Z's vision of life and work constitutes a coherent set of beliefs that forms the foundation of the choices they make. Here, the youngest generation refuses to submit to the dictates of the late-capitalist market, which demands ever-greater effort to build individual and social material prosperity. Generation Z does not want to replicate the pattern of their predecessors, who, by focusing on work, put their lives on hold. They do not share their predecessors' belief in the possibility of achieving a better future through intense commitment to work. They debunk the neoliberal vision of social order and dispel the myth of self-determination through work and the importance of social status. Young people born after the world was reshaped perceive its changeability and, above all, its transience and unpredictability. The "fluid generation" in the age of "fluid modernity" proposes a reversal of the hierarchy of values: work subordinated to life, rather than life subordinated to work. Work is no longer the

[2] Bauman (1994, p. 15) writes about this as follows: "Few can count on a profession they have acquired once serving them for the rest of their lives—professions appear and disappear, and skills acquired yesterday become useless today. The practical meaning of the 'experience' accumulated in the course of one's career is also changing: competencies cannot be accumulated, and with the change in technical equipment, the disappearance of old functions and the emergence of new ones, habits already acquired become a burden rather than a ticket to further professional advancement. Jobs are not for life and are rarely long-term".

primary source of identity and meaning in life. If work is a tool for achieving life goals, then that is exactly how it should be treated. Given this, shouldn't we be grateful to Generation Z for making us realize that we have lost sight of what is most important in life?

References

1. A-Gen-Z report (2023). *What Business Needs to Know About the Generation Changing Everything*. Oliver Wyman Forum. Retrieved from: https://www.oliverwymanforum.com/content/dam/oliver-wyman/ow-forum/template-scripts/a-gen-z/pdf/A-Gen-Z-Report.pdf, 08.01.2026.
2. Bauman, Z. (1994). *Dwa szkice o moralności ponowoczesnej*. Warszawa: Instytut Kultury.
3. Bauman, Z. (2006). *Praca, konsumpcjonizm i nowi ubodzy*. Kraków: WAM.
4. Bauman, Z. (2018). *Płynne pokolenie*. Warszawa: Czarna Owca.
5. Bencsik, A., Horváth-Csikós, G., Juhász, T. (2016). Y and Z Generations at Workplaces. *Journal of Competitiveness. Vol. 8, Iss. 3,* pp. 90-103. Retrieved from: https://www.cjournal.cz/files/227.pdf, 14.11.2025.
6. Benitez-Marquez, M.D., Sanchez-Teba, E.M., Bermudez-Gonzalez, G., Nunez-Rydman, E.S. (2022). *Generation Z Within the Workforce and in the Workplace: a Bibliometric Analysis. Frontries in Psychology*. Retrieved from: https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2021.736820/full, 08.01.2026.
7. Bieleń, M., Kubiczek, J. (2020). Response of the labor market to the needs and expectations of Generation Z. *E-mentor, no. 4(86)*.
8. Chillakuri, B., Mahanandia, R. (2018). Generation Z entering the workforce: the need for sustainable strategies in maximizing their talent. *Human Resources Management. International Digest, 26(4).*
9. Csiszárik-Kocsír, Á., Garia-Fodor, M. (2018). Motivation analysing and preference system of choosing a workplace as segmentation criteria based on a country wide research result focus on generation of Z. *Online Journal Modelling the New Europe, 27*. Retrieved from: https://www.researchgate.net/publication/327985491_Motivation_Analysing_and_Preference_System_of_Choosing_A_Workplace_as_Segmentation_Criteria_Based_on_a_Country_Wide_Research_Result_Focus_on_Generation_of_Z, 15.01.2026.
10. Domagalska-Grędys, M. (2017). Wartości w pracy młodego pokolenia Y i Z. *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu, t. XIX, zeszyt 2*.
11. Graczyk-Kucharska, M., Erickson, G.S. (2020). *A person-organization fit Model of Generation Z: Preliminary studies*. Retrieved from: https://jemi.edu.pl/vol-16-issue-4-2020/a-person-organization-fit-model-of-generation-z-preliminary-studies, 25.01.2026.
12. Hysa, B. (2016). Zarządzanie różnorodnością pokoleniową. *Zeszyty Naukowe. Organizacja i Zarządzanie.* Politechnika Śląska.

13. Kukla, D., Nowacka, M. (2019). Charakterystyka podejścia do pracy przedstawicieli pokolenia Z – preferowany model życia a praca zawodowa, cz. 1. *Edukacja ustawiczna dorosłych, no. 3*.
14. Kukla, D., Nowacka, M. (2019). Charakterystyka podejścia do pracy przedstawicieli pokolenia Z – preferowany model życia a praca zawodowa, cz. 2. *Edukacja ustawiczna dorosłych, no. 4*.
15. Kwiecińska, M., Teneta, D. (2024). System wartości i wzorce myślenia pokolenia Z w kontekście zdolności organizacji do zmian – wyniki badań. In: J. Lichtarski, S. Nowosielski, C. Zając (Ed.), *W kręgu zmiany organizacyjnej. Księga jubileuszowa z okazji 45-lecia pracy naukowo-dydaktycznej Profesor Grażyny Osbert-Pociechy* (pp. 83-95). Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.
16. Lazar, M-A., Zbuchea, A., Pinzaru, F. (2023). *The Emerging Generation Z Workforce in the Digital World: A Literature Review on Cooperation and Transformation*. Retrieved from: https://www.researchgate.net/publication/372443073_The_Emerging_Generation_Z_Workforce_in_the_Digital_World_A_Literature_Review_on_Cooperation_and_Transformation, 27.10.2025.
17. Maloni, M., Hiatt, M.S. (2019). Understanding the Work Values of Gen Z Business Students. *The International Journal of Management Education, 17(3).* Retrieved from: https://www.researchgate.net/publication/336962651_Understanding_the_work_values_of_Gen_Z_business_students, 15.12.2025.
18. Messyasz, K. (2021). Pokolenie Z na rynku pracy – strukturalne uwarunkowania i oczekiwania. *Acta Universatis Lodziensis, Folia Sociologica*, *no. 76*. Retrieved from: https://czasopisma.uni.lodz.pl/sociologica/article/view/10196, 15.12.2025.
19. *Randstad Report* (2014). Retrieved from: https://www.randstad.com/s3fs-media/rscom/public/2020-07/randstad-annual-report-2014.pdf, 10.01.2026.
20. Swadźba, U. (2015). Etos pracy w Polsce. Ewolucja zjawiska. In: U. Swadźba, B. Pactwa, M. Żak (Ed.). *Praca - więź - integracja: wyzwania w życiu jednostki i społeczeństwa: monografia poświęcona pamięci prof. zw. dr. hab. Władysława Jachera*. T. 1 (pp. 85-98). Katowice: Wydawnictwo Uniwersytetu Śląskiego.
21. Tirocchi, S. (2024). *Generation Z, values, and media: from influencers to BeReal, between visilibity and authenticity*. *Frontiers in Sociology*. Retrieved from: https://www.frontiersin.org/journals/sociology/articles/10.3389/fsoc.2023.1304093/full, 10.12.2025.
22. Yanitskyij, M., Seryy, A.W., Braun O.A. (2020). *Generation Z value preferences and the socialcultural determinants*. Retrieved from: https://www.researchgate.net/publication/346507189_Generation_Z_Value_Preferences_And_Their_Sociocultural_Determinants, 25.01.2026.
23. Żarczyńska-Dobiesz, A., Chomątowska, B. (2014). Pokolenie Z na rynku pracy – wyzwania dla zarządzania zasobami ludzkimi. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, *no. 350*. Wrocław.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

INSTITUTIONAL MECHANISMS FOR CORRECTING MARKET FAILURES IN THE EUROPEAN ACCESSIBILITY ACT

Edyta ZDUŃSKA-LESEUX

Warsaw School of Economics; eleseux@sgh.waw.pl, ORCID: 0000-0001-9338-5939

Purpose: The article aims to identify and analyse the institutional mechanisms for correcting market failures embedded in the European Accessibility Act (EAA), Directive (EU) 2019/882, and to assess their consistency with the assumptions of institutional economics. The analysis focuses on market failures arising from insufficient accessibility of products and services essential for full participation in social and economic life, as well as from divergences in accessibility requirements across EU.
Design/methodology: The study applies a qualitative institutional analysis combining new institutional economics with a critical analysis of EU regulatory content. It includes an examination of EU law, institutional documents, and relevant literature.
Findings: The EAA establishes a coherent institutional framework addressing market failures resulting from the misalignment between products and services and the diverse needs of users, particularly information asymmetry, externalities, and coordination problems. By introducing minimum accessibility requirements for products and services and approximating national regulations, the EAA enhances market transparency, facilitates the internalisation of the social costs of the inaccessibility of products and services, and reduces regulatory fragmentation, which has previously increased entry barriers and adjustment costs.
Research limitations: The study is institutional in nature and does not include an empirical assessment of regulatory outcomes. Although the provisions implementing the EAA have been applicable since 28 June 2025, the adjustment process among enterprises and the level of regulatory awareness remain uneven, which justifies further empirical research of a sectoral and comparative nature.
Practical and social implications: Conceptualising the accessibility of products and services within the regulatory framework of the EAA as a mechanism for reducing market inefficiencies may support the design and development of coherent regulatory frameworks, foster more predictable business conditions, and contribute to the shaping of more inclusive public policies.
Originality: The article interprets the EAA through the lens of institutional economics and conceptualises the regulation as a mechanism for correcting persistent market failures rather than merely a set of technical requirements. The study fills a gap between dominant legal analyses and the economic perspective on the accessibility of products and services.
Keywords: accessibility, market failures, institutional economics, European Accessibility Act.
Category of the paper: Research paper.

1. Introduction

Ensuring the ability to use products and services regarded as essential constitutes one of the conditions for full and equal participation in social and economic life. A lack of accessibility in this area reduces economic activity among many individuals, deepens exclusion, and leads to an unequal distribution of costs and benefits within the economy. Empirical analyses based on international and European data indicate that among people facing functional and environmental barriers, lower levels of labour market participation and lower household incomes are more frequently observed (European Commission, 2021; OECD, 2022; Mussida, Sciulli, 2024; Krok, 2024).

From the perspective of institutional economics, the lack of accessibility of essential products and services may be interpreted as a manifestation of persistent market failures that market mechanisms are unable to correct on their own. Information asymmetry, externalities, and coordination difficulties mean that accessibility often remains outside the economic calculus of many market entities, even under conditions of developed competition. In this view, market failures are not incidental, but rather result from incomplete or inconsistent institutional rules that shape economic incentives and the conditions under which decisions are made (North, 1990; Williamson, 1985; Ménard, 2018).

An additional factor exacerbating these market failures is the diversity of national regulations, which increases adjustment costs and regulatory compliance costs for enterprises and hinders the achievement of economies of scale. The fragmentation of accessibility requirements raises regulatory risk and weakens the efficiency of the internal market. From the perspective of institutional economics, these phenomena may be interpreted as a result of increasing uncertainty and transaction costs, which contribute to the persistence of inefficiencies and limit the developmental potential of the economy (North, 1990; Williamson, 1985).

In response to these problems, the European Union adopted Directive (EU) 2019/882 on the accessibility requirements for products and services (European Accessibility Act – EAA). This regulation introduces minimum accessibility requirements for products and services, as well as mechanisms for the approximation of Member States' laws, thereby reducing regulatory fragmentation and affecting the conditions under which products and services are placed on the market. In European Union institutional documents, the EAA is identified as part of a broader strategy aimed at enhancing the participation of persons facing barriers in access to products and services and improving the functioning of the internal market (European Commission, 2015; European Parliament, Council of the EU, 2019; European Commission, 2021).

Most existing analyses of the European Accessibility Act focus primarily on its legal and social dimensions, while its economic significance remains less explored. The aim of the article is to identify and analyse the institutional mechanisms for correcting market failures embedded in the EAA and to assess their consistency with the theoretical framework of institutional economics. The main research question concerns how this regulation affects information asymmetry, externalities, and coordination problems related to the accessibility of products and services, as well as the extent to which these mechanisms are consistent with the theoretical framework of institutional economics.

The study adopts a theoretical and qualitative research approach characteristic of institutional analysis. It is based on a critical analysis of the European Accessibility Act. This analysis is supplemented by an examination of European Union institutional documents and the literature on institutional economics, in particular new institutional economics (NEI). This approach enables the identification of institutional mechanisms embedded in the EAA and their interpretation in light of market failures as conceptualised within institutional economics.

2. Institutions and market failures in institutional economics

Institutional economics challenges the assumptions that market participants have unrestricted access to information and that market mechanisms are costless and self-regulating, assumptions that long dominated neoclassical analyses (Coase, 1937, 1960; Williamson, 1985; North, 1990). A key reference point for this critique is the work of Ronald H. Coase, who demonstrated that the market functioning entails positive transaction costs, which constitute a persistent element of economic exchange processes. Coase defined these as all costs associated with using the price mechanism, including, inter alia, the costs of acquiring information, negotiating the terms of exchange, and enforcing contractual obligations (Coase, 1937). These considerations were further developed by Oliver E. Williamson (1989), who defined transaction costs as the relative costs of planning, adapting, monitoring, and executing transactions. Douglass C. North (1990), in turn, understood them as the costs of specifying the attributes of the goods exchanged, protecting property rights, and safeguarding and enforcing contracts. The market, therefore, is not an abstract mechanism of resource allocation, but a process embedded in specific institutional frameworks that determine the conditions of exchange as well as the scale and persistence of market failures.

One of the most frequently analysed market failures is information asymmetry between participants in market exchange. Limited access to information, difficulties in its verification, and uncertainty regarding the future behaviour of other entities increase transaction risk and weaken the market's capacity to effectively coordinate economic activity. Williamson (1985) points out that information asymmetry, alongside bounded rationality and the potential

opportunism of entities, constitutes one of the key sources of positive transaction costs. This relationship is confirmed both in classical analyses of adverse selection (Akerlof, 1970) and in contemporary studies on the functioning of economic and political institutions, in which information is treated as a costly and unevenly distributed resource among market participants (Ménard, 2018; Acemoglu, Robinson, 2019).

Externalities also constitute a significant source of market failure. They arise when the production or consumption decisions of some entities affect the welfare of others, and these effects are not reflected in market prices. As a result, private calculations omit costs or benefits borne by third parties who are not participants in a given transaction. Consequently, divergences emerge between private and social calculations. However, as Coase (1960) argued, the mere existence of externalities does not in itself justify state intervention. Under conditions of zero transaction costs, parties could negotiate and reach efficient outcomes regardless of the initial allocation of property rights. In real-world conditions of positive transaction costs, however, the negotiation process faces significant constraints that prevent parties from reaching agreement and fully internalising the effects of their actions.

At this point, the importance of institutions becomes evident. Institutions are understood as formal and informal "rules of the game" that structure economic and social interactions. Douglass C. North (1990) emphasises that institutions shape economic incentives and reduce the uncertainty associated with exchange processes. They stabilise the expectations of market participants, enabling economic exchange to function under conditions of incomplete information. In this perspective, market failures are not incidental, but result from incomplete, inconsistent, or ineffective institutional frameworks. Analysing these failures therefore requires taking into account how existing rules influence the behaviour of entities and the structure of economic processes.

The institutional perspective proposed by Douglass C. North is further developed in the work of Oliver E. Williamson (1985). He argues that economic decisions are made under conditions of bounded rationality and the potential opportunism of market participants. These factors hinder stable coordination and give rise to contractual problems, thereby increasing the importance of formal institutions as instruments for reducing risk and structuring market relations. Contemporary strands of institutional economics continue this approach, highlighting the role of public regulation as a tool for shaping market incentives in areas where market mechanisms prove systematically insufficient, particularly in the context of complex social objectives and long-term development challenges (Rodrik, 2007; Mazzucato, 2018).

From the perspective of institutional economics, information asymmetry, externalities, and coordination problems constitute an interconnected set of market failures. They limit the ability of market mechanisms to generate outcomes consistent with the social welfare. Under such conditions, formal institutions play a crucial role. Through the establishment of rules, obligations, and enforcement mechanisms, they shape the course of economic processes.

This perspective provides a basis for analysing regulatory solutions addressing the problem of the accessibility of products and services.

3. The European Accessibility Act as a formal institution

The European Accessibility Act was adopted in the form of Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 and constitutes part of the secondary law of the European Union. The Act sets regulatory objectives while leaving Member States discretion as to the form and means of their implementation, in accordance with Article 288 of the Treaty on the Functioning of the European Union (European Union, 2012). The EAA operates within the legal framework of the European Union's internal market. It reflects a model of regulatory harmonisation that does not lead to the full unification of national laws, but instead establishes a common normative framework applicable across the EU (see Zeitlin, 2025).

The adopted model of harmonisation implies that the unification of accessibility requirements for products and services has not been treated in the EAA as an autonomous objective of the Directive. Rather, it constitutes an instrument for achieving a higher-order objective. That objective is to improve the functioning of the internal market, as stated *expressis verbis* in Article 1 of the Directive (European Parliament, Council of the EU, 2019). The Directive pursues this objective by reducing regulatory divergences between Member States in the area of accessibility requirements for products and services. This mechanism is intended to eliminate and prevent barriers that hinder the free movement of the products and services covered by the Directive. Consequently, accessibility is linked to the principles governing the functioning of the internal market and to the conditions for conducting business activities in the European Union, rather than being confined solely to the social or technical sphere (see Drabarz, 2020; Weatherill, 2020).

The material scope of the EAA covers categories of products and services explicitly listed in Article 2 of the Directive. The EAA applies to selected digital and electronic products, including, inter alia, payment terminals, ATMs, self-service check-in devices, ticketing machines, interactive information terminals, personal computers, devices used for the provision of telecommunications services, e-readers, and equipment enabling access to audiovisual media services. It also covers services considered particularly important for everyday functioning, such as passenger transport services (in specified areas), retail banking services, e-commerce, telecommunications services, and e-books together with related software (European Parliament, Council of the EU, 2019). These are widely used products and services which the EU legislator has recognised as essential for accessing the internal market and for participating in social and economic life on an equal basis (Zduńska-Leseux, Szypulewska-Porczyńska, 2024).

Their inclusion within common accessibility requirements is not general in nature, but is limited to those market segments explicitly identified in the provisions of the Directive.

The Directive also specifies the entities to which the obligations arising from the EAA are addressed. These include manufacturers, authorised representatives, importers, distributors, and service providers, insofar as they offer products and services covered by the Directive. The provisions differentiate the scope of responsibility of individual entities, taking into account their role in the processes of design, placing on the market, and service provision. Such differentiation allows regulatory obligations to be assigned at different stages of economic circulation and structures the relationships among market participants.

The EAA establishes binding accessibility requirements. These define the minimum requirements that must be met by the products and services covered by the Directive, in accordance with Annex I of Directive 2019/882. These requirements form part of the binding legal framework of the internal market and are subject to implementation into the national legal systems of the Member States. Their application is not optional, which confirms the normative anchoring of accessibility in European Union law (see Waddington, 2011).

The Directive provides for mechanisms of supervision and enforcement of the national provisions implementing it. Member States are required to establish systems for monitoring compliance of products and services with accessibility requirements and to introduce sanctions for violations of these provisions (Article 30). The Directive does not specify in detail the nature of enforcement measures, leaving their design to national legislators. It does, however, indicate that sanctions should be effective, proportionate, and dissuasive, in line with established legislative practice in the European Union.

The EAA functions as a formal regulatory institution of the internal market. It establishes binding rules concerning the accessibility of products and services and defines the framework of responsibility of economic operators and public authorities. The Act shapes the conditions under which accessibility becomes an integral element of the rules governing economic activity in the European Union and remains part of the broader legal order of the internal market.

4. Mechanisms of the European Accessibility Act and the correction of market failures

An analysis of the European Accessibility Act from the perspective of institutional economics indicates that the Directive affects several interrelated market failures. These are failures that, in the absence of institutional intervention, are not effectively corrected by market mechanisms (see Michtner, 2025). This applies in particular to information asymmetry, externalities associated with the mismatch between products and services and users' needs, and coordination difficulties resulting from the diversity of national regulations.

These mechanisms do not occur in isolation but reinforce one another, limiting the efficiency of resource allocation and perpetuating barriers to market access. The EAA introduces formal rules that modify the conditions under which economic decisions are made and reshape the structure of economic incentives for both enterprises and users.

One of the key areas of the EAA's impact is the reduction of information asymmetry. The accessibility of products and services constitutes a quality attribute that is difficult for users to assess prior to purchase or use (Volkmann et al., 2025). In the absence of clear accessibility requirements, consumers make decisions based on incomplete information, which leads to an informational advantage on the part of producers and service providers and distorts market mechanisms. The introduction of minimum accessibility requirements, together with related information obligations, enhances market transparency and facilitates the comparability of offers. In this way, the EAA stabilises user expectations and reduces decision uncertainty. Indirectly, this leads to a reduction in information costs incurred in exchange processes, which, from the perspective of institutional economics, constitute an important source of market inefficiencies (Williamson, 1985; North, 1990). As a result, market mechanisms operate under conditions of greater predictability, supporting more rational consumer and investment decisions (European Parliament, Council of the EU, 2019).

The impact of the EAA on negative externalities arising from the inaccessibility of products and services is also significant. The inability to use essential products and services generates consequences that extend beyond market relationships between enterprises and users. It limits participation in education, the labour market, and social life, and reduces both autonomy and quality of life. The costs of such conditions are not reflected in firms' economic calculations. They are dispersed and, as a consequence, may lead to increased pressure on social security systems and public institutions. Imposing an obligation to ensure accessibility shifts part of the adjustment burden onto producers and service providers. This promotes the internalisation of external effects and a more efficient allocation of social resources, in line with the institutional approach to correcting market failures (Coase, 1960; European Commission, 2015).

An important dimension of the EAA's impact is also the reduction of coordination difficulties resulting from regulatory fragmentation. Prior to the adoption of the Directive, enterprises operating in the EU market faced diverse national regulations concerning the accessibility of products and services, which required them to adapt their offerings to different legal systems. This led to higher adjustment costs, increased regulatory risk, and limited opportunities for market expansion. The introduction of minimum accessibility requirements for products and services, together with the approximation of Member States' laws in this area, reduces these barriers. It increases the predictability of business conditions and facilitates investment planning. Moreover, the reduction of regulatory fragmentation contributes to lowering entry barriers to new markets and simplifying procedures for placing products and services on the market. As a result, it strengthens the efficiency of market mechanisms at the supranational level (North, 1990; Ménard, 2018).

The approximation of regulations concerning accessibility requirements for products and services also contributes to expanding the potential market. Designing products and services in accordance with minimum accessibility requirements enables their use by a broader group of users, which increases demand and allows enterprises to achieve economies of scale. Accessibility thus ceases to be a niche factor and becomes an element influencing market size and dynamics (Zduńska-Leseux, Szypulewska-Porczyńska, 2024). From an economic perspective, the regulation reduces entry barriers, supports the mobility of products and services, and enhances competition—not through price reduction, but through improvements in the quality of offerings. These effects are therefore consistent with the institutional understanding of the market as a system of rules shaping the behaviour of economic entities.

The mechanisms provided for in the European Accessibility Act also affect the structure of economic incentives shaping firms' strategies. The introduction of mandatory accessibility requirements changes the cost–benefit calculus associated with the design of products and services, making accessibility a condition for market participation. The regulation encourages economic entities to incorporate accessibility already at the design stage, which fosters the development of solutions based on universal design principles as well as organisational and technological innovation. At the same time, the stability and predictability of the regulatory framework reduce investment uncertainty and facilitate long-term business planning, thereby stabilising relationships among market participants (Williamson, 1985; Rodrik, 2007).

The analysis of the mechanisms provided for in the EAA demonstrates that the Directive affects the functioning of the market in a multidimensional manner, simultaneously addressing the key market failures identified in institutional economics. The introduction of minimum accessibility requirements and the approximation of Member States' laws lead to changes in the conditions under which economic decisions are made and to modifications in the structure of economic incentives. This allows the European Accessibility Act to be interpreted as a formal institution that corrects persistent imperfections of market mechanisms.

5. Conclusions

The analysis indicates that the European Accessibility Act can be interpreted as a formal institution correcting persistent market failures. These failures arise from the limited ability to use products and services regarded as essential for full and equal participation in social and economic life. The source of these limitations lies in the inadequate accessibility of products and services in relation to the diverse capabilities and needs of users, which leads to the exclusion of part of the potential market. An additional factor reinforcing these imperfections is the divergence in accessibility requirements for products and services across European Union Member States. From the perspective of institutional economics, the regulation should therefore

not be seen merely as a set of technical requirements, but as an element of the institutional structure influencing the behaviour of market participants and the conditions under which economic decisions are made.

In particular, the analysis demonstrates that the mechanisms provided for in the EAA address the key market failures identified in the institutional economics literature, such as information asymmetry, externalities, and coordination problems. By introducing minimum accessibility requirements for products and services and approximating Member States' laws, the regulation enhances market transparency, facilitates the internalisation of the social costs associated with the inaccessibility of products and services, and reduces regulatory fragmentation, which previously increased entry barriers and adjustment costs for enterprises.

An important result of the analysis is the identification of the EAA's impact on the structure of economic incentives, through modifications to the cost–benefit calculus of economic entities. Accessibility ceases to be treated as an optional or niche feature and becomes a condition for market participation, as well as a factor shaping design, investment, and organisational strategies. In this sense, the regulation contributes to the stabilisation of market expectations and strengthens the predictability of the institutional environment.

From an economic perspective, it is also important that correcting market failures in the area of accessibility leads to the expansion of the potential market and enables the achievement of economies of scale. The regulation not only mitigates the negative social consequences of the inaccessibility of products and services, but also creates conditions conducive to increased economic activity and more efficient resource allocation. Accessibility of products and services thus emerges as a category of clear economic significance, rather than solely a social one.

The findings indicate that the European Accessibility Act is consistent with the logic of institutional economics, according to which formal institutions play a key role in correcting imperfections in market mechanisms. A limitation of this article is its theoretical character and the lack of empirical verification of the effects of the implementation of the EAA. At the same time, the analysis opens avenues for further research on the effectiveness of the Directive's implementation, its differentiated sectoral impacts, and its long-term effects on the competitiveness and innovativeness of enterprises in the European Union. In particular, empirical research appears warranted on firms' adjustment costs, the level of compliance of products and services with accessibility requirements, and changes in demand structures resulting from increased accessibility. A further promising direction for research is comparative analysis of the ways and extent to which the Directive is implemented across Member States and its impact on the functioning of the internal market.

References

1. Acemoglu, D., Robinson, J.A. (2019). *The Narrow Corridor: States, Societies, and the Fate of Liberty*. Penguin Press.
2. Akerlof, G.A. (1970). The market for lemons: Quality uncertainty and the market mechanism. *The Quarterly Journal of Economics, 84*(3), 488-500.
3. Coase, R.H. (1937). The nature of the firm. *Economica, 4*(6), 386-405.
4. Coase, R.H. (1960). The problem of social cost. *Journal of Law and Economics, 3,* 1-44.
5. Drabarz, A.K. (2020). Harmonising Accessibility in the EU Single Market: Challenges for Making the European Accessibility Act Work. *Review of European and Comparative Law, 43*(4), 83-102.
6. European Commission (2015). Commission Staff Working Document, Impact Assessment accompanying the Proposal for a Directive on the accessibility requirements for products and services, SWD(2015) 264 final.
7. European Commission (2021). *European Accessibility Act (EAA)*.
8. European Parliament, Council of the EU (2019). Directive (EU) 2019/882 of 17 April 2019 on the accessibility requirements for products and services. Official Journal of the European Union, L 151.
9. European Union (2012). Consolidated version of the Treaty on the Functioning of the European Union. *Official Journal of the European Union, C 326*.
10. Krok, E. (2024). Digital accessibility as an essential element of an inclusive economy. *European Research Studies Journal, 27(Special A),* 857-876.
11. Mazzucato, M. (2018). *The Value of Everything: Making and Taking in the Global Economy*. Allen Lane.
12. Ménard, C. (2018). Research frontiers of new institutional economics. *RAUSP Management Journal, 53*(1)*,* 3-10.
13. Michtner, P. (2025). Web accessibility gaps in online video platforms: video services ahead of the European Accessibility Act (EAA). *Universal Access in the Information Society, 24*, 2611-2624.
14. Mussida, C., Sciulli, D. (2024). Poverty, work intensity, and disability: evidence from European countries. *The European Journal of Health Economics, 25*(9), 1605-1624.
15. North, D.C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge University Press.
16. OECD (2022). *Disability, Work and Inclusion: Mainstreaming in All Policies and Practices*. OECD Publishing.
17. Rodrik, D. (2007). *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth.* Princeton University Press.

18. Volkmann, A., Eller, E., Hennighausen, C. (2025). The impact of digital accessibility on the user experience of people with cognitive impairments. *Journal of Accessibility and Design for All, 15*(2), 50-73.
19. Waddington, L. (2011). The European Union and the United Nations Convention on the Rights of Persons with Disabilities: A Story of Exclusive and Shared Competences. *Maastricht Journal of European and Comparative Law, 18*(4), 431-453.
20. Weatherill, S. (2020). Why are we harmonising accessibility? The European Accessibility Act. *European Law Review, 45*(3), 355-373.
21. Williamson, O.E. (1985). *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*. Free Press.
22. Williamson, O.E. (1989). Transaction cost economics. In: R. Schmalensee, R.D. Willig, *Handbook of Industrial Organization*, *1* (pp. 135-182). Elsevier.
23. Zduńska-Leseux, E., Szypulewska-Porczyńska, A. (2024). Factors and expected impacts of implementing the European Accessibility Act: economic and social perspectives. *Zeszyty Naukowe Politechniki Śląskiej. Organizacja i* Zarządzanie, 661-670.
24. Zeitlin, J. (2025). How the European Union reconciles uniform regulation with diversity among Member States. *Journal of European Public Policy.* https://doi.org/10.1080/13501763.2025.2492748

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

NON-FORMAL EDUCATION AS A TOOL FOR ADAPTATION IN A TRANFORMING LABOR MARKET. COMPETITION OR SUPPORT FOR FORMAL EDUCATION?

Sławomir ZIÓŁKOWSKI[1*], Michał BROŻYNA[2]

[1] AGH University of Krakow; slawomir@agh.edu.pl, ORCID: 0000-0002-2653-935X
[2] AGH University of Krakow; brozyna@agh.edu.pl, ORCID: 0000-0002-1285-5212
* Correspondence author

Purpose: The purpose of this publication is to analyze the role of non‑formal education and its potential application in the context of the challenges posed by the contemporary labor market. The authors also highlight possible tensions between specific forms of andragogical education delivered by private entities and formal education provided, for example, within university teaching. In doing so, they reference an illustrative case of a market-based qualification and examine, in this context, the opportunities afforded by both the Law on Higher Education and Science and the Act on the Integrated Qualifications System.
Design/methodology/approach: This article is analytical and review‑based in nature. It draws on a literature review and an analysis of legal regulations concerning non‑formal education, higher education, and the Integrated Qualifications System. It also employs a case study of the market‑based qualification "Academic Trainer" (code 14069).
Findings: Non‑formal education constitutes an important tool for adaptation in a transforming labor market, particularly under conditions of rapid technological change. The acquisition of partial qualifications may play a complementary role in relation to formal education, while in certain areas it may serve as its competitor. The case analysis also indicates the potential emergence of competency‑ and organization‑related tensions between universities and private providers.
Research limitations/implications: The conclusions may be used by universities and training institutions, for instance, in designing short learning formats and incorporating the qualifications acquired through such formats into the Integrated Qualifications System.
Originality/value: The value of the article lies in combining an andragogical and legal perspective to analyze the relationships between formal and non‑formal education. Its original contribution is a case study of a market‑based qualification at level 7 of the Polish Qualifications Framework (PQF), relating to competencies associated with core tasks performed by universities.
Keywords: non‑formal education, labor market, Integrated Qualifications System, market‑based qualifications, higher education.
Category of the paper: Research paper.

1. Introduction

The past decade has confronted the world with a series of unprecedented challenges: from the global COVID‑19 pandemic, through geopolitical tensions, to the technological revolution driven by artificial intelligence and automation. These disruptions have transformed the labor market into a dynamic environment in which the ability to adapt rapidly has become a key competency for workers. Traditional formal education, based on long-term university programs, is increasingly criticized for its rigidity, extended duration, and inability to keep pace with the speed of change. A university degree (even from a prestigious institution), although still highly valuable, no longer guarantees a strong position in the labor market and, for many employees, serves merely as a starting point for planning their development pathways within a lifelong learning strategy.

Non‑formal education[1] and the acquisition of partial qualifications–including, in particular, market‑based qualifications–constitute a response to the challenges of the labor market and the limitations inherent in obtaining full qualifications through formal education.

2. Andragogy – a response to the challenges of the contemporary labor market

The nature of the challenges faced by labor market actors is shaped by their multifactorial origins, including globalization processes, demographic change accompanied by more or less regulated migration flows, and the dynamic development of technologies – particularly artificial intelligence–and the growing demand for their application. In all these cases, new social needs as well as labor market needs emerge rapidly. The fluidity and dynamism of these needs imply that acquiring competencies in such areas extends beyond the capacity of traditional forms of formal education (higher education or vocational education), which provide what are legally defined as “full qualifications” under Article 2(10) of the Act on the Integrated Qualifications System of 22 December 2015 (Journal of Laws 2024, item 1606, consolidated text of 3 October 2024; hereinafter: IQS Act). Given the etiology of these challenges – particularly in the context of Europe’s demographic structure–one may assume that their mitigation can be achieved only through the utilization of existing human resources, meaning the acquisition of new competencies by individuals already active in the labor market.

[1] Formal education is delivered by universities and other institutions within the higher education system through programs that lead to the award of full qualifications, qualifications conferred upon completion of postgraduate studies, or vocational qualifications.
Non-formal education is provided through institutionally organized programs that do not lead to the award of full or partial qualifications falling within the scope of formal education.

For employees, this necessitates upskilling within educational processes that take into account the specific characteristics of adult learning, where the ultimate objective is the supplementation of knowledge and skills with strong emphasis on their direct practical application. At the same time, adult learners assimilate knowledge through the lens of their rich and multidimensional experience (Kolb, 2015). Achieving this requires the use of diverse methods and teaching approaches grounded in various assumptions, paradigms, and traditions (Knowles, 1980).

The most promising responses are non‑formal or informal educational formats that are organically aligned with the concept of lifelong learning. This thesis is reinforced by the andragogical profile of the stakeholders involved, as individuals acquiring competencies in these areas are typically adults (Brookfield, 1986). Consequently, such educational processes must be implemented within the paradigm of andragogical education (Knowles, Holton, Swanson, 2009).

In this context, an interesting space emerges – one that can be occupied by universities and other institutions within the higher education and science system, public and non-public schools, other entities within the general education system, as well as private organizations. This raises questions about the formal and legal frameworks within which training activities in the relevant labor market domains may be offered, and about the possibility of incorporating such training into the Integrated Qualifications System (hereinafter: IQS) (kwalifikacje.gov.pl, 03.02.2026).

Particularly compelling are the opportunities associated with acquiring market‑based qualifications, as defined in Article 2(11) of the IQS Act. This argument stems from the fact that such qualifications effectively compensate for deficits arising from the aforementioned socio‑economic challenges (Grabowska, 2025). By definition, market‑based qualifications respond to fluidly evolving societal and expert (professional, sectoral, substantive) needs across various branches of the labor market.

3. Qualifications and competencies

As noted by J. Orczyk (2009), in Polish literature on human resource management the terms qualifications and competencies are frequently used interchangeably, since (often abstracting from the specific legal and organizational definitions) the scopes of these concepts largely overlap. A similar stance is taken by M. Tyrańska (2021), who argues that competencies are relatively often confused with qualifications, and the two terms frequently appear in the literature as substitutes for one another.

Even when the terms are treated separately, they usually appear together in academic discussions–whether in the context of assessing supply and demand in labor market analyses, in the validation of training and development services (Juchnowicz, 2014), or in interpretations of assumptions within pedagogical theories (Góralska, Solarczyk-Szwec, 2012). Defining the relationship between qualifications and competencies in light of human capital theory, Orczyk assumes "that qualifications constitute general capital, including the inputs invested in its creation, whereas competencies shape the conditions for transforming qualifications into specific capital–a distinctive combination of personal attributes and tasks that creates opportunities for individual development during the performance of work. In other words, qualifications, including their structure, result from the inputs invested, while competencies are a reflection of their utilization, that is, their outcomes" (Orczyk 2009, p. 30).

According to Tyrańska (2021), competencies constitute a much broader concept than qualifications. Qualifications are more strictly defined by educational requirements and represent learned, formally structured patterns. Competencies, by contrast, play the most significant role in determining work effectiveness and are grounded in responsibility for task execution; they are characterized by uniqueness and an individual, non-replicable nature.

The situation is somewhat different from a formal–legal perspective, particularly in the context of qualification frameworks (the European and Polish Qualification Frameworks, as well as the Integrated Qualifications System – ZSK). Here, the definition of a qualification derives directly from the processes of validation and certification, which confirm the achievement of appropriate learning outcomes (in terms of knowledge, skills, and social competencies) that meet established standards. At the same time–with respect to qualifications not included in the ZSK–no such precise definition exists, and the concept of qualification may, for example, encompass competencies, provided that they meet the requirements specified in Annex 2[2] to the relevant Guidelines (Dąbrowska, 2025).

4. Market-based qualifications

This category of qualifications constitutes a type of partial qualification awarded outside the categories of full and partial qualifications referred to in Article 2(9) and (10) of the Act on the Integrated Qualifications System (UZSK).

[2] Annex 2. Basic Information on Obtaining Qualifications within Projects Co‑Financed by the ESF+, to the Guidelines for Monitoring the Material Progress of Programme Implementation for 2021–2027. Minister of Funds and Regional Policy, 2022. (https://www.funduszeeuropejskie.gov.pl/strony/o-funduszach/dokumenty/wytyczne-dotyczace-monitorowania-postepu-rzeczowego-realizacji-programow-na-lata-2021-2027/, 6 March 2026.

Under the applicable legislation, partial qualifications include:

- Qualifications distinguished within a given occupation, as referred to in Article 4(34) of the Act of 14 December 2016 – Education Law Act (Journal of Laws 2023, items 900, 1672, 1718, and 2005).
- Qualifications awarded upon completion of postgraduate studies, as defined in Article 160(1) of the Act of 20 July 2018 – Law on Higher Education and Science.
- Qualifications awarded upon completion of other forms of education, as referred to in: Article 162 of the Act of 20 July 2018 – Law on Higher Education and Science, Article 2(2)(3) of the Act of 30 April 2010 on the Polish Academy of Sciences (Journal of Laws 2020, item 1796), Article 2(3)(2) of the Act of 30 April 2010 on Research Institutes (Journal of Laws 2022, item 498; 2023, item 1672), as well as courses and training programmes indicated in Article 4(6) of the Act of 21 February 2019 on the Łukasiewicz Research Network (Journal of Laws 2020, item 2098; 2023, item 1672).
- Regulated qualifications – qualifications established by separate provisions, awarded in accordance with procedures laid out in those provisions, excluding qualifications awarded within the school education system and higher education and science system.
- Sectoral qualifications – occupational qualifications not regulated by separate legislation, designed to meet the needs of a particular branch or sector and reflecting its specific characteristics, awarded by entities conducting statutory activities in the relevant sector, which have been granted authorisation to certify a given sectoral qualification under Article 41(1). The document confirming the award of such a qualification is a sectoral qualification certificate.
- Craft qualifications – qualifications awarded by chambers of crafts after examinations in occupations specified in Article 3(3a) of the Act of 22 March 1989 on Crafts (Journal of Laws 2020, item 2159); the documents confirming qualification are master's diplomas and journeyman's certificates.
- Market-based qualifications - according to Article 2(10) of the UZSK, market-based qualifications are those not regulated by separate provisions, created to respond to social needs or labor‑market demand, awarded by business entities that have been granted authorisation to certify a given market-based qualification under Article 41(1). The confirming document is a market-based qualification certificate.

The qualifications listed above are incorporated into the Integrated Qualifications System (ZSK), established by the Act of 22 December 2015 on the Integrated Qualifications System. The ZSK is designed as an instrument supporting the implementation of lifelong learning policies and the development of high‑quality human capital. To facilitate the practical implementation of its objectives, an open and publicly accessible digital database aggregating all qualifications was created–the Integrated Qualifications Register (ZRK). Submitted

qualifications must comply with the general principles of the ZSK regarding their awarding, description and comparability.

The ZRK provides not only an overview of all qualifications included in the ZSK and awarded in Poland, but also enables:

- submission of applications for inclusion of qualifications in the ZSK,
- granting authorisations to certify qualifications,
- submission of applications for entry into the list of external quality assurance entities (PZZJ). (Będkowski, Pawłowska, Pluskota, Sokulska, 2020).

The last component is particularly relevant for analysing the institutions that submit qualifications and are authorised to award them.

Currently, the ZRK comprises 20,561 qualifications awarded by 2507 institutions. Among these are 261 market-based qualifications and 19 sectoral qualifications (kwalifikacje.gov.pl).

Within the Polish Qualifications Framework (PRK), full qualifications at levels 6 and 7 are "reserved" for higher‑education programmes and confirmed by:

- a bachelor's degree (PRK level 6),
- a master's degree (PRK level 7), awarded either through second‑cycle studies or long‑cycle master's programmes.

Level 8 qualifications are confirmed by a doctoral diploma and may also be obtained through doctoral schools.

Partial qualifications at PRK levels 6 and 7 (the ZRK contains no partial qualifications at level 8) do not require completion of full degree programmes, although they may also be offered by universities, for example in the form of postgraduate studies that award a qualification entered in the ZRK (currently 38 such postgraduate programmes are registered).

Other partial qualifications at PRK levels 6 and 7 fall into three additional categories:

- 50 regulated qualifications (all concerning the verification and assessment of exam solutions),
- 5 sectoral qualifications (all related to training, coaching, and leadership in sports disciplines),
- 74 market-based qualifications, of which 48 are active, covering a wide spectrum of areas, including therapy, staff development, business processes, sports training, and entertainment activities.

5. Solutions provided in the higher education act and the Integrated Qualifications System Act

The formal and legal possibilities for offering training within the scope of market-based qualifications are provided for in the Law on Higher Education and Science (hereinafter: PrSzWiN) and the Act on the Integrated Qualifications System (UZSK). In the context of these regulations, it is necessary to distinguish between "universities, scientific institutions of the Polish Academy of Sciences, and research institutes" and "entities conducting organised activities in the field of the economy, labor market, education or training."

For the first group, the typical formats include:

- postgraduate studies (Art. 160 PrSzWiN),
- other forms of education (Art. 163 PrSzWiN)[3],
- the possibility provided for in Article 13 UZSK.

For the second group, the key mechanism concerns the possibility of offering education leading to market-based qualifications, as provided for in Art. 14 UZSK. However, universities may also make use of this mechanism (see below).

The rules for organising, conducting, documenting and charging fees for postgraduate studies are regulated in Articles 160 and 162-163 of PrSzWiN. The inclusion in the ZSK of qualifications awarded as part of these forms of education is possible if a level of the Polish Qualifications Framework has been assigned to them (Art. 13 UZSK).

In the case of including in the Integrated Qualifications System qualifications awarded by universities within the framework of other forms of education under Article 162 PrSzWiN, Articles 14-25 UZSK apply accordingly. It should be noted, however, that in the case of partial qualifications (e.g. market-based qualifications), Articles 26-29 and Articles 36 and 41-81 UZSK shall apply.

By contrast, the inclusion of market-based qualifications in the ZSK by entities other than universities, PAN scientific institutes or research institutes is carried out in accordance with Article 14 UZSK. For this purpose, an application must be submitted to the competent minister (Art. 4b UDAR[4]) requesting the inclusion of a market-based qualification in the Integrated Qualifications System.

[3] Due to the wording of Article 11(2) of the Law on Higher Education and Science, this concept does not include so‑called specialist education, which enables learners to obtain a full qualification at PRK level 5 and may be offered exclusively by vocational universities. By contrast, free‑market qualifications are, by definition, partial qualifications.

[4] The term competent minister refers to the minister designated pursuant to the provisions of the Act of 4 September 1997 on Government Administration Departments (Journal of Laws 2024, item 1370) – hereinafter: UDAR. According to Article 4b of this Act, the minister competent for matters concerning the inclusion of qualifications belonging to a given government administration department in the Integrated Qualifications System is the minister responsible for that department. This is therefore the minister competent for the matters corresponding to the name of the relevant administration department, as defined in Article 5 of the Act (Art. 4 UDAR).

It should be emphasised that any entity conducting organised activities in the field of the economy, labor market, education or training may submit an application for the inclusion of a qualification in the ZSK. Thus, such an entity may also be a university, insofar as it conducts organised activities in the field of education. The formal requirements for the application as well as the procedure for submitting and reviewing it are defined in Articles 14-25 UZSK.
Upon completion of the procedure, the given qualification is incorporated into the ZSK by means of an announcement issued by the competent minister in the Official Gazette of the Republic of Poland "Monitor Polski" (Art. 25 UZSK). Immediately thereafter, the minister publishes on the Integrated Qualifications System portal information regarding the possibility of submitting applications for authorisation to certify the given market-based or sectoral qualification (Art. 26 UZSK).

6. Market‑based qualification: Conducting courses in a given academic discipline using active methods in the teaching process – Academic Trainer (Trener Nauki)

The presented case of a partial qualification (PRK level 7) is particularly interesting from a legal perspective; at the same time, it provides a useful basis for illustrating two pathways for introducing qualifications into the Integrated Qualifications System (ZSK), authorising training providers in a given area, and conducting the training.

The academic trainer qualification is registered under code 14069. Within the Integrated Qualifications System, it constitutes a market‑based qualification (Art. 2(11) UZSK).

As follows from the description of this qualification included in the relevant ministerial announcement, it relates "Conducting courses in a given academic discipline using active methods in the teaching process – academic trainer". Thus, it encompasses one of the core tasks of universities, namely training and developing their academic staff (Art. 11(1)(5) PrSzWiN).

At the same time, according to the ministerial announcement, the sole authorised certifying entity for this qualification is Trener Nauki Dr Justyna Małkuch‑Świtalska, i.e., the applicant who initiated the inclusion of the qualification "academic trainer" in the ZSK[5].

This naturally raises the question of whether, and to what extent, this fact affects or restricts universities in fulfilling their core statutory duty of staff development.

It is clear that a university may enable its staff to obtain the market‑based qualification "Conducting courses in a given academic discipline using active methods in the teaching process – academic trainer" (code 14069) by arranging certification through the entity authorised to certify this qualification.

[5] It should be noted that, both legally and ethically, such actions raise no doubts whatsoever.

However, this requirement does not apply when a university decides to award its staff as "academic trainer" within other forms of education, for the purpose of staff training. In such cases, the rules set out in Articles 162-163 PrSzWiN apply. These provisions authorise universities to conduct other forms of education, one example of which is staff development and training. Under Article 162 PrSzWiN, a person completing such a form of education has a public‑law entitlement to receive a document confirming completion of the programme (Jakubowski, 2023). The type and format of the document are determined by the university. By their very nature, such documents must indicate the competencies acquired or, at minimum, define the programme completed. It appears that such a document may use the designation "academic trainer" or a similar term, provided it does not reproduce the precise description of the market‑based qualification identified by code 14069.

This interpretation is justified by the fact that otherwise it would lead to a de facto privatisation of an area constituting a fundamental statutory function of universities. On the one hand, this is evident because in the domains defined in Article 11 PrSzWiN, universities effectively exercise public authority, or more precisely, perform state functions in the field of education (Art. 70(1) of the Constitution) (Borysiak, Królikowski, 2016). Although private entities may also operate in these areas, they cannot limit the state's ability–nor that of its institutions–to carry out these functions.

On the other hand, it must be noted that the ability to conduct other forms of education does not derive from the constitutionally guaranteed autonomy of universities, which is essential not only for the realisation of the constitutional right to education (Art. 70 of the Constitution), but also for academic freedom (Art. 73 of the Constitution) (Jakubowski, 2023).

Since university autonomy is not the normative foundation for conducting such educational formats, the fulfilment of the university's basic statutory task–training its own staff–within these formats must necessarily rely on instruments of civil law (Jakubowski, 2023). Consequently, the use of other forms of education will inevitably exist in a certain tension with training delivered within commercial projects. In fact, to some extent, the certificates issued by universities may become potential competitors to commercial certificates.

This gives rise to the question of what form a "certificate" or "attestation" issued by a university should take when confirming that an individual possesses competencies in the field of "academic trainer," obtained as part of internal staff development (Art. 11(1)(5) PrSzWiN). From the perspective of third parties–i.e., participants in training conducted by such an academic trainer–there is a risk of confusion regarding whether the trainer holds the market‑based qualification registered under code 14069. Naturally, Article 11(1)(5) PrSzWiN applies exclusively to the training of a university's own staff. Therefore, individuals trained under this provision cannot present themselves as holders of the "academic trainer" qualification for the purpose of providing services to external entities (including other universities).

In this context, special attention must be paid to the content of certificates issued by universities under Article 162 PrSzWiN, to avoid creating the false impression that they relate to the market‑based qualification registered under code 14069.
Due diligence is also necessary because the entity authorised to certify qualification 14069–in its commercial activities–uses a registered trademark containing the phrase "Trener Nauki" (trademark application no. Z.478915)[6]. This may give rise to potential issues of trademark infringement[7].

7. Conclusion

In response to socio‑economic and technological challenges, non‑formal education is becoming a cornerstone of resilience in an uncertain world. It is emerging as a practical alternative to formal education, as it does not require such substantial time investments and demonstrates significantly greater flexibility in the face of unpredictable labor‑market trends. This form of education not only complements but increasingly replaces traditional models, offering modularity, accessibility, and direct applicability to professional practice. It therefore appears that the popularity of training and development services – particularly those that qualify and certify acquired knowledge and competencies (especially those granted official recognition)–will continue to grow in the near future.

Higher education institutions and universities are also recognising this trend. In recent years, they have more confidently expanded their offerings to include so‑called Other Forms of Education (IFK), which lead to micro‑credentials and confirm the achievement of learning outcomes (and ECTS credits) equivalent to those offered within regular study cycles (individual modules and courses). They also increasingly offer commercial specialist courses–traditionally the domain of private training providers–drawing on the expertise of practitioners and professional trainers.

As a result, the potential competition between higher education institutions and providers of training and development services (training and short learning formats versus formal education, including postgraduate studies) has transformed into a form of coopetition, creating an integrated system capable of responding to the needs of the contemporary world.

[6] However, it should be noted that the trademark in question is a word-and-graphic mark. https://ewyszukiwarka.pue.uprp.gov.pl/search/pwp-details/Z.478915, 08 February 2026, 18:50.
[7] Of course, provided that all relevant conditions are met.

References

1. Będkowski, M., Pawłowska, K., Pluskota, A., Sokulska, I. (2020). *Zintegrowany Rejestr Kwalifikacji jako narzędzie wspierające rozwój edukacyjno-zawodowy*. IBE.
2. Bordzoł, P., Grabowska, A., Musialik, M., Welle, M., Kopeć-Panek, N. (2025). In: A. Grabowska (Ed.), *Opisywanie kwalifikacji wolnorynkowych, sektorowych i nadawanych po ukończeniu studiów podyplomowych. Poradnik.* Instytut Badań Edukacyjnych. Państwowy Instytut Badawczy. Retrieved from: https://ibe.edu.pl/files/BIBLIOTEKA/ZSK/Opisywanie-kwalifikacji-wolnorynkowych-sektorowych-i-nadawanych-po-ukonczeniu-studiow-podyplomowych.pdf, 07.02.2026.
3. Borysiak, W., Królikowski, M. (2016). In: M. Safjan, L. Bosek (Ed.), *Konstytucja RP. Tom I. Komentarz do art. 1-86, art. 70, nb. 20, wyd. 1.* Warszawa: C.H. Beck.
4. Brookfield, S.D. (1986). *Understanding and Facilitating Adult Learning: A Comprehensive Analysis of Principles and Effective Practices.* Milton Keynes: Open University Press.
5. Dąbrowska, E. (2025). Pozaformalne ścieżki dostosowywania kwalifikacji do potrzeb rynku pracy w Polsce w kontekście uwarunkowań Unii Europejskiej i regionu identyfikującego wysoki popyt na wykwalifikowanych robotników. *Zeszyty Naukowe Akademii Górnośląskiej, 27(3),* 23-34. https://doi.org/10.53259/2025.03.03
6. Góralska, R., Solarczyk-Szwec, H. (2012). O kompetencjach w kontekście Polskiej Ramy Kwalifikacji dla uczenia się przez całe życie. *Edukacja Dorosłych, 2*, 27-41.
7. Jakubowski, A. (2023). *Art. 162*. In: A. Jakubowski (Ed.), *Prawo o szkolnictwie wyższym i nauce. Komentarz* (wyd. 1, nb 2). C.H. Beck.
8. Juchnowicz, M. (2014). Sektorowe badania podaży i popytu na kwalifikacje i kompetencje. *Edukacja Ekonomistów i Menedżerów*, *32*(2), 11-20. https://doi.org/10.5604/01.3001.0009.4665
9. Knowles, M. (1980). *The Modern Practice of Adult Education: From Pedagogy to Andragogy* (2nd ed.). Englewood Cliffs: Prentice Hall.
10. Knowles, M., Holton, E.F. III, Swanson, R. (2009). *Edukacja dorosłych.* PWN.
11. Kolb, D.A. (2015). *Experiential Learning: Experience as the Source of Learning and Development (2nd ed.).* Pearson Education.
12. *Kwalifikacje wolnorynkowe.* Retrieved from: https://kwalifikacje.gov.pl/indywidualny/wiedza/kwalifikacje-wolnorynkowe/, 03.02.2026.
13. Orczyk, J. (2009). Wokół pojęć kwalifikacji i kompetencji. *Zarządzanie Zasobami Ludzkimi*, *3-4*, 19-32.
14. Tyrańska, M. (2021). *Wybrane zagadnienia zarządzania kompetencjami pracowników w organizacji.* C.H. Beck.

15. Ustawa z dnia 20 lipca 2018 r. – Prawo o szkolnictwie wyższym i nauce. Dz.U. z 2024 r. poz. 1571.
16. Ustawa z dnia 22 grudnia 2015 r. o Zintegrowanym Systemie Kwalifikacji. Dz.U. z 2020 r. poz. 226.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

PROFESSIONAL ENGAGEMENT OF WORKING STUDENTS IN THE CONTEXT OF QUITE QUITTING

Patrycja ZWIECH

University of Szczecin; patrycja.zwiech@usz.edu.pl, ORCID: 0000-0002-4053-8177

Purpose: The aim of this paper is to assess the phenomenon of quiet quitting (QQ) among working students and identify their level of professional engagement across three dimensions: detachment, lack of initiative, and lack of motivation. The study focuses on identifying the specific nature of this phenomenon in a group of young employees combining academic and professional responsibilities.
Design/methodology/approach: A mixed-methods approach was used, with the results of the quantitative section presented in this article. The standardized QQS scale (Galanis et al., 2023), comprising nine items across three dimensions, was used. The study was conducted on a sample of 93 working students aged 19-25, selected purposively. The analysis included descriptive statistics and an assessment of response distributions, including floor and ceiling effects. The study was conducted between January 20, 2025, and October 24, 2025, in Poland.
Findings: The obtained results indicate a low level of behavioral withdrawal and a lack of widespread avoidance behavior. At the same time, a moderate level of motivation and an average level of lack of initiative were observed. The greatest variability in responses concerned employee proactivity, suggesting the existence of significant individual differences in initiative-taking. The results confirm that QQ in the study group takes the form of limited engagement rather than overt counterproductive behavior.
Practical implications: Organizations should focus on strengthening employee initiative and motivation, rather than solely addressing undesirable behaviors. Activities that foster a sense of influence, fair management, and building an environment conducive to engagement are crucial.
Social implications: The results highlight the importance of work-life balance among young workers and indicate the need to adapt work models to changing generational expectations.
Originality/value: The study contributes to the development of knowledge on QQ by analysing a specific group of working students and applying a validated measurement tool in the Polish context.
Keywords: quiet quitting, employee engagement, working students, work motivation and initiative, Generation Z workforce.
Category of the paper: research paper.

1. Introduction

Recently, in the post-pandemic era, the phenomenon of Quite Quitting (QQ) has gained attention and prominence, becoming a significant topic of discussion. There has been a growing interest in this phenomenon, both in the scientific literature and on social media.

Quite Quitting is defined as employees' limited engagement in work and reluctance to take on additional or irrelevant tasks. Employees limit their efforts to the bare minimum. Several common behaviors are associated with Quite Quitting: lack of work engagement, emotional and psychological disengagement from work, minimal effort, prioritizing work-life balance, deliberately setting boundaries to preserve and prioritize personal and family life, and decreased trust in the organization, while not formally resigning (Formica, Sfodera, 2022; Srivastava et al., 2024; Pevec, 2024; Zwiech, 2024a, Patel et al., 2025).

However, QQ is not a new phenomenon. Rock and Dixit (2023) point out that QQ is a new name, a contemporary label, for a long-standing phenomenon. They argue that QQ reflects a long-standing trend in which employees withdraw from work, isolate themselves from colleagues, and adopt a passive attitude when they feel a lack of control over their roles. QQ behavior is simply a classic indicator of decreased motivation and engagement (Pevec, 2024). Thompson (2022) puts it this way: “What people are now calling “quiet quitting” was, in previous decades, simply known as “having a job”. This quote well illustrates the ongoing changes in terminology.

Bernuzzi et al. (2025), in turn, suggest that QQ is a new phenomenon that, despite some similarities to other constructs, is fundamentally different. This difference stems from the fact that it is simultaneously perceived as negative and positive. The negative aspects concern conditions that should be prevented and mitigated (from the organizational perspective), while the positive aspects concern adaptive strategies for coping with stress and burnout (from the employee's perspective). This duality highlights the need for a different approach to QQ and indicates that it should be treated as a new phenomenon.

The problem of declining work engagement, now called QQ, is therefore not new. In fact, it addresses long-standing issues in human resources management. The problem of declining engagement is fundamentally related to work ethic. It focuses on a key question: are employees fully engaged in their work, are they going beyond what is expected, or are they doing only the minimum to keep their jobs and get paid?

Particular interest in the topic of reduced work engagement emerged during the emergence of different expectations regarding work from Generation Z employees, coupled with emerging challenges in managing young employees, compounded by the pandemic and the rise of remote work. QQ's interest stems from the need for employers to adapt to the cultural shift in employee attitudes and professional expectations. A new generation discovers that it's difficult to balance

work with a well-lived life. Because they were raised in different circumstances than their predecessors, they are more self-focused and unwilling to sacrifice themselves.

Among young people, working students are particularly vulnerable to declining professional engagement and quiet quitting because they combine academic and professional demands, often with insufficient energy and social resources. In their case, QQ is influenced by, in addition to overload, burnout, and lack of support at work, also by work-study role conflict.

In this context, both the age of employees and their student status may play a role. Therefore, the aim of this study is to assess the phenomenon of quiet quitting (QQ) among working students and identify their level of professional engagement across three dimensions: detachment, lack of initiative, and lack of motivation. The study focuses on identifying the specific nature of this phenomenon in a group of young employees combining academic and professional responsibilities.

2. Literature Review

2.1. Work Engagement – the perspective of the employee and the employer

From an employee's perspective, QQ can be beneficial because it allows them to achieve higher well-being, allowing them to focus on the quality of their personal life, on opportunities for personal and social development outside the workplace, and on their own goals for self-fulfillment. In fact, QQ promotes a perspective that requires considering whether work should be the goal, the employee's highest priority, or merely a means to achieving goals related to personal life, health, family, friends, hobbies, travel, passions, self-fulfillment, etc. (Zwiech, 2024a). This phenomenon supports the need to establish clear boundaries between work and personal life. Furthermore, Bernuzzi et al. (2025) point out that well-being, burnout, and job satisfaction are key mediators in understanding QQ behavior.

From the company's perspective, QQ is perceived as a problematic phenomenon that companies must prevent. Currently, silent departures are considered one of the key challenges in human capital management. It is closely linked to a decline in employee professional engagement, which in turn translates into lower work performance (Zwiech, 2024a). Bakker and Demerouti (2017) argue that a lack of work engagement is associated with a gradual decline in organizational commitment, reflecting a disconnect from professional identity and long-term career goals. Employers view employee engagement as a lever for organizational performance, retention, and competitive advantage (Kunasz, 2025).

Zwiech (2024a) argues that silent departures are primarily the result of dissatisfaction with the workplace and wages, as well as the emergence of a new generation in the labor market, which has led to a shift in values. Employees perceive engagement as a function of their mental state, job resources, and workplace relationships. Unprofessional behavior by managers and a lack of concern for employees are key factors. Engagement is closely linked to interpersonal relationships with the immediate manager. An effective manager motivates team members, transforming them from indifferent to inspired. To better accomplish such tasks, they must be fair and treat their employees fairly and with care (Zwiech, 2024b).

Employers recognize the need to take on new tasks and efforts, which translates into new costs. They must build an organizational culture that encourages people to become more engaged. The second important change is the need to adapt recruitment criteria to those that take into account the values and expected personality traits of candidates. Combining these two aspects is crucial because those who hire seek employees with the right personality traits. And those who are hired based on character seek a culture that nurtures their identity.

QQ can also be viewed differently. The QQ phenomenon can also be beneficial for companies if it is treated as an adaptive strategy used by employees to cope with stress and burnout, which can reduce the costs of potential turnover and sick leave.

3. Methods

This study is part of a larger project, encompassing both surveys and in-depth interviews. A mixed-methods approach was used. The first stage was quantitative research, and the second was qualitative. This article describes the results of the quantitative research.

The study used the QQS scale, developed by Galanis et al. (2023). This tool assesses the level of work engagement. It is a questionnaire designed to assess the phenomenon of silent departure, understood as psychological withdrawal and the deliberate reduction of employee engagement to minimal contractual obligations within the organization. Research findings (Moisoglou et al., 2025; Galanis et al., 2025; Ventura-Silva et al., 2025) confirm the cross-cultural stability of the tool and its usefulness in various professional contexts.

The QQS has a stable three-factor structure. The scale consists of nine items grouped into three domains: detachment, lack of initiative, and lack of motivation. The first domain consists of four items, the second of three, and the third of two. The author translated nine items into Polish.

Table 1.
QQS scale by Galanis et al. (2023) - original version and translated into Polish

Item	QQS	
	English version	**Polish version**
DT_1	I do the basic or minimum amount of work without going above and beyond.	Wykonuję podstawową lub minimalną ilość pracy, nie wykraczając poza moje obowiązki
DT_2	If a colleague can do some of my work, then I let him/her do it.	Jeśli kolega może wykonać część mojej pracy, to pozwalam mu/jej to zrobić
DT_3	I take as many breaks as I can.	Robię jak najwięcej przerw, na ile pozwalają mi warunki.
DT_4	How often do you pretend to be working in order to avoid another task?	Jak często udajesz, że pracujesz, żeby uniknąć kolejnego zadania?
LI_1	I don't express opinions and ideas about my work because I am afraid that the manager assigns me more tasks.	Nie wyrażam opinii i pomysłów na temat mojej pracy, ponieważ obawiam się, że kierownik przydzieli mi więcej zadań.
LI_2	I don't express opinions and ideas about my work because I think that working conditions are not going to change.	Nie wyrażam opinii i pomysłów na temat mojej pracy, ponieważ uważam, że warunki pracy i tak się nie zmienią.
LI_3	How often do you take initiative at your work?	Jak często wykazujesz inicjatywę w pracy?
LM_1	I find motives in my job.	Odnajduję motywację w mojej pracy, czuję się zmotywowany.
LM_2	I feel inspired when I work.	Czuję się zainspirowany, kiedy pracuję.

Note: DT – Detachment; LI – Lack of initiative; LM – Lack of motivation.

Source: Galanis et al. (2023) and own translation.

Responses to statements DT_1, DT_2, DT_3, LI_1, LI_2, LM_1, and LM_2 are recorded on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), reflecting the degree of agreement. Questions DT_4 and LI_3 are scored on a five-point Likert scale, ranging from 1 (never) to 5 (always), reflecting the frequency of each statement. Additionally, items LI_3, LM_1, and LM_2 are reverse-scored.

A non-probabilistic, purposive sampling method was used. Inclusion criteria included: age (between 19 and 25 years), being a bachelor's or master's student, and declared employment at the time of completing the questionnaire.

The sample size was determined based on the recommendations of Hair et al. (2010), who suggest 5 to 10 participants per item. In accordance with generally accepted methodological standards (Hair et al., 2010), a proportion of 10 respondents per survey question was adopted, which ensures adequate statistical stability of the results. Therefore, for the nine-item QQS, a sample size of 90 participants would be sufficient.

Table 2.
Sociodemographic characteristics of working students sample (N = 93)

Variable	
Gender:	n (%)
Females	61 (65.6%)
Males	32 (34.4%)
Level:	n (%)
Bechelor's degree	53 (57%)
Master's degree	40 (43%)

Source: own study based on conducted surveys.

The author collected a total of 137 questionnaires, but after applying the inclusion criteria, 93 remained. The survey was conducted between January 20, 2025, and October 24, 2025, in Poland.

4. Results

The results of the descriptive analysis of the items included in the QQS questionnaire, covering three dimensions of employee functioning: detachment (DT), lack of initiative (LI) and lack of motivation (LM), are presented below. The analysis focuses on measures of central tendency, response differentiation, and the identification of floor and ceiling effects, which are important indicators of the tool's psychometric properties.

Table 3.
Statistical measures for the working students sample (N = 93)

	DT_1	DT_2	DT_3	DT_4	LI_1	LI_2	LI_3	LM_1	LM_2
mean	2.09	2.80	2.04	1.48	2.27	2.58	2.48	2.60	2.66
SD	1.01	1.17	1.06	0.67	1.15	1.11	0.88	0.94	0.93
median	2	3	2	1	2	3	3	3	3
mode	1	2	1	1	1	3	3	2	3
min	1	1	1	1	1	1	1	1	1
max	5	5	5	4	5	5	4	5	5
floor effect	34.4%	10.8%	37.6%	60.2%	31.2%	19.4%	0.0%	1.1%	1.1%
ceiling effect	2.2%	14.0%	3.2%	0.0%	6.5%	6.5%	16.1%	11.8%	12.9%

Note: Items LI_3, LM_1 and LM_2 are scored inversely.

Source: own study based on conducted surveys.

Descriptive indicators for items DT_1 – DT_4 indicate a generally low level of self-reported avoidance behavior. Mean values range from 1.48 to 2.80, with medians primarily equal to 1 or 2. Response distributions are clearly asymmetric, with scores concentrated at the lower end of the scale. A particularly significant result is the very high floor effect, which for item DT_4 (“pretending to work”) reaches 60.2%, and for DT_1 and DT_3 exceeds 30%. This indicates that a significant proportion of respondents choose the lowest possible response category, suggesting a marginal occurrence of the analyzed behaviors in the sample. In this context, item DT_2 (M = 2.80; SD = 1.17) stands out, with a higher mean and greater variability in responses. This may indicate that delegating or transferring some responsibilities to coworkers is a more diverse behavior and potentially dependent on the organizational context. Taken together, the results for the DT statements suggest a low level of self-reported behavioral withdrawal and a lack of systematic occurrence of self-reported counterproductive behaviors.

In contrast to the DT scale, scores for items LI_1-LI_3 are moderate (M = 2.27-2.58), with medians ranging around 2-3. Response distributions are more balanced, with no clear dominance of any one category. Floor effects are relatively low, and for item LI_3 (“taking

initiative"), they are nonexistent. At the same time, the highest ceiling effect (16.1%) was observed for this item, indicating significant variation in proactivity within the study population. Items LI_1 and LI_2 reveal significant mechanisms limiting the expression of initiative, such as fear of increased workload and the belief that one has no influence on working conditions. This indicates the presence of cognitive and organizational barriers that may suppress employee activity despite the lack of overt avoidance behavior.

The results for items LM_1 and LM_2 indicate a moderate level of motivation (M = 2.60 and 2.66). Medians of 3 and a very low floor effect (approximately 1%) indicate that lack of motivation is a marginal phenomenon in the study sample. At the same time, moderate ceiling effects (11.8-12.9%) indicate that some respondents report high levels of engagement and inspiration at work, but this is not a dominant trend. The distribution of responses is relatively symmetrical, which distinguishes this scale from the clearly skewed distributions within DT.

The combination of the three analyzed dimensions allows us to capture a diverse picture of the functioning of working students from the study population. Low levels of behavioral withdrawal (DT) coexist with moderate levels of motivation (LM) and average levels of lack of initiative (LI). This configuration of results suggests that the young working students studied perform their professional duties appropriately and in line with expectations, but do not demonstrate high levels of proactivity or above-average engagement. The LI dimension seems particularly important, as it differentiates the study participants to the greatest extent and may constitute a key area for organizational intervention.

From a practical perspective, this means that the key challenge is not to reduce undesirable behaviors, but to strengthen proactivity and create conditions that encourage greater employee participation in shaping the work environment.

5. Conclusions

The study provides important conclusions regarding the nature of the quiet quitting phenomenon among young working students. The results indicate that the analyzed group does not exhibit increased avoidance behaviors or clear tendencies toward behavioral withdrawal. At the same time, levels of motivation and initiative remain moderate, suggesting that employees function at a level that meets basic professional requirements without significantly exceeding organizational expectations. A key finding is the identification of lack of initiative as the most diverse and potentially problematic dimension. This indicates that the main challenge for organizations is not eliminating counterproductive behaviors, but rather creating conditions that foster greater proactivity and cognitive engagement among employees. Organizational factors such as management style, work climate, and opportunities to influence the professional environment are particularly important in this context. The results should also

be interpreted in the broader context of generational changes and the growing importance of work-life balance. For young employees, work is increasingly a means to achieving life goals rather than their primary element, redefining the traditional approach to professional engagement. In summary, quiet quitting in the studied group does not take the form of overt withdrawal but rather manifests itself as limited engagement. This means that the emphasis must shift from control to developing a work environment that will foster employee activity, motivation and long-term engagement.

In terms of the study's limitations, it should be noted that the analyses conducted are based on declarative data, which is associated with the typical limitations of this methodology. In particular, the risk of bias resulting from the tendency to provide socially desirable responses should be considered, which can lead to overestimating positive ratings and underestimating undesirable behaviors. Consequently, the obtained results may not fully reflect the actual levels of the studied constructs. An additional limitation is the contextual nature of the analyzed phenomena. The specificity of work, organizational conditions, and factors determining employee engagement vary depending on the country and organizational culture. Therefore, the possibility of direct generalization of the results to other cultural contexts remains limited and requires caution in interpretation, especially in the case of organizations operating in an international environment.

Future research should expand analyses to include comparisons between groups of employees with diverse characteristics, particularly those combining work with education and those who are not students. This approach will enable a better understanding of differences in levels of engagement and motivation depending on the stage of professional life. Another important direction for further research is the development of longitudinal projects that will allow for capturing the dynamics of engagement over time and identifying cause-and-effect relationships, including the effectiveness of implemented organizational interventions. The current state of research in this area remains limited. The factors contributing to and barriers to engagement in remote and hybrid work settings are also insufficiently understood. In the context of ongoing digital transformation, issues related to technostress, the use of digital tools, and the growing role of artificial intelligence in the workplace are gaining particular importance. Furthermore, existing research has focused primarily on the employee perspective. Relatively little attention has been paid to employer engagement and their role in shaping a work environment conducive to professional activity. In particular, it seems justified to deepen analyses in relation to diverse and vulnerable segments of the workforce, where engagement mechanisms may differ.

Acknowledgements

I would like to thank all participants in this study.

References

1. Bakker, A.B., Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology. 22(3),* pp. 273-285, doi: https://doi.org/10.1037/ocp0000056
2. Bernuzzi, Ch., Paganin, G., Petrilli, S., Margheritti, S. (2025). Old trends in new clothing? Exploring the quiet quitting phenomenon through a scoping review. *Current Psychology, 44,* pp. 10990-11010, doi: 10.1007/s12144-025-07920-x
3. Formica, S., Sfodera, F. (2022). The great resignation and quiet quitting paradigm shifts: An overview of current situation and future research directions. *Journal of Hospitality Marketing & Management*, *31(8)*, pp. 899-907, doi: 10.1080/19368623.2022.2136601
4. Galanis, P., Katsiroumpa, A., Vraka, I., Siskou, O., Konstantakopoulou, O., Moisoglou, I., Gallos, P., Kaitelidou, D. (2023). The Quiet Quitting Scale: Development and Initial Validation. *AIMS Public Health, 10(4),* pp. 828-848, doi:10.3934/publichealth.2023055
5. Galanis, P., Moisoglou, I., Katsiroumpa, A., Gallos, P., Kalogeropoulou, M., Meimeti, E., Vraka, I. (2025). Workload Increases Nurses' Quiet Quitting. Turnover Intention, and Job Burnout: Evidence from Greece. *AIMS Public Health, 12*, pp. 44-55, doi: 10.3934/publichealth.2025004
6. Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. (2010). *Multivariate Data Analysis. Seventh edition.* Pearson Prentice Hall. Retrieved from: https://www.drnishikantjha.com/papersCollection/Multivariate%20Data%20Analysis.pdf, 30.10.2025.
7. Kunasz, M. (2025). Employee Personality Characteristics vs. Job Satisfaction and Commitment – An Empirical Analysis. *European Research Studies Journal, 28(3),* pp. 1218-1230, doi: 10.35808/ersj/4221
8. Moisoglou, I., Katsiroumpa, A., Katsapi, A., Konstantakopoulou, O., Galanis, P. (2025). Poor Nurses' Work Environment Increases Quiet Quitting and Reduces Work Engagement: A Cross-Sectional Study in Greece. *Nursing Repprts, 15(1), 19*, doi: 10.3390/nursrep15010019
9. 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*, doi: 10.1371/journal.pone.0317624

10. Pevec, N. (2024). The concept of identifying factors of quiet quitting in organizations: An integrative literature review. *Izzivi Prihodnosti*, *8(2)*, pp. 128-147, doi:10.37886/ip.2023.006
11. Rock, D., Dixit, J. (2023). Are Our Brains Wired to Quiet Quit? *Harvard Business Review, January 3, 2023*. Retrieved from: https://hbr.org/2023/01/are-our-brains-wired-to-quiet-quit, 03.02.2026
12. Srivastava, S., Saxena, A., Kapoor, V., Qadir, A. (2024). Sailing through silence: Exploring how negative gossip leaves breeding grounds for quiet quitting in the workplace. *International Journal of Conflict Management, 35(4),* pp. 733-755, doi: 10.1108/IJCMA-07-2023-0139
13. Thompson, D. (2022). Quiet Quitting Is a Fake Trend. *The Atlantic*, *16.09.2022*. Retrieved from: https://www.theatlantic.com/newsletters/archive/2022/09/quiet-quitting-trend-employee-disengagement/671436/, 15.01.2026.
14. Ventura-Silva, J.M.A., Ribeiro, M.P., Barros, S.C.d.C., Castro, S.F.M.d., Sanches, D.M.M., Trindade, L.d.L., Teles, P.J.F.C., Zuge, S.S., Ribeiro, O.M.P.L. (2025). Quiet Quitting Scale: Adaptation and Validation for the Portuguese Nursing Context. *Nursing Reports*, *15(12)*, p. 411, doi: 10.3390/nursrep15120411
15. Zwiech, P. (2024a). Wpływ sprawiedliwości interpersonalnej na ciche odejścia w ocenie menedżerów. *Zeszyty Naukowe Akademii Górnośląskiej, 10(22),* pp. 116-124, doi: 10.53259/2024.10.11
16. Zwiech, P. (2024b). The impact of perception of organizational justice on employee attitude and behaviour. *Scientific Papers Of Silesian University Of Technology, Organization And Management Series, 199*, pp. 671-680, doi: 10.29119/1641-3466.2024.199.50

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

QUIET QUITTING AS A MULTILEVEL ADAPTIVE WITHDRAWAL PROCESS: AN INTEGRATED CONCEPTUAL MODEL

Patrycja ZWIECH

University of Szczecin; patrycja.zwiech@usz.edu.pl, ORCID: 0000-0002-4053-8177

Purpose: The aim of this paper is to develop an integrated multilevel conceptual model explaining Quiet Quitting by synthesizing seven theoretical clusters and identifying the mechanisms through which structural, organizational, psychological, relational, and social factors contribute to employee withdrawal.
Design/methodology/approach: This conceptual paper applies a theory synthesis and meta-integrative approach to integrate insights from organizational behaviour, human resource management, and employee withdrawal literature. Seven theoretical clusters are synthesized into a unified multilevel explanatory framework.
Findings: The study proposes an integrated model suggesting that Quiet Quitting emerges through the interaction of structural antecedents, organizational relationships, psychological mechanisms, social dynamics, and withdrawal trajectories. The model conceptualizes Quiet Quitting as a multilevel adaptive withdrawal process rather than a simple motivational deficit.
Practical implications: The model highlights the importance of addressing workload, organizational fairness, leadership quality, autonomy, resource availability, and psychological safety as key factors influencing Quiet Quitting.
Social implications: The study contributes to understanding how contemporary work environments influence employee well-being, work–life boundaries, and sustainable employment relationships.
Originality/value: The paper integrates seven theoretical perspectives into a coherent multilevel framework and proposes a novel conceptualization of Quiet Quitting as an adaptive withdrawal process.
Keywords: quiet quitting, Integrated Conceptual Model Explaining Quiet Quitting.
Category of the paper: conceptual paper.

1. Introduction

Quiet Quitting (QQ) has recently become one of the most widely discussed phenomena in contemporary organizational behaviour and human resource management. The concept gained substantial public attention through professional networks and social media discussions; however, the underlying phenomenon reflects long-established patterns of employee psychological withdrawal, reduced discretionary effort, and declining attachment to work. Unlike traditional withdrawal behaviours, such as absenteeism or voluntary turnover, Quiet Quitting describes a situation in which employees continue to perform their formally required duties while intentionally limiting additional contributions that exceed contractual expectations (Formica, Sfodera, 2022; Galanis et al., 2023; Patel et al., 2025; Bernuzzi et al., 2025). Therefore, QQ represents a specific form of adaptive withdrawal located between full engagement and more advanced forms of organizational disengagement.

The increasing interest in QQ reflects broader transformations affecting contemporary workplaces, including work intensification, expectations of permanent availability, blurred work–life boundaries, growing emotional demands, and changing employee expectations regarding fairness, autonomy, recognition, and organizational support. Contemporary employees increasingly evaluate not only economic rewards but also the quality of organizational relationships, leadership practices, opportunities for development, psychological safety, and alignment between personal and organizational values. When these expectations are persistently unmet, employees may reduce discretionary involvement as a strategy of resource protection, boundary regulation, and adaptation to unfavourable organizational conditions.

Despite growing academic interest, Quiet Quitting remains a theoretically underdeveloped and fragmented construct. Existing explanations frequently analyse QQ through individual theoretical perspectives, emphasizing selected mechanisms such as burnout, reduced motivation, organizational injustice, psychological contract violation, work alienation, or employee resistance. Although these approaches provide important insights, they generally explain only particular aspects of the phenomenon and do not sufficiently capture how multiple mechanisms interact across different levels of analysis. In particular, existing research lacks an integrative explanation of how structural conditions, organizational relationships, psychological processes, social dynamics, and withdrawal trajectories jointly contribute to the emergence and development of QQ.

Although QQ shares theoretical foundations with established concepts such as organizational withdrawal, employee disengagement, psychological withdrawal, reduced organizational citizenship behaviour, and turnover processes (Berry et al., 2012; Lowery et al., 2021; Patel et al., 2025), it cannot be fully explained by any single existing framework. The distinctive feature of QQ lies in the simultaneous preservation of formal role performance and reduction of discretionary effort. Thus, QQ should not be treated as an entirely new behavioural phenomenon, but rather as a contemporary manifestation of multiple established withdrawal mechanisms converging within modern work environments.

Despite the growing body of literature on QQ, existing studies remain fragmented and largely theory-specific. To the best of the author's knowledge, no previous study has proposed an integrated multilevel conceptual model that systematically synthesizes the major theoretical explanations of Quiet Quitting within a single explanatory framework. Consequently, there remains a need for a model that explains how structural, organizational, social, and psychological mechanisms interact to produce Quiet Quitting behaviours.

Previous research demonstrates that employee withdrawal develops through cumulative interactions between individual experiences and organizational conditions rather than through a single causal factor. Accordingly, QQ may emerge from the accumulation of excessive job demands, insufficient resources, unmet psychological needs, weakened reciprocity, perceived injustice, negative cognitive and emotional evaluations, social normalization of withdrawal behaviours, progressive disengagement processes, and structural conditions associated with power asymmetry and unsustainable work cultures. These mechanisms operate simultaneously at micro-, meso-, and macro-organizational levels, creating a need for a multilevel theoretical framework capable of explaining their interrelationships.

To address this research gap, this paper develops an Integrated Multilevel Conceptual Model of Quiet Quitting by synthesizing seven theoretical clusters identified by Zwiech (2026). The proposed model explains QQ as a multilevel adaptive withdrawal process emerging from the interaction between structural conditions, organizational relationships, psychological mechanisms, social processes, and behavioural withdrawal trajectories. Rather than conceptualizing QQ as an individual motivational deficit or employee attitude problem, the model positions QQ as a dynamic organizational phenomenon resulting from the interaction between employees and their work environments.

The article makes several theoretical contributions. First, it integrates previously fragmented explanations of QQ into a coherent multilevel conceptual framework combining structural, organizational, relational, psychological, social, and behavioural perspectives. Second, it explains the mechanisms through which external organizational conditions are transformed into individual withdrawal behaviours by identifying psychological and social processes as critical explanatory pathways. Third, it advances the understanding of QQ by conceptualizing it as an adaptive form of withdrawal that may simultaneously represent resource protection, boundary regulation, and resistance to unsustainable organizational

expectations. Finally, the model provides theoretically derived propositions that establish an agenda for future empirical research.

The remainder of the article is structured as follows. First, the seven theoretical clusters (Zwiech, 2026) underlying the proposed framework are presented. Second, these clusters are integrated into a multilevel conceptual model explaining the emergence and development of QQ. Third, theoretical propositions and directions for future empirical validation are formulated. Finally, the theoretical contributions, practical implications, limitations, and future research directions are discussed.

2. Theoretical Foundations of Quiet Quitting: Seven Conceptual Clusters

The proposed conceptual model of QQ is based on the assumption that this phenomenon is a multidimensional process of psychological, behavioral, emotional, and relational withdrawal resulting from the interaction of individual, organizational, and structural factors. The seven theoretical clusters proposed by Zwiech (2026) represent various mechanisms leading to the reduction of discretionary effort while maintaining the formal fulfillment of professional responsibilities.

Zwiech (2026) identified the following seven clusters:

1. The Needs–Resources–Requirements Cluster (Cluster 1).
2. The Social Exchange, Reciprocity, and Fairness Cluster (Cluster 2).
3. The Motivation and Self-Regulation Cluster (Cluster 3).
4. The Cognitive Appraisal and Interpretation Cluster (Cluster 4).
5. The Social and Relational Transmission Cluster (Cluster 5).
6. The Withdrawal Process and Trajectory Cluster (Cluster 6)
7. The Structural and Anti-Work Cluster (Cluster 7).

The first cluster focuses on the relationship between job demands, available resources, and the ability to meet an employee's basic needs. QQ emerges when chronic workload, emotional pressure, and excessive demands exceed available organizational and personal resources, which is consistent with the JD-R and COR perspectives on demand-resource imbalance and resource depletion (Demerouti et al., 2001; Bakker, Demerouti, 2017; Hobfoll, 2011; Galanis et al., 2025; Georgiadou et al., 2025; Yang, Lin, 2024). Employees limit extra-role involvement as a mechanism for protecting their mental, emotional, and cognitive energy. In this cluster, QQ is interpreted as a strategy for preserving resources and adapting to a long-term imbalance between individual demands and capabilities. This mechanism involves resource depletion, frustration of unmet developmental and relational needs, and limiting the investment of additional effort when regeneration is impossible.

The second cluster addresses the quality of the relationship between the employee and the organization. QQ develops when employees experience a violation of reciprocity, unmet expectations, a lack of fairness, or a mismatch between individual and organizational values (Rousseau, 1995; Adams, 1963, 1965; Greenberg, 1987; Kristof, 1996; Kristof-Brown et al., 2023; Gray et al., 2025; Patel et al., 2025; Zwiech, 2024a, 2024b). In this approach, employees constantly evaluate the exchange relationship: their level of contribution in relation to the benefits, support, recognition, and treatment they receive. If the relationship is perceived as unfair or unbalanced, employees reduce additional effort as a means of restoring balance. QQ is therefore a reaction to the disruption of the psychological contract, weakening of trust and the feeling that the organization does not reciprocate the employee's commitment.

The third cluster explains QQ through motivational processes and individual behavioral regulation. Employees reduce their engagement when they no longer perceive the importance, value, or profitability of additional effort. QQ here results from a decline in intrinsic motivation, frustration of the needs for autonomy, competence, and relatedness, and a rational assessment of the costs and benefits associated with further investment in work (Deci, Ryan, 2000; Deci et al., 2017; Sop, 2025; Patel et al., 2025; Bordoloi et al., 2025). Employees self-regulate by shifting from behaviors that exceed formal requirements to minimal performance. This cluster emphasizes that QQ does not mean complete inaction, but rather a conscious reduction of investment to a level justified by a formal contract.

The fourth cluster indicates that QQ depends not only on objective working conditions but also on the employee's interpretation of them. The same organizational conditions can lead to different reactions depending on the individual's assessment of the situation. The QQ process begins with the cognitive interpretation of work events as unfair, threatening, excessively burdensome, or uncontrollable, which is consistent with cognitive appraisal theory, affective events theory, and attribution-based explanations of workplace responses (Lazarus, 1966, 1991a, 1991b, 1991c; Weiss, Cropanzano, 1996; Muschetto, Siegel, 2021; Alvina et al., 2026; Henry et al., 2025). These interpretations generate emotions such as frustration, disappointment, cynicism, or a sense of powerlessness, which then translate into withdrawal behavior. In the model, this cluster serves as a mediating mechanism between organizational experiences and employee behavior.

The fifth cluster views QQ as a social phenomenon that can spread across teams and organizations. The withdrawal of one employee can influence others through behavioral observation, emotional exchange, and the creation of new group norms, which reflects crossover and social contagion mechanisms in organizational networks (Cowan et al., 2011; Zagenczyk et al., 2020; Yu, Jiao, 2026; Patel et al., 2025). In environments characterized by high levels of stress, burnout, toxic leadership, or low trust, QQ can become socially accepted and reinforced behavior. This cluster demonstrates that QQ is not solely an individual employee decision but can be a process of collective adaptation to organizational conditions.

The sixth cluster views QQ as a stage in a broader process of employee withdrawal from the organization. QQ is not a sudden event but often occurs as an intermediate phase between full engagement and more advanced forms of withdrawal, such as neglect, absenteeism, turnover intentions, or organizational exit (Hirschman, 1970; Farrell, 1983; Turnley, Feldman, 1999; Berry et al., 2012; Kunasz, 2024; Othman et al., 2025). In this perspective, QQ can function as a transitional state or a stable level of limited engagement. The direction of further development depends on the organization's response: improving working conditions can halt the process, while a lack of change can lead to deepening distance and turnover.

Finally, the seventh cluster shifts the analysis of QQ to a structural level, suggesting that the phenomenon may stem from broader organizational inequalities, power asymmetries, and work cultures based on overexploitation. In this framework, QQ can be understood as a form of passive resistance, boundary-setting, or autonomy-restoring behaviour in response to toxic leadership, cultures of constant availability, and unrealistic organizational expectations (Ashforth, 1994; de Hoogh, Den Hartog, 2008; Gandini, 2019; Sinclair et al., 2025; Thakur, Srivastava, 2025; Walker, 2026). This cluster emphasizes that the sources of QQ do not always lie within the individual but can stem from systemic organizational problems.

3. Conceptual Definition of Quiet Quitting

Building on theoretical perspectives emphasizing resource depletion, psychological contract violation, reduced discretionary effort, cognitive-emotional appraisal, social transmission, and withdrawal progression (Demerouti et al., 2001; Hobfoll, 2011; Rousseau, 1995; Weiss, Cropanzano, 1996; Patel et al., 2025; Berry et al., 2012; Zwiech, 2026), the author defined Quiet Quitting as a **multilevel adaptive withdrawal process characterized by the intentional regulation of discretionary effort while maintaining formal organizational role performance**. This definition emphasizes the adaptive, processual, and multilevel nature of QQ and distinguishes it from related constructs such as disengagement, absenteeism, or turnover.

4. An Integrated Multilevel Conceptual Model of Quiet Quitting

The seven theoretical clusters identified by Zwiech (2026) collectively suggest that Quiet Quitting (QQ) should not be understood as a single-dimensional phenomenon, but rather as a multilevel, dynamic, and processual form of employee withdrawal emerging from the interaction of structural, organizational, relational, cognitive-emotional, motivational, and behavioural mechanisms.

The proposed meta-integrative framework assumes that QQ develops through interconnected causal layers operating across micro-, meso-, and macro-organizational levels. Each theoretical cluster captures a different analytical dimension of the same withdrawal process, and together they form a coherent explanatory architecture.

Table 1.
Integrated Multilevel Model of Quiet Quitting: Antecedents, Psychological Mechanisms, and Withdrawal Outcomes– author's proposal

Level of Analysis	**Theoretical Cluster**	**Core Mechanism**	**Mechanism of QQ Formation**	**Main Form of Withdrawal**	**Main Theories**
Level 1 – Structural and organizational antecedents					
Macro-organizational level	Structural and Anti-Work Cluster (Cluster 7)	Structural inequality, exploitation, toxic power relations	Employees perceive work as exploitative, coercive, psychologically unsafe, or morally unacceptable	Resistance-oriented withdrawal; boundary-setting; refusal of discretionary labour	Conflict Theory, Critical Theory, Anti-Work Theory, Despotic/Toxic Leadership Models
Meso-organizational level	Social Exchange, Reciprocity, and Fairness Cluster (Cluster 2)	Relational imbalance and reciprocity failure	Employees perceive psychological contract breach, unfairness, inequity, or value misfit	Reduction of effort to restore relational balance	PCT, SET, Equity Theory, Organizational Justice, P–O Fit
Meso-organizational level	Social and Relational Transmission Cluster (Cluster 5)	Social contagion and normalization of withdrawal	Withdrawal spreads through teams via emotional contagion, burnout crossover, and observational learning	Collective disengagement and normalization of minimal effort	Crossover Theory, Social Contagion Framework

Cont. table 1.

Level 2 – Psychological mechanisms					
Micro-psychological level	Needs–Resources–Requirements Cluster (Cluster 1)	Resource depletion and unmet psychological needs	Chronic demands exceed available resources and coping capacity	Defensive conservation of psychological and emotional resources	JD-R, COR, ERG
Micro-psychological level	Motivation and Self-Regulation Cluster (Cluster 3)	Motivational decline and behavioural self-regulation	Employees no longer perceive sufficient motivational, emotional, or instrumental benefits from extra-role effort	Strategic reduction of discretionary engagement	SDT, RCT, OCB–Withdrawal Continuum, SOR
Micro-psychological level	Cognitive Appraisal and Interpretation Cluster (Cluster 4)	Cognitive-emotional interpretation of work experiences	Employees interpret workplace conditions as threatening, unfair, uncontrollable, or emotionally harmful	Emotional withdrawal and cognitive disengagement	AT, AET, CAT
Level 3 – Withdrawal process and outcomes					
Behavioural-process level	Withdrawal Process and Trajectory Cluster (Cluster 6)	Progressive withdrawal trajectory	QQ develops as an intermediate stage between engagement and organizational exit	Stabilized passive withdrawal that may escalate into turnover	WPT, EVLN
Quiet Quitting					
Integrative Outcome	Quiet Quitting (QQ)	Multilevel adaptive withdrawal process	Interaction of structural, relational, motivational, emotional, cognitive, and social mechanisms	Reduced discretionary effort while maintaining formal role performance	Integrative conceptual model proposed by the author

Source: own study.

At the macro level, the Structural and Anti-Work Cluster identifies systemic organizational conditions such as exploitative work cultures, excessive performance pressure, toxic managerial ideologies, power asymmetries, and broader socio-economic transformations that create chronic strain and normalize overwork (Ashforth, 1994; Gandini, 2019; Sinclair et al., 2025; Thakur, Srivastava, 2025; Walker, 2026). These structural conditions form the environmental background within which QQ emerges. Toxic and despotic leadership additionally translate structural pressures into everyday organizational practices, reinforcing emotional exhaustion, weakened psychological safety, and perceptions of organizational injustice.

At the meso-organizational level, the Social Exchange, Reciprocity, and Fairness Cluster explains how employees evaluate the quality of their relationship with the organization. Psychological contract breaches, inequity, organizational injustice, weakened reciprocity, and person–organization misfit undermine trust and relational balance (Rousseau, 1995; Adams, 1963, 1965; Greenberg, 1987; Kristof-Brown et al., 2023; Gray et al., 2025). Simultaneously, the Social and Relational Transmission Cluster demonstrates that withdrawal is socially amplified through group norms, emotional contagion, burnout crossover, and observational learning. Consequently, QQ evolves not only as an individual reaction but also as a socially normalized collective adaptation within teams and organizational networks.

At the micro-psychological level, the Needs–Resources–Requirements Cluster and the Motivation and Self-Regulation Cluster explain the depletion of motivational and psychological capacities underlying QQ. Chronic demands, insufficient resources, unmet psychological needs, and unfavourable cost–benefit evaluations gradually reduce employees' willingness to invest discretionary effort (Demerouti et al., 2001; Hobfoll, 2011; Deci, Ryan, 2000; Deci et al., 2017; Sop, 2025). Employees strategically conserve energy, restore work–life boundaries, and minimize involvement when continued engagement no longer appears psychologically sustainable or personally rewarding.

The Cognitive Appraisal and Interpretation Cluster functions as the central psychological processing mechanism linking organizational conditions with behavioural outcomes. Employees cognitively interpret workplace experiences through attribution, appraisal, and emotional evaluation processes (Lazarus, 1966, 1991a, 1991b, 1991c; Weiss, Cropanzano, 1996; Muschetto, Siegel, 2021). Organizational injustice, toxic leadership, overload, or relational deterioration become psychologically consequential only after being interpreted as threatening, unfair, uncontrollable, or emotionally harmful. These appraisals generate emotional exhaustion, frustration, cynicism, and disengagement, which subsequently activate withdrawal behaviours.

Finally, the Withdrawal Process and Trajectory Cluster explains the temporal dynamics of QQ. QQ is conceptualized not as an isolated act, but as an intermediate stage within a broader withdrawal trajectory. Employees typically move progressively from emotional detachment and reduced discretionary effort toward stronger forms of withdrawal, such as neglect, absenteeism, turnover intentions, and organizational exit (Hirschman, 1970; Farrell, 1983; Turnley, Feldman, 1999; Berry et al., 2012). QQ therefore represents a relatively stable but transitional withdrawal state that may either persist or escalate depending on organizational responses and contextual conditions.

Taken together, the seven clusters form an integrated causal sequence:

1. Structural and organizational conditions generate chronic strain and relational imbalance.
2. Employees cognitively and emotionally interpret these conditions.
3. Psychological needs, resources, and motivational capacities deteriorate.
4. Withdrawal behaviours become socially reinforced and normalized.
5. QQ emerges as an adaptive, self-protective, and partially resistant form of reduced discretionary engagement.
6. Prolonged QQ may escalate into deeper withdrawal and eventual exit.

The integrative model therefore conceptualizes QQ as:

- simultaneously psychological, relational, social, behavioural, and structural,
- both adaptive and resistant in character,
- dynamic rather than static,
- embedded within broader organizational systems and power relations.

Importantly, the model suggests that no single theory sufficiently explains QQ independently. Instead, QQ emerges from the interaction between organizational structures, social environments, cognitive-emotional interpretations, motivational regulation, and progressive withdrawal mechanisms.

The proposed framework contributes to the literature in three major ways. First, it integrates previously fragmented theoretical explanations into a coherent multilevel structure. Second, it suggests how classical organizational theories converge around common withdrawal mechanisms despite originating from different disciplinary traditions. Third, it positions QQ as a systemic organizational phenomenon rather than merely an individual attitudinal problem or generational trend.

Conceptually, the model suggests that QQ should be understood as a multidimensional adaptive withdrawal phenomenon reflecting employees' attempts to preserve psychological resources, restore autonomy and reciprocity, protect well-being, and resist organizational conditions perceived as chronically unsustainable, unfair, or psychologically harmful.

Figure 1 presents the proposed conceptual model developed by the author.

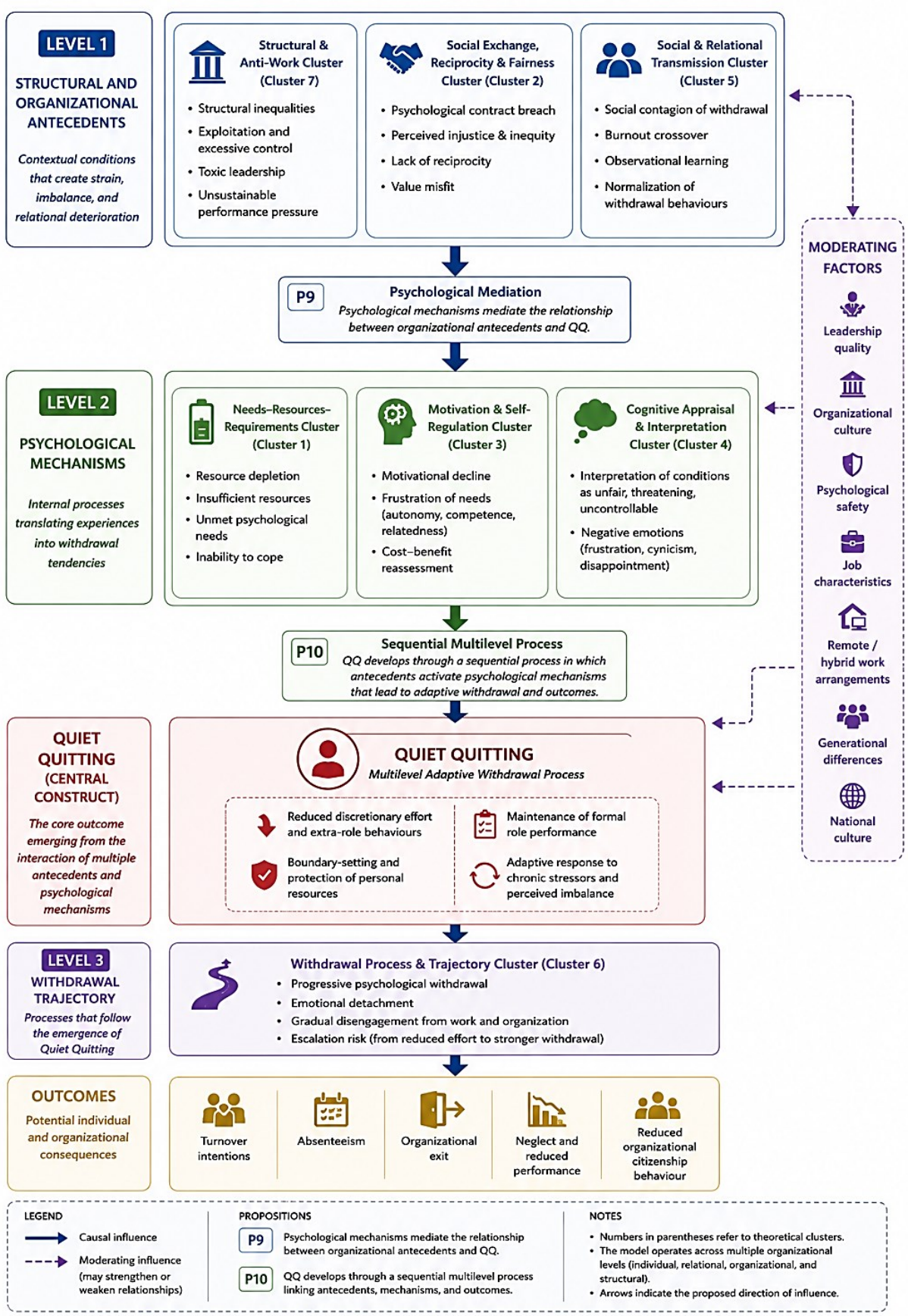


Figure 1. An Integrated Conceptual Model Explaining Quiet Quitting – author's proposal.

Source: own study using AI for visualization.

5. Theoretical Propositions and Directions for Future Empirical Research

The proposed Integrated Conceptual Model Explaining Quiet Quitting provides a theoretical framework for understanding QQ as a multilevel and dynamic withdrawal process. Although the model integrates insights from various theoretical perspectives, its conceptual assumptions require empirical validation. Based on the relationships identified among the seven theoretical clusters, several research propositions are formulated to guide future empirical investigations.

The first proposition concerns the relationship between job demands, available resources, and employees' psychological capacity to maintain discretionary effort. This proposition is grounded in JD-R and COR perspectives, which link excessive job demands, insufficient resources, and resource loss to burnout, disengagement, and withdrawal (Demerouti et al., 2001; Bakker, Demerouti, 2017; Hobfoll, 2011; Galanis et al., 2025). The Needs–Resources–Requirements Cluster suggests that QQ emerges when employees experience a persistent imbalance between work-related demands and available personal or organizational resources. Chronic workload, emotional demands, insufficient recovery opportunities, and limited organizational support may gradually reduce employees' willingness to invest additional effort beyond formal job requirements. In this perspective, reducing discretionary involvement represents a resource conservation strategy aimed at protecting psychological and emotional energy. Therefore:

Proposition 1. Higher levels of job demands combined with insufficient personal and organizational resources increase the likelihood of Quiet Quitting.

The second proposition refers to the role of reciprocity, fairness, and the quality of the employee–organization relationship. According to Social Exchange Theory, employees evaluate their relationship with organizations through perceived balance between contributions and received outcomes. When employees perceive psychological contract breach, organizational injustice, lack of recognition, or insufficient reciprocity, they may intentionally reduce extra-role behaviours in order to restore perceived balance (Rousseau, 1995; Adams 1963, 1965; Greenberg, 1987; Gray et al., 2025; Patel et al., 2025). QQ can therefore be interpreted as a behavioural response to a deteriorating exchange relationship rather than merely as a decline in employee motivation. Thus:

Proposition 2. Perceived organizational injustice, psychological contract breach, and reduced reciprocity positively influence employees' tendency to engage in Quiet Quitting.

The third proposition focuses on motivational processes underlying QQ. The Motivation and Self-Regulation Cluster indicates that employees continuously evaluate whether additional effort is meaningful, valuable, and personally beneficial. When work no longer satisfies fundamental psychological needs, including autonomy, competence, and relatedness, employees may reduce their investment in discretionary activities (Deci, Ryan, 2000; Deci

et al., 2017; Sop, 2025). QQ represents a form of behavioural self-regulation through which employees adjust their effort to the minimum level required by their formal role. Accordingly:

Proposition 3. Declining intrinsic motivation and frustration of psychological needs increase the transition from high work engagement to Quiet Quitting.

The fourth proposition addresses the mediating role of cognitive and emotional interpretation processes (Lazarus, 1966, 1991a, 1991b, 1991c; Weiss, Cropanzano, 1996; Muschetto, Siegel, 2021). The Cognitive Appraisal and Interpretation Cluster assumes that organizational conditions do not directly translate into withdrawal behaviours. Instead, employees interpret workplace experiences through individual cognitive appraisal processes. Situations such as excessive workload, ineffective leadership, or perceived unfairness become predictors of QQ when employees perceive them as threatening, uncontrollable, unjust, or psychologically harmful. These interpretations generate emotional responses, including frustration, disappointment, cynicism, and detachment, which facilitate withdrawal behaviours. Therefore:

Proposition 4. Cognitive and emotional appraisal processes mediate the relationship between negative workplace experiences and Quiet Quitting.

The fifth proposition concerns the social dimension of QQ (Cowan et al., 2011; Zagenczyk et al., 2020; Yu, Jiao, 2026). The Social and Relational Transmission Cluster suggests that withdrawal behaviours may extend beyond individual experiences and become socially reinforced within teams. Employees observe colleagues' behaviours, exchange emotional experiences, and collectively develop interpretations of organizational reality. In workplaces characterized by high stress, low trust, weak leadership, or widespread dissatisfaction, QQ may become normalized as an acceptable and rational response. Consequently:

Proposition 5. Social influence, emotional contagion, and team-level norms strengthen the development and normalization of Quiet Quitting behaviours.

The sixth proposition expands the explanation of QQ beyond individual and relational factors by incorporating structural organizational conditions. The Structural and Anti-Work Cluster suggests that QQ may emerge as a response to broader organizational systems characterized by excessive performance expectations, permanent availability requirements, power asymmetries, and exploitative work cultures (Gandini, 2019; Sinclair et al., 2025; Walker, 2026; Thakur, Srivastava, 2025). In such contexts, reduced discretionary effort may represent an adaptive mechanism through which employees establish boundaries and regain a sense of control over their work and personal resources. Hence:

Proposition 6. Structural organizational conditions, including exploitative work cultures, excessive availability expectations, and power asymmetries, positively influence the emergence of Quiet Quitting.

The seventh proposition refers to the temporal character of QQ. The Withdrawal Process and Trajectory Cluster conceptualizes QQ as a stage within a broader process of employee withdrawal rather than as an isolated behavioural outcome (Berry et al., 2012; Hirschman, 1970;

Farrell, 1983; Turnley, Feldman, 1999; Othman et al., 2025). Employees may gradually move from emotional detachment and reduced discretionary effort toward more advanced forms of withdrawal, including absenteeism, reduced performance, turnover intentions, and organizational exit. However, QQ may also remain a relatively stable state if employees adapt to organizational conditions without leaving the organization. Therefore:

Proposition 7. Quiet Quitting represents an intermediate stage in the employee withdrawal trajectory and may predict subsequent withdrawal outcomes, including turnover intentions and organizational exit.

The eighth proposition concerns organizational interventions aimed at preventing or reducing QQ. Since the proposed model conceptualizes QQ as a phenomenon resulting from multiple interacting mechanisms, effective interventions should address not only individual motivation but also broader organizational conditions. Improving workload management, strengthening leadership quality, increasing fairness and transparency, supporting autonomy, and enhancing psychological safety may reduce the mechanisms that contribute to withdrawal (Hobfoll, 2011; Deci, Ryan, 2000; Greenberg, 1987; de Hoogh, Den Hartog, 2008). Thus:

Proposition 8. Perceived organizational support, autonomy, fairness, leadership quality, and psychological safety are negatively associated with employees' propensity to engage in Quiet Quitting.

The ninth proposition integrates the psychological mechanisms identified in the Needs–Resources–Requirements Cluster, the Motivation and Self-Regulation Cluster, and the Cognitive Appraisal and Interpretation Cluster. This proposition integrates JD-R, COR, SDT, CAT, and AET assumptions by positioning resource depletion, motivational decline, and cognitive-emotional appraisal as mediating mechanisms between organizational conditions and withdrawal behaviour (Demerouti et al., 2001; Hobfoll, 2011; Deci, Ryan, 2000; Lazarus, 1991a; Weiss, Cropanzano, 1996). The proposed model assumes that organizational and structural conditions do not directly and automatically result in QQ. Instead, their influence is transmitted through employees' psychological experiences, including resource depletion, motivational decline, unmet psychological needs, and cognitive-emotional interpretations of workplace conditions. From this perspective, organizational demands, perceived injustice, ineffective leadership, and exploitative work practices become predictors of QQ only when employees experience these conditions as personally significant and psychologically consequential. Resource exhaustion reduces employees' capacity to maintain additional effort, motivational decline weakens the willingness to engage in extra-role behaviours, while negative cognitive and emotional appraisals transform workplace experiences into withdrawal-oriented responses. Therefore, psychological mechanisms represent a critical explanatory pathway through which external organizational conditions are translated into individual withdrawal behaviour. Therefore:

Proposition 9. Psychological mechanisms, including resource depletion, motivational decline, and cognitive-emotional appraisal, mediate the relationship between organizational conditions and Quiet Quitting behaviour.

The tenth proposition reflects the central assumption of the integrated model that QQ represents a dynamic and sequential withdrawal process rather than an isolated behavioural reaction. This proposition extends withdrawal progression and EVLN perspectives by conceptualizing QQ as a sequential multilevel process in which antecedents activate psychological mechanisms and may ultimately lead to stronger withdrawal outcomes (Turnley, Feldman, 1999; Berry et al., 2012; Patel et al., 2025; Zwiech, 2026).The model proposes that QQ develops through interactions between multiple levels of analysis, beginning with broader structural and organizational conditions, progressing through relational and psychological mechanisms, and ultimately resulting in observable withdrawal behaviours. At the macro and meso levels, organizational structures, work cultures, leadership practices, perceived fairness, and social norms create conditions that shape employees' experiences of work. These conditions influence individual-level processes, including resource evaluation, motivation regulation, cognitive appraisal, and emotional responses. When negative experiences accumulate and remain unresolved, employees gradually reduce discretionary involvement while maintaining formal role performance. Over time, this stabilized form of withdrawal may either remain as a long-term adaptation strategy or develop into more advanced forms of withdrawal, including turnover intentions, absenteeism, or organizational exit. This proposition emphasizes that QQ should be understood as the outcome of an interconnected process rather than the consequence of a single factor. The integrated model therefore assumes a developmental sequence in which structural and organizational antecedents activate psychological mechanisms, which subsequently generate behavioural withdrawal outcomes. Thus:

Proposition 10. Quiet Quitting develops through a sequential multilevel process in which structural and organizational conditions influence psychological mechanisms, which subsequently generate behavioural withdrawal and may lead to further withdrawal outcomes.

Taken together, these propositions provide a research agenda for future empirical studies examining the antecedents, mechanisms, and consequences of Quiet Quitting. The proposed framework assumes that QQ should be investigated through multilevel research designs integrating individual psychological processes, interpersonal dynamics, organizational practices, and structural conditions. Future studies may test whether the proposed clusters function as direct predictors, mediators, moderators, or sequential stages within the development of QQ. Collectively, the propositions suggest that Quiet Quitting is best conceptualized as a multistage process in which organizational and structural antecedents influence withdrawal behaviour indirectly through psychological and social mechanisms.

Future research should also investigate potential moderating variables that may strengthen or weaken the relationships proposed in the model. Relevant moderators may include organizational culture, leadership style, occupational characteristics, remote and hybrid work arrangements, tenure, generational differences, and national cultural context. Examining these factors may provide a more nuanced understanding of the conditions under which Quiet Quitting emerges and develops. The proposed model assumes causal relationships among theoretical mechanisms; however, alternative configurations, reciprocal effects, and feedback loops may also exist and require empirical examination.

6. Theoretical Contributions

This study contributes to the emerging Quiet Quitting literature in several important ways.

First, it conceptualizes Quiet Quitting as a multilevel adaptive withdrawal process rather than as a simple motivational deficit or employee attitude problem.

Second, it integrates seven previously fragmented theoretical clusters into a coherent explanatory framework linking structural antecedents, organizational relationships, psychological mechanisms, social dynamics, and withdrawal outcomes.

Third, the study proposes a novel conceptual definition of Quiet Quitting that emphasizes the intentional regulation of discretionary effort while maintaining formal role performance.

Fourth, the paper develops ten theoretically grounded propositions that provide a foundation for future empirical research and theory testing.

Fifth, the study develops a theoretically grounded typology of seven explanatory clusters that may serve as a new organizing framework for future Quiet Quitting research.

Finally, the model advances withdrawal research by demonstrating how multiple theoretical traditions converge in explaining the emergence and development of Quiet Quitting.

7. Conclusions

This paper develops and theoretically integrates an Integrated Multilevel Conceptual Model of Quiet Quitting based on seven complementary theoretical clusters.

The proposed framework addresses the theoretical fragmentation that currently characterizes the QQ literature and offers a comprehensive explanation of the mechanisms through which reduced discretionary effort emerges and develops.

The model suggests that QQ should not be understood as a simple lack of motivation or commitment. Rather, it represents a multilevel adaptive withdrawal process arising from the interaction of structural conditions, organizational relationships, psychological experiences, social influences, and withdrawal trajectories. This interpretation is consistent with theories emphasizing resource conservation, reciprocity and fairness, cognitive-emotional appraisal, and withdrawal progression (Hobfoll, 2011; Rousseau, 1995; Adams, 1965; Weiss, Cropanzano, 1996; Berry et al., 2012). In this perspective, QQ reflects employees' attempts to preserve resources, restore balance, maintain autonomy, and adapt to organizational environments perceived as unsustainable, unfair, or psychologically demanding.

The primary contribution of the study is the integration of previously disconnected theoretical explanations into a coherent multilevel framework. By linking structural antecedents, psychological mechanisms, and behavioural outcomes, the model demonstrates that no single theory is sufficient to explain QQ independently. Instead, the phenomenon emerges through the cumulative influence of multiple interrelated processes operating across organizational levels.

From a practical perspective, the model suggests that organizations seeking to reduce QQ should address not only employee motivation but also broader organizational conditions, including workload, leadership quality, reciprocity, fairness, resource availability, and psychological safety. Consequently, QQ may be interpreted as an early indicator of deeper organizational challenges rather than merely an employee-level problem.

The study also establishes a foundation for future empirical research. The theoretical propositions derived from the model provide opportunities to test the relationships among organizational conditions, psychological processes, social dynamics, and withdrawal outcomes. Future studies should validate the proposed framework across different organizational and cultural contexts and examine the relative importance of the mechanisms identified in the model.

Although conceptual in nature, the proposed framework advances the understanding of Quiet Quitting by positioning it as a multidimensional and dynamic form of employee withdrawal. By integrating diverse theoretical perspectives, the model contributes to a more comprehensive understanding of contemporary workplace disengagement and provides a basis for future theory development and empirical investigation. More broadly, the model contributes to the emerging debate on sustainable employment relationships by explaining how employees adapt to organizational environments that are perceived as chronically demanding, inequitable, or psychologically unsustainable.

References

1. Adams, J.S. (1963). Toward an understanding of inequity. *Journal of Abnormal and Social Psychology*, *67,* 422-436.
2. Adams, J.S. (1965). Inequity in social exchange. In: L. Berkowitz (Ed.), *Advances in experimental social psychology*: *Vol. 2*, 267-299. New York: Academic Press.
3. Alvina, A.R., John, R.E., Julia, G.J., Nived Amritha, K.P., Roshni, V. (2026). The dual nature of workplace incivility in the Indian IT sector: Exploring factors shaping perceptions of 'opportunity' or 'harm'. *Acta Psychologica, 265*, 106650, doi: 10.1016/j.actpsy.2026.106650
4. Ashforth, B.E. (1994). Petty Tyranny in Organizations. *Human Relations, 47(7)*, 755-778, doi: 10.1177/001872679404700701
5. Bakker, A.B., Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology, 22(3),* pp. 273-285, doi: 10.1037/ocp0000056
1. Bernuzzi, Ch., Paganin, G., Petrilli, S., Margheritti, S. (2025). Old trends in new clothing? Exploring the quiet quitting phenomenon through a scoping review. *Current Psychology, 44,* pp. 10990-11010, doi: 10.1007/s12144-025-07920-x
2. Berry, C.M., Lelchook, A.M., Clark, M.A. (2012). A meta-analysis of the interrelationships between employee lateness, absenteeism, and turnover: Implications for models of withdrawal behaviour. *Journal of Organizational Behavior*, *33(5),* 678-699, doi: 10.1002/job.778
3. Berry, C.M., Lelchook, A.M., Clark, M.A. (2012). A meta-analysis of the interrelationships between employee lateness, absenteeism, and turnover: Implications for models of withdrawal behaviour. *Journal of Organizational Behavior, 33(5)*, 678-699, doi: 10.1002/job.778
4. Bordoloi, S., Sharma, A., Dhar, R.L. (2025). Leveraging SOR theory to understand quiet quitting: systematic insights from existing research. *Management Review Quarterly*, doi: 10.1007/s11301-025-00518-4
5. Cowan, R., Sanditov, B., Weehuizen, R. (2011). Productivity effects of innovation, stress and social relations. *Journal of Economic Behavior and Organization, 79(3),* 165-182, doi: 10.1016/j.jebo.2011.01.028
6. de Hoogh, A.H.B., Den Hartog, D.N. (2008). Ethical and despotic leadership, relationships with leader's social responsibility, top management team effectiveness and subordinates' optimism: A multi-method study. *Leadership Quarterly, 19(3),* 297-311, doi: 10.1016/j.leaqua.2008.03.002

7. Deci, E.L., Ryan, R.M. (2000). The "what" and "why" of goal pursuits: human needs and the self-determination of behavior. *Psychological Inquiry, 11(4),* 227-268, doi: 10.1207/S15327965PLI1104_01
8. Deci, E.L., Olafsen, A.H., Ryan, R.M. (2017). Self-determination theory in work organizations: The state of a science. *Annual review of organizational psychology and organizational behavior, 4*, 19-43.
9. Demerouti, E., Nachreiner, F., Bakker, A.B., Schaufeli, W.B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86(3),* 499-512, doi:10.1037/0021-9010.86.3.499
10. Farrell, D. (1983). Exit, voice, loyalty, and neglect as responses to job satisfaction: A multidimensional scaling study. *Academy of Management Journal, 26*, 596-607.
11. Formica, S., Sfodera, F. (2022). The great resignation and quiet quitting paradigm shifts: An overview of current situation and future research directions. *Journal of Hospitality Marketing & Management*, *31(8)*, pp. 899-907, doi: 10.1080/19368623.2022.2136601
12. Galanis, P., Katsiroumpa, A., Vraka, I., Siskou, O., Konstantakopoulou, O., Moisoglou, I., Gallos, P., Kaitelidou, D. (2023). The Quiet Quitting Scale: Development and Initial Validation. *AIMS Public Health, 10(4),* pp. 828-848, doi:10.3934/publichealth.2023055
13. Galanis, P.A., Moisoglou, I., Katsiroumpa, A., Meimeti, E., Vraka, I.S. (2025). Workload increases nurses' quiet quitting, turnover intention, and job burnout: evidence from Greece. *AIMS Public Health*, *12(1),* 44-55, doi: 10.3934/publichealth.2025004
14. Gandini, A. (2019). Labour process theory and the gig economy. *Human Relations, 72(6),* 1039-1056, doi: 10.1177/0018726718790002
15. Georgiadou, A., Vezyridis, P., Glaveli, N. (2025). "You Pretend to Pay Me; I Pretend to Work": A Multi-Level Exploration of Quiet Quitting in the Greek Context. *Human Resource Management*, *64(4),* 923-941, doi:10.1002/hrm.22292
16. Gray, T.W., Zabinski, A.M., Fu, S.Q., Darden, T.R. (2025). That's Not What I Was Promised! Psychological Contracts and Quiet Quitting. *Human Resource Management, 64(6),* 1833-1863, doi:10.1002/hrm.70011
17. Greenberg, J. (1987). A Taxonomy of Organizational Justice Theories. *Academy of Management Review*, *12(1),* 9-22.
18. Henry, S.E., Bolino, M.C., Whitney, J.M. (2025). Keep Up the Good Work… or Else! Exploring Supervisor Responses to Quiet Quitting. *Human Resource Management, 64(6),* 1507-1523, doi: 10.1002/hrm.22319
19. Hirschman, A.O. (1970). *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states*. Cambridge, MA: Harvard University Press.
20. Hobfoll, S.E. (2011). Conservation of resource caravans and engaged settings. *Journal of Occupational and Organizational Psychology*, *84(1),* 116-122, doi: 10.1111/j.2044-8325.2010.02016.x

21. Kristof, A.L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology 49(1)*, 1-49, doi: 10.1111/j.1744-6570.1996.tb01790.x
22. Kristof-Brown, A.L., Schneider, B., Su, R. (2023). Person-organization fit theory and research: Conundrums, conclusions, and calls to action. *Personnel Psychology, 76(2),* 375-412, doi: 10.1111/peps.12581
23. Kunasz M. (2024). Turnover intention among students who take up gainful activity. *Scientific Papers Of Silesian University Of Technology, Organization And Management Series, 206*, 477-490, doi: 10.29119/1641-3466.2024.206.28
24. Lazarus, R.S. (1966). *Psychological Stress and the Coping Process*. New York: McGraw-Hill.
25. Lazarus, R.S. (1991a). *Emotion and adaptation*. New York: Oxford University Press.
26. Lazarus, R.S. (1991b). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist, 46*, 819-834.
27. Lazarus, R.S. (1991c).Cognition and motivation in emotion. *American Psychologist, 46,* 352-367.
28. Lowery, M.R., Clark, M.A., Carter, N.T. (2021). The balancing act of performance: Psychometric networks and the causal interplay of organizational citizenship and counterproductive work behaviors. *Journal of Vocational Behavior*, *125,* 103527, doi: 10.1016/j.jvb.2020.103527
29. Muschetto, T., Siegel, J.T. (2021). Bibliometric Review of Attribution Theory: Document Cocitation Analysis. *Motivation Science, 7(4),* 439-450, doi: 10.1037/mot0000253
30. Othman, A.A., Mahran, H.M., Ali, H.I. (2025). Covering loyalty policy in quiet firing workplace: the association between quiet quitting, intention to leave, and nurses' loyalty. *BMC Nursing, 24*, 662, doi: 10.1186/s12912-025-03301-8
31. 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*, doi: 10.1371/journal.pone.0317624
32. Rousseau, D.M. (1995). *Psychological Contract in Organizations: Understanding Written and Unwritten Agreements*. Newbury Park, CA: Sage.
33. Sinclair, S., Nilsson, A., Holm, K. (2025). The worth of work: Socio-political and demographic correlates of anti-work orientation. *Social Sciences and Humanities Open, 11,* 101565, doi: 10.1016/j.ssaho.2025.101565
34. Sop, S.A. (2025). Rational Choice. In: M. Uysal, O. İçöz, İ. Çetin, O. İçöz, Y.S. Bozkurt (eds.), *Theories and Models in Tourism and Hospitality Research* (pp. 123-129). CABI Books, doi: 10.1079/9781800625822.0019
35. Thakur, P., Srivastava, S. (2025). The dark side of leadership: how despotic leadership triggers depression and quiet quitting. *International Journal of Contemporary Hospitality Management, 37(9)*, 3180-3199, doi: 10.1108/IJCHM-12-2024-1815

36. Turnley, W.H., Feldman, D.C. (1999). The impact of psychological contract violations on exit, voice, loyalty, and neglect. *Human Relations, 52(7),* doi: 10.1177/001872679905200703
37. Walker, A. (2026). Holding labor to ac(count): quiet quitting and the limits of the anti-work imaginary. *Critical Perspectives on Accounting*, 103,102852, doi: 10.1016/j.cpa.2026. 102852
38. Weiss, H., Cropanzano, R. (1996). Affective Events Theory: A Theoretical Discussion of The Structure, Cause and Consequences of Affective Experiences at Work. *Research in Organizational Behavior, 18,* 1-74.
39. Yang, M., Lin, B. (2024). Making policies more effective: The differentiated impact of work-family conflict on environmental public participation. *Environmental Science and Policy*, *157*, 103767, doi: 10.1016/j.envsci.2024.103767
40. Yu, Y., Jiao, X. (2026). Social interactions in organisations: Investigating employee quiet quitting using spatial econometric methods. *Tourism Management, 115*, 105396, doi: 10.1016/j.tourman.2026.105396
41. Zagenczyk, T.J., Powell, E.E., Scott, K.L. (2020). How Exhausting!? Emotion Crossover in Organizational Social Networks. *Journal of Management Studies, 57(8)*, 1589-1609, doi: 10.1111/joms.12557
42. Zwiech, P. (2024a). Wpływ sprawiedliwości interpersonalnej na ciche odejścia w ocenie menedżerów. *Zeszyty Naukowe Akademii Górnośląskiej, 10(22),* pp. 116-124, doi: 10.53259/2024.10.11
43. Zwiech, P. (2024b). The impact of perception of organizational justice on employee attitude and behaviour. *Scientific Papers Of Silesian University Of Technology, Organization And Management Series, 199*, pp. 671-680, doi: 10.29119/1641-3466.2024.199.50
44. Zwiech, P. (2026). Toward an Integrative Conceptual Framework for Quiet Quitting: A Typology of Seven Theoretical Clusters. *Zarządzanie Zasobami Ludzkimi HRM, 168(3-4)*.

SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2026
ORGANIZATION AND MANAGEMENT SERIES NO. 255

HR BUSINESS PARTNER' PERCEPTION OF EMPLOYEE ASPECTS OF SUSTAINABLE DEVELOPMENT

Joanna ŻUKOWSKA[1*], Agata WOŹNIAK-PŁAZA[2]

[1] Warsaw School of Economics, Department of Enterrpreneurship and Business Environment; jzukow@sgh.waw.pl, ORCID: 0000-0001-9589-3056
[2] Warsaw School of Economics, Doctoral School; awoznia2@sgh.waw.pl, ORCID: 0009-0006-7819-2139
* Correspondence author

Purpose: The article aims to identify and define how HR Business Partners perceive the employee aspects of sustainable development.
Design/methodology/approach: The study was conducted using a diagnostic survey based on a proprietary questionnaire. The CAWI technique was applied. The survey was carried out in late November and early December 2025 among 73 HR Business Partners. The group was selected purposefully, taking into account their job positions. Fifty-one respondents who declared knowledge of the employee-related aspects of sustainable development were selected for further analysis.
Findings: The survey results indicate that the level of knowledge regarding the employee-related aspects of sustainable development among HR Business Partners varies depending on the length of service as an HR Business Partner and the size of the organization. Most frequently respondents associate the employee-related aspects of sustainable development with employee equality, opportunities for professional development, and social initiatives, such as employee volunteering. Issues related to employee well-being, work-life balance, and closing the pay gap are mentioned less frequently. The study showed that HR Business Partners rely primarily on informal sources of knowledge, such as social media and networking. At the same time, they make limited use of academic literature and legal regulations.
Respondents identified organizational barriers, including excessive bureaucracy, a lack of management commitment, other business priorities, and limited time and resources. This may indicate that undertaking initiatives related to the employee aspects of sustainable development requires not only the commitment and competence of HR Business Partners, but also support from the organization, such as management commitment or financial resources.
Research limitations/implications: The limitations of the study include the deliberate selection of the research sample and the relatively small number of respondents. In future studies, it seems reasonable to use qualitative methods and expand the sample to include other occupational groups.
Originality/value: This article provides data on how HR Business Partners perceive the employee-related aspects of sustainable development. The research findings show how HR Business Partners understand these aspects, what actions they take, and what barriers they encounter. The presented data can serve as a basis for further research and support organizations in their daily practices.
Keywords: HR Business Partner, sustainable development, ESG.
Category of the paper: Diagnostic survey based on a proprietary questionnaire.

1. Introduction

Sustainable development remains a key area of interest for researchers and management practitioners (Lulewicz-Sas, Zubek, 2022, p. 13). The growing importance of the concept, regulatory pressure, and stakeholder expectations mean that sustainable development is increasingly viewed as a key factor in building competitive advantage (Sadowski, 2023, p. 155). In this context, the employee-related aspects of sustainable development take on particular significance, including working conditions, equal treatment, competency development, well-being, and fair compensation (Piwowar-Sulej et al., 2023, pp. 15-21).

At the same time, the role of the HR function in organizations is undergoing significant changes. The HR Business Partner model involves shifting the focus from administrative tasks to active participation in implementing the organization's strategy and supporting change processes (Winch, 2021, p. 31). As strategic partners and employee advocates (Winch, 2021, p. 32), HR Business Partners are therefore uniquely positioned to align strategic business goals with employee needs and the requirements of sustainable development. Thus, they can play a significant role in undertaking initiatives related to the employee-related aspects of sustainable development.

Despite the growing number of publications on the concept of the HR Business Partner and sustainable development, the literature lacks research on how HR Business Partners perceive the employee aspects of sustainable development.

In response to this identified research gap, the aim of this article is to identify and define how HR Business Partners perceive the employee-related aspects of sustainable development. The article is empirical in nature and is based on the results of a quantitative survey conducted among HR Business Partners.

2. The concept of HR Business Partner

The concept of the HR Business Partner was developed by Dave Ulrich in the mid-1990s in the United States (Popieluch, 2018, p. 11). According to D. Ulrich, the role of the HR Business Partner is that of a strategic partner, which means collaborating on defining the company's strategy and ensuring the alignment of HR strategy with the organization's strategy. Additionally, the role of a change agent involves leading the company's transformation. Another role identified by D. Ulrich is that of an employee advocate, which involves supporting research into employee needs and their feedback, as well as creating conditions for competency and organizational development; and the role of an administrative expert, which involves providing administrative support to employees, organizing departmental work, and positioning them within the organizational structure (Popieluch, 2018, p. 12).

In 2012, D. Ulrich and his research team expanded the model to include six roles of the HR Business Partner. These are *Strategic Positioner*, *Credible Activist*, *Capability Builder*, *Change Champion*, *HR Innovator and Integrator*, *and Technology Proponent* (Ulrich et al., 2012, pp. 7-25). The Strategic Positioner means that the HR Business Partner operates from the outside in, understands the business (including social, economic, and technological trends) and thereby helps shape the organization's strategy. The Credible Activist is based on building personal trust and credibility. Credibility stems from keeping promises, building relationships, and clear and consistent communication. The Capability Builder: this role combines employees' individual skills into organizational strengths. The HR Business Partner analyzes human capital potential to define the company's identity and build a work environment where employees find meaning and purpose.

The Change Champions as change agents, HR Business Partners ensure the sustainability of changes. They initiate them, build a case for their implementation, and engage stakeholders, then sustain them through appropriate structures, resources, and systematic communication.

The Human Resource Innovator and Integrator: this role involves integrating HR solutions with future business challenges. It is crucial that these practices are consistent and focused on business results, not just on trendy fads.

In their Technology Proponent role HR Business Partners use technology not only for efficient administration (e.g. payroll, benefits) but also for building relationships and communication. As advocates of technology, they promote the use of digital tools to manage the flow of information (Ulrich et al., 2012, pp. 61-202). According to the 2008 model developed by the Corporate Leadership Council, the core responsibilities of an HR Business Partner include:

- The role of an operational manager. This involves assessing employee attitudes, communicating applicable rules and procedures, instilling the company's organizational culture in employees, ensuring the alignment of HR activities with the organizational culture, and monitoring trends in employee attitudes.
- The role of rescuer, which includes preparing for crisis situations, responding quickly to complaints, responding quickly to questions from line managers, addressing employee needs, and addressing manager needs.
- The role of employee mediator includes, among other things, managing conflicting employee personalities, managing conflicts between employees, responding to organizational changes, and resolving social issues in the implementation of business plans.
- The role of strategic partner, which consists of adapting HR strategy to the changing needs of the organization and its environment, identifying critical HR indicators, identifying talent-related issues, understanding employees' professional needs, and redesigning structures that support the achievement of strategic goals (Popieluch, 2018, pp. 15-16).

Grzegorz Filipowicz adds one more role to the HR Business Partner's scope, that of a human capital development manager, emphasizing the importance of shaping human capital within the organization (Filipowicz, 2018, p. 145).

Based on D. Ulrich's classic 1997 role model, N. Derkowska proposes a list of competencies for each role (Derkowska, 2022, pp. 163-168). "For the strategic partner role, these include business acumen and strategic thinking, communication, and goal orientation, followed by *business acumen* and customer orientation. Knowledge of human resources management is also essential. Slightly less critical but still important are flexibility and openness to change, relationship building, influence, and negotiation skills. The least important for this role are knowledge of labour law, conflict resolution, analytical thinking, and emotional intelligence. For the role of change agent, the most important is communication, influence, and business acumen, as well as flexibility and openness to change. Next are emotional intelligence and conflict resolution, negotiation skills, relationship building, and *business acumen*. Less important are goal orientation, strategic thinking, customer orientation, and knowledge of human resources management. Analytical thinking and knowledge of labor law are of the least importance. The most essential components of competence in the role of employee advocate are communication and emotional intelligence, conflict resolution, knowledge of labor law, relationship building, and customer orientation. Negotiation skills, influence, and flexibility and openness to change are of lesser importance. Knowledge of human resources management, business orientation, goal orientation, *business acumen*, strategic thinking, and analytical thinking are of minor importance.

For the role of administrative expert, knowledge of labour law is the most critical for performing this role. Analytical thinking, communication, customer focus, and emotional intelligence are also highly important. Less important are knowledge of human resource management, goal orientation, flexibility and openness to change, relationship building, and conflict resolution. Competency components of negligible importance for this role include *business acumen*, influence, negotiation skills, strategic thinking, and business orientation" (Derkowska, 2022, pp. 163-168).

The rationale for the research group's selection is the Resource-Based View (RBV). According to this theory, organizational resources that are rare, valuable, and difficult to imitate can serve as a source of sustainable competitive advantage (Barney, 1991). From this perspective, the HR Business Partner can be viewed as a unique organizational resource. According to D. Ulrich's (1997) basic model, the HR Business Partner combines four key roles: the strategic partner, change agent, employee advocate, and administrative role. By integrating these roles, the HR Business Partner goes beyond the traditional role of the HR function. This enables the company to implement strategies effectively and manage change in line with market needs. In this context, the HR Business Partner is a unique source of human and competency capital who, through the roles and competencies outlined in the theoretical section, can become a source of the company's competitive advantage. Therefore, this study focuses on HR Business Partners.

3. Sustainable development

3.1. The concept of sustainable development

The first definition of *sustainable development* comes from the 1975 Session of the Governing Council of the United Nations Environment Programme. According to this definition, sustainable development is "the course of inevitable and desirable economic development that does not significantly and irreversibly harm the human environment, does not lead to the degradation of the biosphere, and reconciles the laws of nature, economics, and culture" (Poskrobko, 1998, p. 75). Sustainable development is "a humanitarian concept of global development whose fundamental goal is to improve the quality of life and well-being of humanity under conditions of limited natural resources, taking into account the long-term effects of industrial development" (Adamczyk, 2009, p. 66). Conducting business activities focused on sustainable development requires the skillful use of natural resources, the introduction of environmentally-friendly technologies, and the implementation of measures aimed at development and improving the quality of work. Sustainable development of a business means improving the entity's financial and asset situation while simultaneously improving the working conditions and quality of life for its employees and ensuring higher standards of environmental protection (Misztal, 2018, pp. 27-40).

There are three pillars of sustainable development. The first one, the economic pillar, which consists of financial strength, productivity, and economic performance. The second pillar is the social pillar: sustainable development generates processes of social well-being related to the health, safety, and quality of life of the organization's members. The main challenges for organizations are finding a balance between personal and organizational needs. The third pillar is the environment: related to the protection of the environment and natural resources for future generations (Lulewicz-Sas, Zubek, 2022, pp. 13-38).

3.2. Employee aspects of sustainable development

Sustainable development in the workplace, as implemented in organizations, contributes to employee well-being and health by creating sustainable jobs characterized by a positive work environment, which is a key objective of sustainable development goals. Job loss, financial uncertainty, or loss of personal income broadens the perspective of sustainable development to include the employee's internal perspective. The employee-focused aspect of sustainable development includes, among other things: fair treatment, care for the development, well-being, and health of employees, employee development, promoting behaviours that support work-life balance, as well as undertaking environmentally-friendly actions (Wojtczuk-Turek, 2022, p. 7).

A key element of a sustainable approach to employees is attention to their multidimensional well-being and economic issues (fair compensation). Furthermore, these are practices supporting work-life balance, health protection, and safe working conditions, as well as organizational justice that goes beyond the current needs of the team, taking into account the interests of future generations and minority groups through the promotion of diversity (Piwowar-Sulej et al., 2023, pp. 18-19).

In line with sustainable development, organizations should implement innovative solutions that support the development of human capital in a responsible and ethical manner. This includes, among other things, creating a friendly work environment, ensuring pay equity, promoting diversity and inclusivity, and investing in the development of employees' competencies (Czaińska, 2020, pp. 11-20).

Sustainability issues are gaining increasing importance in the theoretical dimension as a significant area of management research, where the effective implementation of sustainability principles can become a source of competitive advantage and the building of lasting organizational value (Ismail, Abdelghani, 2024, pp. 1-15).

4. Research method

Despite growing interest in the concept of the HR Business Partner and the concept of sustainable development, including the employee context, a research gap has been identified. The study aims to identify and define how HR Business Partners perceive the employee aspects of sustainable development. The following research questions were formulated:

1) What is the level of HR Business Partners' knowledge of the employee aspects of sustainable development?
2) How do HR Business Partners understand the employee-related aspects of sustainable development?
3) From which sources do HR Business Partners obtain the knowledge about the employee-related aspects of sustainable development?
4) How do HR Business Partners assess their role in promoting initiatives related to the employee aspects of sustainable development?
5) What actions do HR Business Partners take regarding the employee-related aspects of sustainable development?
6) What are the barriers to HR Business Partners undertaking activities related to the employee aspects of sustainable development?

The study employed a diagnostic survey method using a proprietary questionnaire. The CAWI technique was utilized in the study. The survey was conducted in late November/early December 2025. Respondents were provided with a link to the survey questionnaire. Respondents could complete the questionnaire only once. The study group was purposively selected based on their job position. The number of respondents was 73. The dominant group participating in the study consisted of representatives from large enterprises (44%) and the manufacturing and industrial sector (42%). The largest percentage consisted of HR Business Partners with 1-3 years of experience (30%), followed closely by those with over 6 years of experience (29%).

The question regarding familiarity with the concept of sustainable development in an employee context was designed to filter out those who had not yet encountered the concept of sustainable development in an employee context. The group familiar with the concept consisted of 51 people. Table 1 presents the characteristics of the study group.

Table 1.
Characteristics of the research group

	Respondents familiar with the concept of sustainable development in the workplace context (51)	**Respondents unfamiliar with the concept of sustainable development in the workplace context (22)**	**Total (73)**
Length of service as an HR Business Partner	less than 1 year – 4% 1-3 years – 24% 4-6 years – 33% more than 6 years – 39%	less than 1 year – 50% 1-3 years – 45% 4-6 years – 0% over 6 years – 5%	less than 1 year – 18% 1-3 years – 30% 4-6 years – 23% over 6 years – 29%
Company size	small (up to 50 employees) – 2% medium-sized (51-250 employees) – 33% large (over 250 employees) – 65%	small (up to 50 employees) – 23% medium-sized (51-250 employees) – 68% large (over 250 employees) – 9%	small – 8% medium-sized – 44% large – 48%
Industry	manufacturing – 46% retail and e-commerce – 16% information technology – 12% financial services and banking – 8% construction and real estate – 6% transport and logistics – 6% healthcare – 6%	manufacturing– 26.5% retail and e-commerce – 18% construction and real estate – 13.5% transport and logistics – 13.5% Healthcare – 13.5% education – 5% media and communications – 5% financial services and banking – 5%	manufacturing – 42% retail and e-commerce – 17% construction and real estate – 8% information technology –8% transport and logistics – 8% healthcare – 8% financial services and banking – 7% media and communications – 1% education – 1%

Source: own elaboration based on the survey results.

5. Survey results

The answer to research question No. 1, "What is the level of HR Business Partners' knowledge of the employee-related aspects of sustainable development?" is presented in Figure 1. The largest group of respondents is somewhat familiar with the concept: 38%. Thirty percent are not familiar with the concept at all, and only 6% are very familiar with it. Thus, the responses to the question regarding the knowledge of the employee-related aspects of sustainable development are varied. It is surprising that nearly one-third of respondents state that they are not familiar with the concept at all.

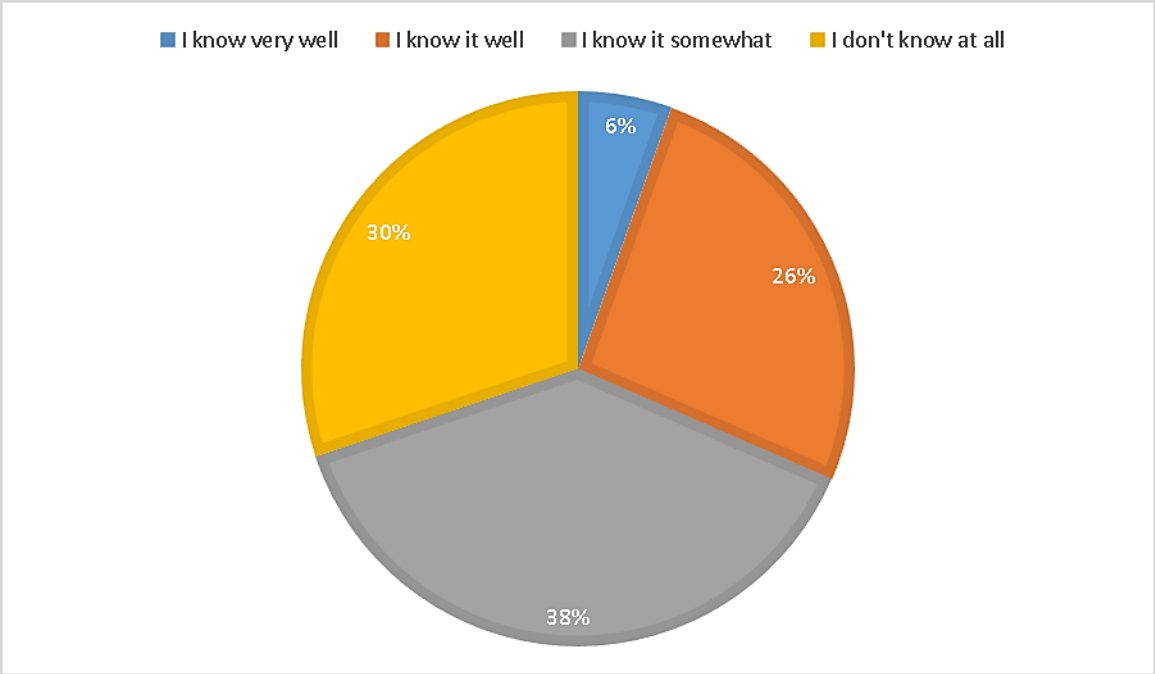


Figure 1. Level of familiarity with the employee aspects of sustainable development among HR Business Partners.

Source: own elaboration based on the survey results.

The answers to question 2, "How do HR Business Partners understand the employee aspects of sustainable development?" are presented in Figure 2. The answers can be divided into two categories. Firstly, those related to the "hard" areas of human capital management, including: employee rights, anti-bullying measures, safe and healthy working conditions, fair treatment, and closing the pay gap. Secondly, "soft" aspects related to human capital management, including opportunities for professional development, employee volunteering, employee well-being, and work-life balance. For the largest group of respondents (nearly 16%), the employee aspects of sustainable development are equal treatment; for just under 12%, they are employee volunteering and opportunities for professional development. Closing the pay gap ranked last (2%). The questionnaire included an open-ended question.

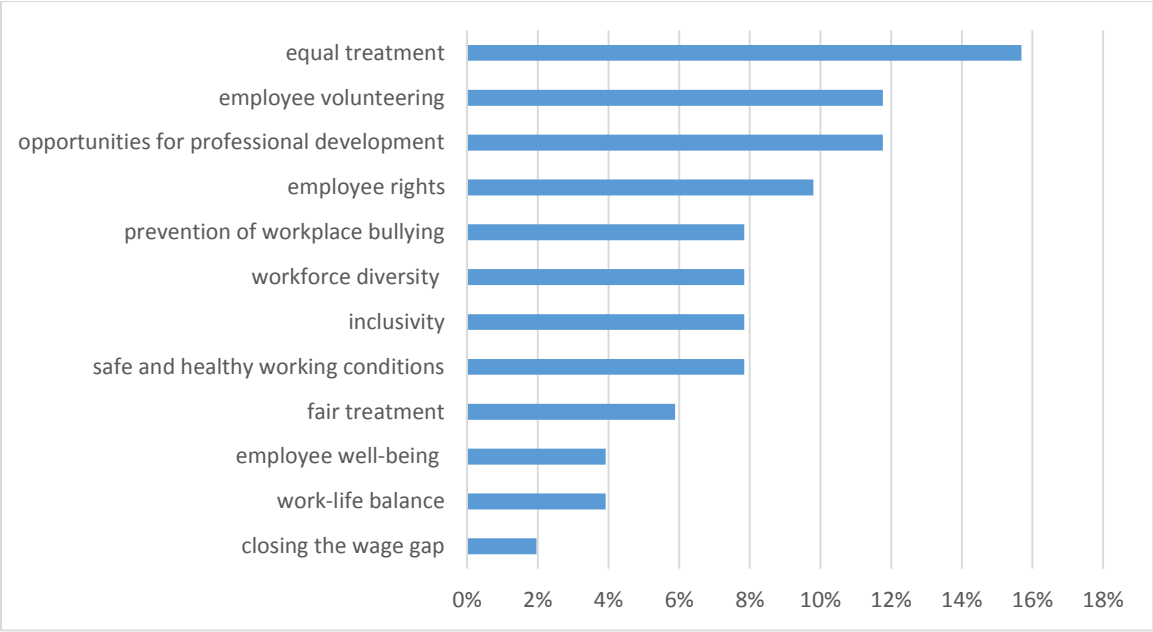


Figure 2. HR Business Partners' understanding of the employee-related aspects of sustainable development.

Source: own elaboration based on the survey results.

The answer to Question 3, "From which sources do HR Business Partners obtain the knowledge about the employee-related aspects of sustainable development?" is presented in Table 2. The most popular sources for obtaining information on the employee-related aspects of sustainable development are social media and networking. The least popular sources are legal acts, academic literature, and supervisors. The results show that a vast majority of respondents rely on informal sources of knowledge. Formal sources such as academic literature, legal acts, or popular science literature account for a significant minority of responses. The least popular source of data – supervisors – may indicate that the concept of employee-related aspects of sustainable development may not yet be sufficiently understood among HR Business Partner supervisors.

In the questionnaire, respondents could provide more than one answer to this question.

Table 2.
Sources of knowledge on the employee aspects of sustainable development for HR Business Partners

No.	Source	% of HR BPs obtaining knowledge from this source
No.	Social media	56.86%
2	Networking outside the company where I work	52.94%
3	Employee or team responsible for sustainability or ESG reporting	39.22%
4	Industry portals	25.49%
5	Internal company reports	25.49%
6	Training and workshops	23.53%
7	Popular science literature	19.61%
8	Legal documents	13.73%
9	Scientific literature	5.88%
10	Supervisor	1.96%

Source: own elaboration based on the survey results.

The response to question no. 4, "How do HR Business Partners assess their role in promoting activities related to the employee aspects of sustainable development?" is presented in Table 3.

Based on the presented data, it can be observed that most HR Business Partners perceive their role in promoting activities related to the employee aspects of sustainable development as quite significant, though not crucial. The largest group of respondents (35.29%) rated their role at level 4, indicating moderately high engagement in this area. A relatively large percentage of respondents also gave a rating of 5 (23.53%), which may indicate a growing awareness of the importance of sustainability initiatives in the HR field. At the same time, only 11.76% of respondents considered their role to be crucial. It is also worth noting that none of the respondents rated their role at level 1, indicating that HR Business Partners recognize at least some degree of their involvement in promoting sustainability initiatives.

Table 3.
Assessment of their role in promoting activities related to the employee-focused aspects of sustainable development by HR Business Partners (scale: 1 – no role, 6 – key role)

Assessment	%
6	11.76%
5	23.53%
4	35.29%
3	19.61%
2	9.80%
1	0%

Source: own elaboration based on the survey results.

Research question number 5 concerned the actions taken by HR Business Partners related to the employee aspects of sustainable development. Respondents could select more than one answer in the questionnaire. Table 4 presents the actions taken by HR Business Partners. The most common actions taken by HR Business Partners include organizing training and ensuring employee development, addressing the pay gap, and promoting diversity, equal opportunities, and inclusivity within the organization.

The most frequently implemented activity is organizing training and ensuring employee development: 86% of the surveyed HR Business Partners reported engaging in this activity. This result confirms that the development of employee competencies remains one of the key areas of HR Business Partners' activities in the context of the organization's sustainable development. The second most frequently cited activity is addressing the pay gap, which was reported by 60% of respondents. This indicates growing activity in the context of pay equity and transparency. In contrast, the least popular activities are engaging employees in social and environmental initiatives and collaborating with other departments to implement sustainable development strategies.

Table 4.
Actions taken by HR Business Partners related to the employee-focused aspects of sustainable development

No.	Action	% of HR BP taking this action
1	organizing training and ensuring employee development	86%
2	addressing the pay gap	60%
3	promoting diversity, equal opportunities, and inclusivity within the organization	47%
4	creating and implementing well-being initiatives	47%
5	developing and implementing mental health and work-life balance support programmes	37%
6	engaging employees in social and environmental initiatives	33%
7	collaboration with other departments in implementing the sustainability strategy	33%

Source: own elaboration based on the survey results.

Responses to research question No. 6, "What are the barriers to HR Business Partners undertaking activities related to the employee aspects of sustainable development?" are presented in Table 5. Respondents could select more than one answer in the questionnaire. The most frequently cited barrier was excessive bureaucracy, indicated by 35.62% of respondents. This may suggest that formal requirements can hinder the implementation of sustainability initiatives. Other significant obstacles include a lack of management commitment and the presence of other organizational priorities: both of these responses were cited by 30.14% of respondents. A lack of financial resources (28.77%) is also a significant barrier, which may limit the ability to implement initiatives. Complex procedures and a lack of time were cited at a similar level (27.40% each). The barriers cited least frequently were insufficient HR Business Partner competencies (6.85%) and difficulties in measuring results (5.48%).

Table 5.
Barriers to HR Business Partners undertaking activities related to the employee aspects of sustainable development

No.	Barrier	% of HR BPs encountering this barrier
1	excessive bureaucracy	35.62%
2	lack of management commitment	30.14%
3	other priorities	30, 14%
4	lack of funds	28.77%
5	complicated procedures	27.40%
6	lack of time	27, 40%
7	insufficient managerial competence	24.66%
8	insufficient HR team competencies	8, 22%
9	employee resistance	8, 22%
10	insufficient HR Business Partner competencies	6.85%
11	difficulties in measuring results	5.48%

Source: own elaboration based on the survey results.

6. Discussion

The research results provide insights into how HR Business Partners perceive the employee-related aspects of sustainable development. First and foremost, attention should be paid to the varying levels of familiarity with the concept of sustainable development in its employee-related dimension. The results indicate that only a small proportion of respondents report a very good understanding of this concept. This may suggest that despite the growing importance of sustainable development, its employee-related dimension is not fully implemented in practice yet.

The research findings are largely consistent with the assumptions of the literature on the employee aspects of sustainable development. The key elements of the employee dimension of sustainable development are fair treatment of employees, competency development, well-being, and the creation of a safe work environment. At the same time, the relatively infrequent mention of the elements such as employee well-being or work-life balance may suggest that, in organizational practice, not all employee-related aspects of sustainable development are emphasized equally strongly.

The findings can also be related to the concept of the HR Business Partner proposed by D. Ulrich, according to which those in this role serve as strategic partners, agents of change, and advocates for employees. The survey results indicate that HR Business Partners perceive their role in promoting sustainability-related activities as important, though not always crucial. This may mean that the potential of this role in supporting the implementation of sustainability strategies is not fully utilized within organizations yet.

Another interesting aspect of the research findings is the dominance of informal knowledge sources, such as social media and networking. This may indicate a certain gap between academic research and human capital management practice. This phenomenon may point to the need to strengthen knowledge transfer between the academic community and business practice.

From the perspective of its contribution to science, this study fills an existing research gap regarding HR Business Partners' perceptions of the employee-related aspects of sustainable development. Previous research has focused primarily on the role of HR in implementing sustainable development strategies or on the concept of sustainable human capital management. This study broadens this perspective by showing how representatives of one of the key roles within the HR function interpret this concept, what actions they take in practice, and what barriers they encounter. Thus, the results may serve as a starting point for further research on the role of HR Business Partners in the implementation of sustainable development strategies and on mechanisms supporting the integration of business objectives with the employee-related aspects of sustainable development.

7. Summary

The aim of the study was to identify how HR Business Partners perceive the employee-related aspects of sustainable development. The results indicate that the level of knowledge regarding these aspects varies. It depends on the professional experience of HR Business Partners and the size of the organization. Higher awareness is reported by those with a longer tenure as HR Business Partners and those employed in large organizations. This may stem from the non-financial ESG reporting obligations imposed on large organizations with over 500 employees.

HR Business Partners understand the employee-related aspects of sustainable development primarily through the lens of equal treatment of employees and opportunities for professional development. The most frequently cited responses concerned equal treatment, employee volunteering, and development opportunities. Addressing the pay gap, work-life balance, and employee well-being were mentioned less frequently. In this context, the responses to the question regarding actions taken are particularly interesting, where addressing the pay gap ranked second, whereas in terms of perception, it was in the last place. This may stem from obligations related to the entry into force of Directive (EU) 2023/970 of May 10, 2023, on strengthening the application of the principle of equal pay for men and women for the same work or work of equal value through pay transparency and enforcement mechanisms. Therefore, this may intensify the efforts of HR Business Partners in the context of eliminating the pay gap within organizations. Interdepartmental collaboration is the least common among the actions taken. Most respondents assess their role in undertaking activities related to the employee aspects of sustainable development as significant.

The study revealed that HR Business Partners primarily rely on informal sources of knowledge, such as social media and networking. At the same time, they make limited use of academic literature and legal regulations. This may indicate a need to strengthen the transfer of theoretical knowledge into the practice of HR Business Partners.

A key finding of the research is the identification of organizational barriers, including excessive bureaucracy, a lack of management commitment, competing business priorities, and limited time and financial resources. This may indicate that undertaking actions related to the employee aspects of sustainable development requires not only the commitment and competence of HR Business Partners, but also support and commitment from the organization, such as management involvement or financial resources.

References

1. Adamczyk, J. (2009). *Społeczna odpowiedzialność przedsiębiorstw*. Warszawa: PWE.
2. Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17(1)*.
3. Czaińska, K. (2020). Od strategii zrównoważonego rozwoju do zrównoważonego zarządzania zasobami ludzkimi – diagnoza rozbieżności. In: Ł. Haromszeki, *Zarządzanie kapitałem ludzkim w organizacjach zróżnicowanych kulturowo*. Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.
4. Derkowska, N. (2022). *Determinanty ról i kompetencje HR Business Partnera*. Wrocław: Uniwersytet Ekonomiczny we Wrocławiu.
5. Filipowicz, G. (2018). *HR Business Partner. Koncepcja i praktyka*. Warszawa: Wolters Kluwer.
6. Ismail, B., Abdelghani L. (2024). Green Human Resource Management: Policies and Practices. *International Journal of Entrepreneurship*, *28(4).*
7. Lulewicz-Sas, A., Zubek, M. (2022). Teoria i praktyka zrównoważonego rozwoju. In: A. Wojtczuk-Turek (Ed.), *Zarządzanie kapitałem ludzkim w warunkach zrównoważonego rozwoju*. Warszawa: PWN.
8. Misztal, A. (2018). Zrównoważony rozwój polskich przedsiębiorstw - ewaluacja. *Handel wewnętrzny, 2(373).*
9. Piwowar-Sulej, K., Bąk- Grabowska, D., Grzesik, K., Zając, Cz. (2023). *Zrównoważone Zarządzanie Zasobami Ludzkimi – wybrane zagadnienia*. Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.
10. Popieluch, K. (2018). *HR Business Partner*. Warszawa: PWN.
11. Poskrobko, B. (1998). Podstawy polityki ekologicznej. In: K. Górka, B. Poskrobko, W. Radecki, *Ochrona środowiska. Problemy społeczne, ekonomiczne i prawne*. Warszawa: PWE.
12. Sadowski, T. (2023). Raportowanie zrównoważonego rozwoju. Szanse i wyzwania nie tylko dla dużych przedsiębiorców. *Europejski Przegląd Prawa i Stosunków Międzynarodowych Europejska Wyższa Szkoła Prawa i Administracji w Warszawie, 3/2023/67*.
13. Ulrich, D., Younger, J., Brockbank, W., Ulrich, M. (2012). *HR from the Outside In: Six Competencies for the Future of Human Resources*. McGraw Hill Professional.
14. Winch, S. (2021). *HR Business Partner organizacja, kultura, społeczeństwo*. Warszawa: SGH Oficyna Wydawnicza.
15. Wojtczuk-Turek, A. (2022). *Zarządzanie kapitałem ludzkim w warunkach zrównoważonego rozwoju*. Warszawa: PWN.

REVIEWERS

Prof. Wojciech JARECKI, University of Szczecin, Poland
Prof. Sławomir KAMOSIŃSKI, Kazimierz Wielki University of Bydgoszcz, Poland
Prof. Marek KUNASZ, University of Szczecin, Poland
Prof. Ewa MAZUR-WIERZBICKA, University of Szczecin, Poland
Prof. Halyna MISHCHUK, National University of Water and Environmental Engineering, Rivne, Ukraine
Prof. Anna ROGOZIŃSKA-PAWEŁCZYK, University of Łódź, Poland
Prof. Izabela STAŃCZYK, Jagiellonian University in Kraków, Poland
Prof. Patrycja ZWIERZCH, University of Szczecin, Poland