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FOREWORD

Presented number of Silesian University of Technology. Scientific Papers. Organization and Management Series. Contemporary management. Presented papers contain result of researches conducted by various universities. The number consists of 50 papers.

The papers presented in the number concentrate on many topics connected with organization and management. There are in the number papers about: economics, production management, social development, safety management, human resources management, innovativeness, coaching, succession management, Industry 4.0, sustainable development, lean manufacturing, leadership and business ethics.

Marta Młokosiewicz

Bożena Skotnicka-Zasadzień

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ASSESSMENT OF THE PROPOSED CHANGES TO INCREASE THE TAX-FREE AMOUNT TO PLN 60,000

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Purpose: The aim of the article is to determine the impact of changes in the tax-free amount on the tax wedge in Poland and to assess the proposed changes in the tax system.

Design/methodology/approach: In order to determine changes the development of the tax wedge, it was measured twice for 2024. The tax wedge analysis was performed for salaries in the range of PLN 4,242 - PLN 19,000 gross per month. The impact of the proposed changes on state budget revenues was adopted as a criterion for assessing changes in the tax system.

Findings: Increasing the tax-free amount to PLN 60,000 in 2024 would will reduce the tax wedge by between 1.3 and 4 percentage points and reduce state budget revenues by approximately PLN 48 billion. The current situation of local government units, in particular municipalities, is difficult and requires subsidization from the state budget, and the proposed changes in the tax system will further reduce their own income and pose a serious threat to their independence.

Research limitations/implications: The subject of further research may be the tax wedge taking into account the degressive tax-free amount and its impact on budget revenues.

Originality/value: The article was written in response to the work carried out by the Ministry of Finance on increasing the tax-free amount and is an attempt to assessment the proposed changes.

Keywords: Tax wedge, tax-free amount, budget revenues, local government units.

Category of the paper: Research paper.

1. Introduction

The election campaign period is always a time of numerous promises and announcements of changes that politicians or groups intend to implement. One of the promises made during the campaign preceding the 2023 parliamentary elections in Poland was to increase the tax-free amount. Such promises were included in the program of the Civic Coalition (2023), which assumed an increase in the tax-free allowance to PLN 60,000. The program of the Confederation of Freedom and Independence (2023) assumed that the free amount would

depend on the minimum wage - constituting 12 times its worth. After the elections ended and the opposition obtained a parliamentary majority, which includes, among others, Civic Coalition, the implementation of the announced changes in the tax-free amount has become realistic. Politicians' statements confirm that a bill in this regard will be submitted by the Civic Coalition, and the increased tax-free amount is planned to come into force in 2025 (Neneman, 2024; Jabłoński, 2023). Changes in the tax system have a number of effects on the country's economy. Undoubtedly, the increase in the tax-free amount will have an impact on the decrease in state budget revenues, which will also have a real impact on the situation of local government units (LGUs), for which income tax revenues are the main source of income (Radzikowski, 2021). For taxpayers, the increase in the tax-free amount means an increase in disposable income due to a decrease in the tax burden.

In this study, the effects of changes in the tax-free amount will be presented from the perspective of the burden on the remuneration of employees. Obtaining income from work involves taxation and contributions. With changes in tax and contribution systems, the burden on remuneration due to these taxes and contributions changes.

These changes can be measured and analyzed using the tax wedge which is the difference between the total cost of employment and net remuneration (Polarczyk, 2007). The total employment costs include the employee's gross remuneration and a mark-up on these remunerations in the form of contributions financed by the employer. Net remuneration is the amount an employee receives for the work performed, after mandatory deductions for taxes and contributions. The tax wedge is therefore the sum of taxes and contributions paid from remuneration by the employee and the employer. However, in comparative analysis, the tax wedge is presented as a percentage - presenting the share of the tax wedge expressed in PLN in the total cost of employment. This approach allows us to observe how the burden of taxes and contributions changes depending on the amount of remuneration earned.

The aim of the article is to determine the impact of changes in the tax-free amount on the tax wedge in Poland and to assess the proposed changes in the tax system. The adopted research goal required the use of the following research methods: critical analysis of legal acts and literature on the subject, comparative analysis. The impact of the proposed changes on state budget revenues was adopted as a criterion for assessing changes in the tax system. In order to determine the development of the tax wedge, it was measured twice for 2024:

- in accordance with the tax solutions applicable as of January 1, 2024,
- by modifying the tax solutions applicable as of January 1, 2024 by taking into account the tax-free amount of PLN 60,000.

The tax wedge was measured for 60 gross monthly salary variants ranging from PLN 4242 to PLN 19,000. The adopted range covers remuneration from the minimum values applicable from January 1, 2024 to the amount for which the taxpayer's annual income is approximately 150% of the first tax threshold. This salary range allows the survey to cover over 97% of taxpayers in Poland. According to data from the Ministry of Finance (MF) (2023) for 2022,

only 3.01% of taxpayers were in the second band of the tax scale. After measuring the tax wedge, a comparative analysis of tax wedge distributions was carried out in accordance with the assumptions. After measuring the tax wedge, a comparative analysis of tax wedge distributions was carried out in accordance with the assumptions. The article is divided into three parts. The first part of the study characterized the factors of the Polish tax and contribution system that constitute the tax wedge. The results of the comparative analysis of the tax wedge are presented in the second part. A discussion on the proposed changes to the tax system in the context of the simulation results constitutes the third part of the article. The synthesis of conclusions and the final conclusion are included in the summary.

Considerations on the proposed changes to the tax system are based on the assumptions included in the Civic Coalition's program and the confirmation by the Ministry of Finance at the beginning of January 2024 that work is underway to implement the election promise to increase the tax-free amount to PLN 60,000. The final direction of changes in the tax-free amount is not yet known and it is possible that in the first half of 2024 there will be specific proposals in the form of draft laws and possible modifications in this respect, given the indication by the Ministry of Finance that the changes will be preceded by numerous analysis and an audit of the state of public finances (Neneman, 2024).

2. Factors shaping the tax wedge

The employee is entitled to remuneration for the work performed. The amount of this remuneration is the result of individual arrangements between the employer and the employee, and may also result from the regulations in force at the workplace. The Polish legal system includes the concept of minimum wage, i.e. a specific amount below which an employee's remuneration cannot fall. The minimum wage amounts change at least once a year; in certain situations, the minimum wage may be changed twice in a given calendar year.

From January 1, 2024, the minimum wage is PLN 4242, this value is valid in the first half of 2024, from July the amount of the minimum wage increases to PLN 4,300. The specified amount of remuneration constitutes gross remuneration. When employing an employee, an employer is not only obliged to pay remuneration for the work performed, but is also obliged to withhold tax and contributions from the gross remuneration. The remuneration after deductions, i.e. the net remuneration, is the amount paid to the employee. The employer also bears the cost of additional contributions, the financing of which is his responsibility. The amount of income tax withheld from the employee's salary as well as contributions borne by the employee and the employer constitute a tax wedge. The size of the tax wedge depends on the legal solutions applicable to taxation and contribution of wages.

The tax system is an important element of state budget policy. The purpose of the tax is to support the state budget, and thanks to the available funds it is possible to implement economic policy. Taxation of the income of natural persons is one of the main sources supplying the state budget (Lubaś, 2019). Shaping the tax system is the subject of numerous analysis and considerations, in particular in terms of its fairness (Radzikowski, 2021). It is assumed that income at a level sufficient to meet minimum needs should not be subject to taxation. In Poland, the subsistence minimum is achieved through a tax-free amount (Mariański, 2021). Additionally, according to the principle of ability to pay, taxation should depend on the taxpayer's individual ability to bear the tax burden. These possibilities should depend on the income, but also the taxpayer's family situation, thus also implementing a pro-family policy (Mariański, 2021).

Taxation in Poland is progressive - the tax rate depends on income, and as it increases above a certain amount, the tax rate increases (Wolański, 2009). Income for tax purposes is determined by reducing gross remuneration by contributions deducted from the employee's remuneration and by the costs of obtaining income¹. If the taxpayer's income does not exceed PLN 120,000 in a given year, it is taxed at a rate of 12%. If this limit is exceeded, the surplus above this amount is taxed at a rate of 32% (Journal of Laws of 2022, item 2647). Additionally, the Polish tax system provides for tax exemption for a certain amount of income, the so-called tax-free amount, which in 2024 is PLN 30,000. This exemption is implemented through tax reducing amount by which the tax amount in the annual tax return is reduced. This reduction is made in the amount corresponding to the product of the tax-free amount and the tax rate applicable in the first bracket of the tax scale, in 2024 it is PLN 3600.

Mandatory contributions related to the employment of employees include the so-called social and health insurance and special purpose funds. The following contributions are paid under the social security system: pension, disability, sickness and accident contributions. These insurances finance subsequent benefits resulting from: reaching retirement age, permanent incapacity for work, illness and maternity, and accidents at work (Ciak, Kołosowska, Piotrowska-Marczak, 2019). In turn, the health insurance contribution finances access to health care under the National Health Fund (NFZ). Special funds include contributions to the labor fund, the solidarity fund and the guaranteed employee benefits fund, which finance tasks supporting unemployed people, people with disabilities and employees whose employer has become insolvent. Calculating the contributions and paying them to the Social Insurance Institution (ZUS) is the employer's responsibility. Some of the above-mentioned contributions are financed only by the employee, some only by the employer, and others are financed by both parties to the employment relationship. The dimensions of individual contributions financed by the employee and the employer are presented in Table 1.

¹ Pursuant to Art. 22 of the Personal Income Tax Act, an employee's income-earning costs amount to PLN 250 or PLN 300 per month. The amount depends on the town where the employee lives and the town where the workplace is located. In special cases, the costs of obtaining income may amount to 50% of the income obtained or may be assumed in the amount of the actual costs incurred for the purchase of season tickets.

Table 1.*Contribution amounts with indication of the financing party*

Contribution type	Financed by the employee	Financed by the employer
Pension contribution	9,76%	9,76%
Disability contribution	1,50%	6,50%
Sickness contribution	2,45%	-
Accident contribution	-	1,67% ²
Health contribution	9,00%	-
Labor fund	-	1,00%
Solidarity fund	-	1,45%
Guaranteed employee benefits fund	-	0,10%

Source: own elaboration.

Social security contributions and special funds are calculated from the employee's gross remuneration. The basis for calculating the health insurance contribution is the gross salary, less social contributions financed by the employee (Journal of Laws of 2022, item 64).

The tax wedge may also include contributions to Employee Capital Plans (PPK), an additional savings program for retirement. However, paying contributions to PPK is not obligatory, as is the case with contributions to ZUS and NFZ. If an employee decides to join the program, a contribution of 2% of his or her gross salary is deducted from his or her salary. In turn, the employer is obliged to pay 1.5% of contribution for each employee who decides to join PPK (Journal of Laws of 2023, item 46).

3. Results

The comparative analysis of the size of the tax wedge was carried out under the following assumptions: the remuneration in question concerns an employee employed under an employment contract, the basic costs of obtaining income apply (PLN 3000 per year), the remuneration from this employment relationship is the taxpayer's only source of income. The employee is not a member of PPK. The analysis omitted the application of any additional income tax reliefs and deductions. The measurements were made for gross monthly salaries in the range of PLN 4,242 - PLN 19,000. The analysis was carried out for two variants of the tax-free amount: PLN 30,000 and PLN 60,000.

Figure 1 shows the shape of tax wedges for 2024 in variant 1 - in accordance with the tax solutions current as of January 1, 2024 (KW symbol PLN 30,000 on the figure) and in variant 2, taking into account the tax-free amount of PLN 60,000 (KW symbol PLN 60,000 on the figure).

² The interest rate may range from 0.67% to 3.33%. In the case of entrepreneurs employing less than 10 employees, it is 1.67%. For employers with at least 10 employees, the contribution rate depends on the type of business.

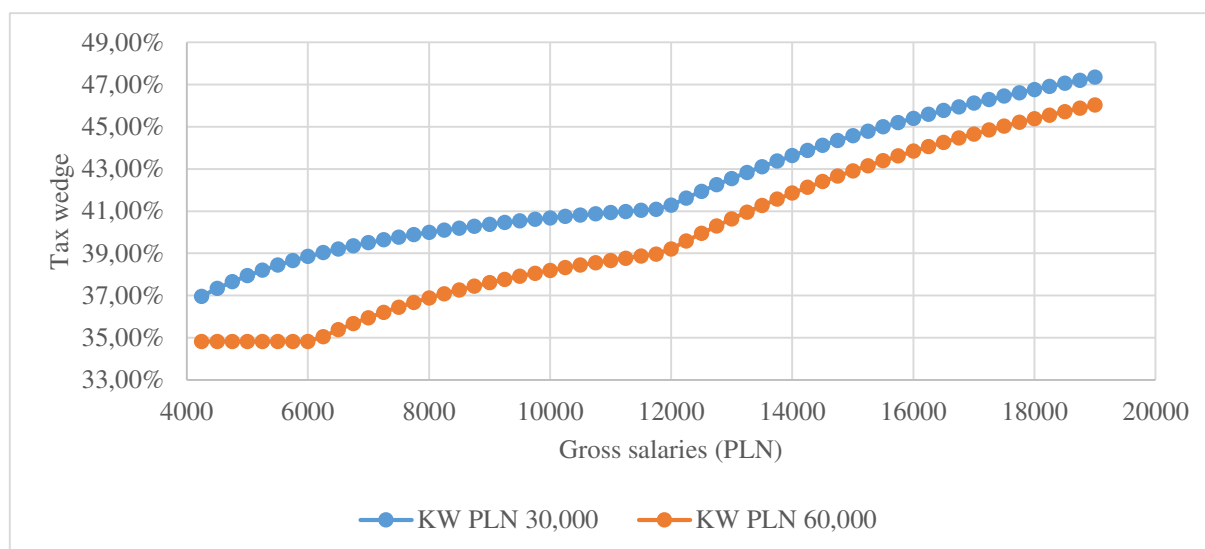


Figure 1. Comparison of the tax wedge in 2024, depending on the tax-free amount.

Source: own elaboration.

The data presented in the chart shows that increasing the tax-free amount to PLN 60,000 will reduce the tax wedge by between 1.3 and 4 percentage points. The largest decline was observed for gross remuneration of PLN 6,000 - the tax wedge decreased by 4.03 percentage points. The differences in the tax wedge are most noticeable for taxpayers whose salaries are in the range between PLN 5000 and PLN 8250, the decrease being between 3 and 4 percentage points. For salaries above PLN 12,500, the impact of the change in the tax-free amount on the tax wedge is less than 2 percentage points and is gradually decreasing, due to the fact that the amount of PLN 3600 in the total amount of tax for this group of taxpayers no longer has such a significant impact on the tax wedge. This is mainly due to the fact that these salaries are already in the second bracket of the tax scale. Contrary to appearances, taxpayers earning the lowest salaries do not benefit most from the change - at the level of the lowest national salary and slightly above this amount. This is due to the fact that the income of these taxpayers does not exceed PLN 60,000, and therefore they do not fully use the higher tax reducing amount.

4. Discussion

The latest legal changes affecting the tax wedge in Poland were introduced in 2022. The program known as the "Polish Order" was to be a response to growing expenses and decreasing budget revenues, and the changes were to result in an increase in the progressivity of the tax system and an increase in budget revenues (Justification, 2021).

The decline in budget revenues as a result of the COVID-19 pandemic has significantly reduced the own revenues of local government units, thus causing a decline in their financial independence and the need to subsidize them from the state budget (Stupałkowska, 2023).

The "Polish Order" was intended to remedy these problems, and the original version of this program included tax changes that would result in an increase in the tax wedge for most taxpayers, except for those earning up to approximately PLN 6000 gross per month. Ultimately, however, changes in the tax system after the amendment to the "Polish Order" turned out to be much more cautious. For taxpayers earning up to approximately PLN 15 000 gross per month, the tax changes not only did not result in an increase in the tax wedge, but this wedge decreased compared to the year preceding the introduction of the "Polish Order". The increase in the tax wedge was only felt by taxpayers whose salaries exceeded approximately PLN 15,000 gross per month, i.e. less than 3% of taxpayers (Augustynowicz, 2023). In reality, the distribution of the tax wedge has become more progressive, but the original goal in terms of budget revenues has not been achieved. The result of the "Polish Order" was a decline in tax revenues in accordance with the tax scale by over PLN 21 billion, from over PLN 86 billion of tax due resulting from taxpayers' returns in 2021 to PLN 64.5 billion in 2022 (MF, 2022, 2022).

According to analysis carried out by the Ministry of Finance, the effect of increasing the tax-free amount to PLN 60,000 would be a decrease in budget revenues by approximately PLN 48 billion. These data were prepared in the conditions of 2024 (Neneman, 2024). The estimated budget revenues from personal income tax for 2024 amount to PLN 109 billion (Journal of Laws of 2024, item 122). This means that fulfilling the election promise will mean for the state budget, but also local government units, a decrease in personal income tax revenues by approximately 44%.

5. Summary

Changes in the tax system should be well-thought-out and preceded by an analysis of their effects, both in relation to taxpayers and the state budget. The process of implementing the last major changes in the tax system as part of the "Polish Order" project was characterized by legislative chaos, numerous errors and had the character of a populist propaganda message (Radzikowski, 2022). Within local government units, it was the municipalities that lost the most, both in terms of income, but especially in terms of their financial independence (Łożykowski, 2023). The introduction of further changes to the tax system, which will result in a sharp decline in budget revenues from personal income tax and will deepen the difficult situation of local government units, may prove disastrous. Increasing the tax-free amount to PLN 60,000 is a costly solution for the budget, but at the same time it may be contrary to one of the main principles of the state's fiscal policy - the principle of ability to pay. According to this principle, the division of the tax burden among taxpayers should take into account their individual ability to pay, and the burden should increase with the increase in income (Mastalski, 2021). However, taxpayers earning e.g. PLN 15,000 gross per month will benefit more from

the proposed reform than those earning the minimum wage. The solution to this problem could be a return to the rules applicable until 2021 regarding the tax-free amount. The tax system in force from 2022 provides the same tax-free amount for all taxpayers, regardless of their income. In 2021, the tax-free amount was dependent on income, and for some taxpayers with income above a certain limit it was PLN 0. Perhaps making the tax-free amount dependent on earned income again would constitute a compromise between the implementation of the election promise and the financial capabilities of the state. The tax-free amount could again have a degressive character, but its minimum value (e.g. for taxpayers with income above the first tax threshold) could remain PLN 30,000. Of course, this solution is not ideal due to the complexity of the tax system. In the presented context, it turns out to be problematic to implement the principle of ability to pay in the event of increasing the tax-free amount without making it dependent on the taxpayer's income. The lack of additional modifications in the tax system, eliminating budget revenues reduced as a result of changes in taxation, may require a significant postponement of the proposed reforms or impose their modification. These issues may be the subject of further research on the Polish tax system.

It is worth adding that on February 7, 2024, a draft bill submitted by Confederation MPs was submitted to the Sejm, providing for an increase in the tax-free amount to PLN 60,000. Importantly, the project assumes that the changes will apply retroactively - from January 1, 2024 (Draft Act, form no. 194). It should be emphasized that such a solution has a number of negative consequences, which were visible, for example, in the case of the "Polish Order", the changes and amendments of which were also introduced during the tax year. The retroactive application of changes in the tax system may lead to chaos, in particular related to the need to quickly adapt accounting and HR systems to the changes, as well as the need for employees to update their declarations for the purposes of calculating tax advances. Changes during the year are problematic, especially from the perspective of enterprises. For sole proprietorships, the tax scale is only one of the three possible forms of taxation, and changes in the form of taxation for a given year can be made for most taxpayers by February 20 (Journal of Laws of 2022, item 2647). Changes in the tax system during the year will either deprive entrepreneurs of the opportunity to use the optimal form of taxation, which will change as a result of the reform, or force the legislator to introduce the possibility of retroactively changing the form of taxation, which will result in disorganization.

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THE USEFULNESS OF SUBJECTIVE TASK LOAD ASSESSMENT METHODS FOR PREDICTING PILOT TASK LOAD IN GENERAL AVIATION ORGANIZATIONS

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Purpose: The research aimed to verify the usefulness of selected subjective methods of task load assessment for evaluating task load in general aviation organizations and forecasting pre-flight load. The study also highlighted the importance of the pilot's task load in the context of flight safety.

Design/methodology/approach: The study included a comprehensive literature review to present the specifics of general aviation organization and the role of the human factor in aviation accidents. The research discussed the division of task load methods and characterized four selected subjective task load methods (NASA-TLX, SWAT, ISA, Bedford Scale). Expert assessments were conducted to evaluate these methods' effectiveness from the perspective of post-flight load assessment and pre-flight load prediction, considering the feasibility of implementation in general aviation organizations.

Findings: The findings emphasized the need to develop a dedicated method for predicting task load before a flight. The study concluded that the methods used should be simple and require minimal financial outlay, considering the specificity of general aviation organizations.

Research limitations/implications: Future research should focus on developing a dedicated pre-flight task load prediction method tailored to the unique requirements of general aviation. Identified limitations include the need for further validation of the subjective methods in different organizational contexts.

Practical implications: The research suggests that implementing simple and cost-effective task load assessment methods can enhance flight safety in general aviation. The development of a specialized pre-flight load prediction tool could significantly improve operational planning and pilot performance.

Social implications: By improving task load assessment and prediction in general aviation, the research can contribute to enhanced flight safety, thereby potentially reducing accident rates and improving public trust in aviation safety measures.

Originality/value: This paper contributes to the field by addressing the gap in pre-flight task load prediction in general aviation. It provides valuable insights for aviation safety researchers, practitioners, and policymakers interested in optimizing pilot performance and ensuring flight safety.

Keywords: safety management, operational risk management, flight safety, task load, human factor.

Category of the paper: Research paper.

1. Introduction

The aim of the research was to verify the usefulness of subjective methods of assessing task load from the point of view of small general aviation organizations.

According to the intention, the selected methods had to be used to assess the pilot's task load after the flight, but also to predict the task load before the flight, when it is possible. Task load prediction could constitute the basis for the assessment of operational risk related to the execution of a flight, which is practically not carried out at all in general aviation organizations.

The starting point for these considerations is the fact that approximately 80% of adverse events in aviation (accidents, incidents) are caused by human-related factors.

At the same time, from the point of view of safety culture, risk management and safety management, the greatest problems occur in general aviation.

2. Review of the literature

2.1. Specificity of the organization of general aviation

General aviation includes all aviation, excluding state aviation (mainly military aviation, police and border guard aviation) and commercial aviation. The majority of general aviation aircraft are aircraft owned by flight training organizations and private owners.

Especially in training flights, the task load has a significant impact on the operator's error (Hsu, Shu, Liu, Wang, 2022; Kang-Seok, Eun-Suk, Young, 2014; Romero, Robertson, Goetz, 2020; Szopa, 2015).

General aviation is the aviation sector with the highest number of fatal accidents. Despite many activities at international, European and national levels, and the increased efforts made by general aviation organizations, these trends are continued. General aviation is a very specific sector; it is characterized by a relatively low safety culture, the need to manage safety using a small budget, high pilot turnover, and often an outdated or heterogeneous fleet. A large proportion of flights undertaken in this sector are recreational or training flights, which carry a higher risk - because they are often made by pilots with relatively little experience, as an example. Also, training flights, due to their specificity, which includes the need for intensive flight practice in dangerous situations by student pilots on their own, as an example, involve increased risk (Sun, Yang, Zhang, Zhao, 2023).

Among the causes of high-risk events in the area of human factors, the most common causes include task performance, situational awareness and sensory events (figure 1).

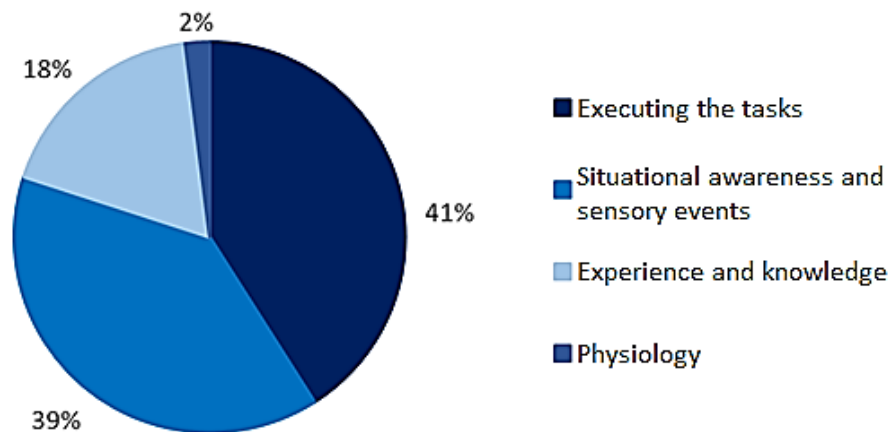


Figure 1. Division of high-risk events in the area of human factors, according to causal codes for accidents and serious incidents. High-level event codes related to human factors and human performance, applicable to accidents and serious incidents.

Source: own study based on research results EASA, 2022.

These data indicate a significant impact of task load management on flight safety.

2.2. Division of task load methods

There are many methods for assessing task load. They are most often used to determine whether an operator is overloaded or underloaded; whether there is a need to reduce the load; whether there are still resources available to be used for additional tasks (Masi, Amprimo, Ferraris, Priano, 2023). Assessment results can contribute to actions aimed at the reduction of the load, by providing support to the person through technical or organizational means (Davis et al., 2014; United States Department of Transportation, 2019).

Despite the availability of many methods, assessing task load is a difficult task. This is due to the limitations of each of the methods developed so far and the presence of many variables that affect human functioning (Casper, Kantowitz, 2009). Selected methods, that are considered particularly useful from the point of view of their application in aviation, are characterized below. They are divided into subjective, semi-objective and objective (Alaimo, Esposito, Orlando, Simoncini, 2020; Berlik, Ewertowski, Sławińska, 2019).

Subjective methods include methods that are based on a person's own assessment. The pilot assesses the load while performing the task by providing answers using a questionnaire. The advantage of using these methods is obtaining a person's subjective opinion about his or her experiences. However, the possibility of manipulating the research results by filling out the questionnaire unreliably is its disadvantage.

Semi-objective methods, also based on human assessment, include all methods in which the assessment is made by the person conducting the observation. In the case of pilot's load evaluation, the assessment may be made by the training or controlling the instructor. Another example of an assessor is a so-called "safety pilot", i.e. a pilot who is not in command of the aircraft and who i.e. accompanies a less experienced pilot to enable the response to emergency situations. Similarly to subjective methods, semi-objective methods also involve a limited

perception of the situation by the assessor and the risk of manipulation which is made by him, but such an assessment is largely objectified because it is performed by a third party, who usually has greater knowledge and experience.

The last group consists of objective methods, which include all methods based on the recording of human physiological parameters. Their advantage is a very limited scope of interference by the examined person on the obtained measurement results. Unfortunately, these methods are expensive, and the interpretation of the results is simultaneously very demanding, and their implementation in general aviation organizations is very difficult or often impossible. For this reason, this study focuses on subjective and semi-objective methods.

2.3. A review of subjective and semi-objective task load methods

Subjective Workload Assessment Technique (SWAT) (SWAT Eurocontrol)

SWAT is a multidimensional workload assessment method for pilots that takes into account the following categories (Zhang, Zheng, Duan, Meng, Zhang, 2015):

- time deficit,
- mental load,
- stress level.

The SWAT assessment consists of two stages. The first one, and the most time-consuming one, involves developing a scale. The subject arranges 27 cards in the order corresponding to how the workload is perceived by the subject - from the smallest to the largest. Based on the respondent's answers, an analysis is carried out to develop an individual scale. In the second stage, the subject assesses the workload for a given task. This is done based on the assessment of specific activities according to the indicated categories (time deficit, mental load, stress level). In each of these areas, the respondent can rate the level of load on a scale of one to three points. Then the results are converted in accordance with the scale developed in the first stage. The end result is an assessment of the load level in the form of a numerical result ranging from zero to one hundred points.

National Aeronautics and Space Administration Task Load Index (NASA-TLX)

NASA-TLX is a questionnaire method developed by the Human Performance Group at NASA's Ames Research Center (Zhang et al., 2015). During the test, using a prepared questionnaire, the task load is assessed after the flight in six indicated categories:

- mental load,
- physical load
- time pressure,
- efficiency,
- effort,
- frustration.

During the assessment, the tested pilot marks the appropriate part of the twenty-point scale on the questionnaire, corresponding to his load range. Expressing the level of load by marking on a scale, rather than providing a numerical value, is intended to provide a more reliable evaluation. Then, in a choice test, where two categories are contrasted, the subject selects the one that generates the feeling of the greatest load (Berlik, Ewertowski, Sławińska, 2019; NASA-TLX, 2009).

The advantage of using the NASA TLX method is that it is quite easy to conduct the test. Completing the questionnaire (Fig. 2) takes a few minutes, and analysing the answers allows you to obtain sufficiently accurate results. The great advantage of the NASA TLX method is the identification of the categories in which the greatest load occurs. There are many applications available (Fig. 3) for iOS and Android systems, as well as spreadsheet templates that enable quick preparation of research results (Gawron, 2008).

NASA Task Load Index

Hart and Staveland's NASA Task Load Index (TLX) method assesses work load on five 7-point scales. Increments of high, medium and low estimates for each point result in 21 gradations on the scales.

Name	Task	Date
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Mental Demand How mentally demanding was the task?

Very Low Very High

Physical Demand How physically demanding was the task?

Very Low Very High

Temporal Demand How hurried or rushed was the pace of the task?

Very Low Very High

Performance How successful were you in accomplishing what you were asked to do?

Perfect Failure

Effort How hard did you have to work to accomplish your level of performance?

Very Low Very High

Frustration How insecure, discouraged, irritated, stressed, and annoyed were you?

Very Low Very High

Figure 2. NASA TLX questionnaire.
Source: NASA TLX, 2009.

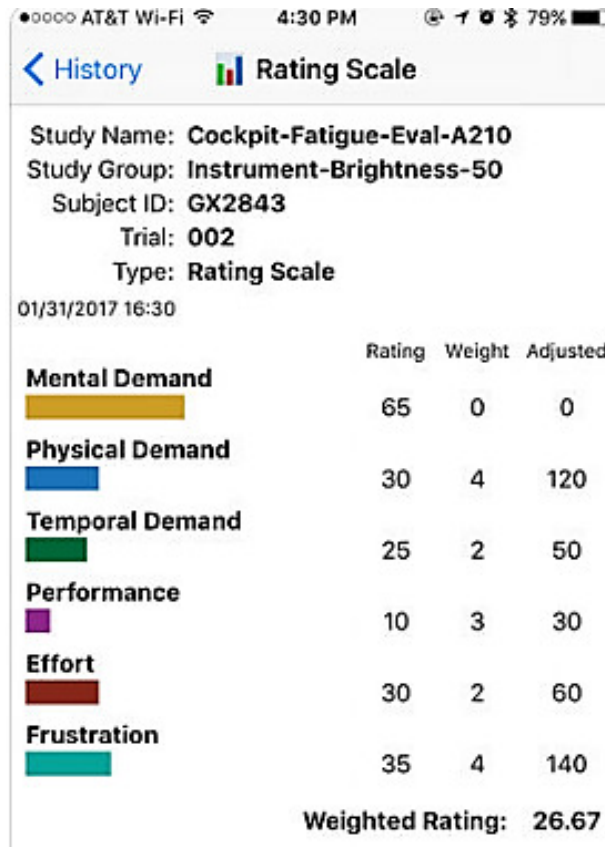


Figure 3. Sample result of an assessment conducted using the NASA-TLX questionnaire in the application.

Source: NASA TLX App Store.

Bedford Workload Scale

In the Bedford Workload Scale, the subject assesses his or her workload on a ten-point scale (Figure 4) using auxiliary questions. Thanks to the auxiliary questions regarding whether the task was possible at all, whether the level of load was tolerable and whether the level of load was satisfactory without the use of additional tools to reduce it, detailed questions are separated to which the appropriate level of load is assigned (Jennings, Craig, Carignan, Ellis, Qinetiq, 2005). The big advantage of this method is the significantly shorter evaluation time than other methods and the fact that the results do not require detailed analysis. Unfortunately, the assessment carried out using this method does not allow to identify the categories in which the load was greatest. However, it can be a method of quickly assessing whether a person is overloaded, underloaded, or whether the load is adequate. Thanks to this, it is possible to suspend the implementation of the task and perform a detailed diagnosis (Berlik, Ewertowski, Sławińska, 2019; Sgobba et al., 2017).

Bedford Workload Scale

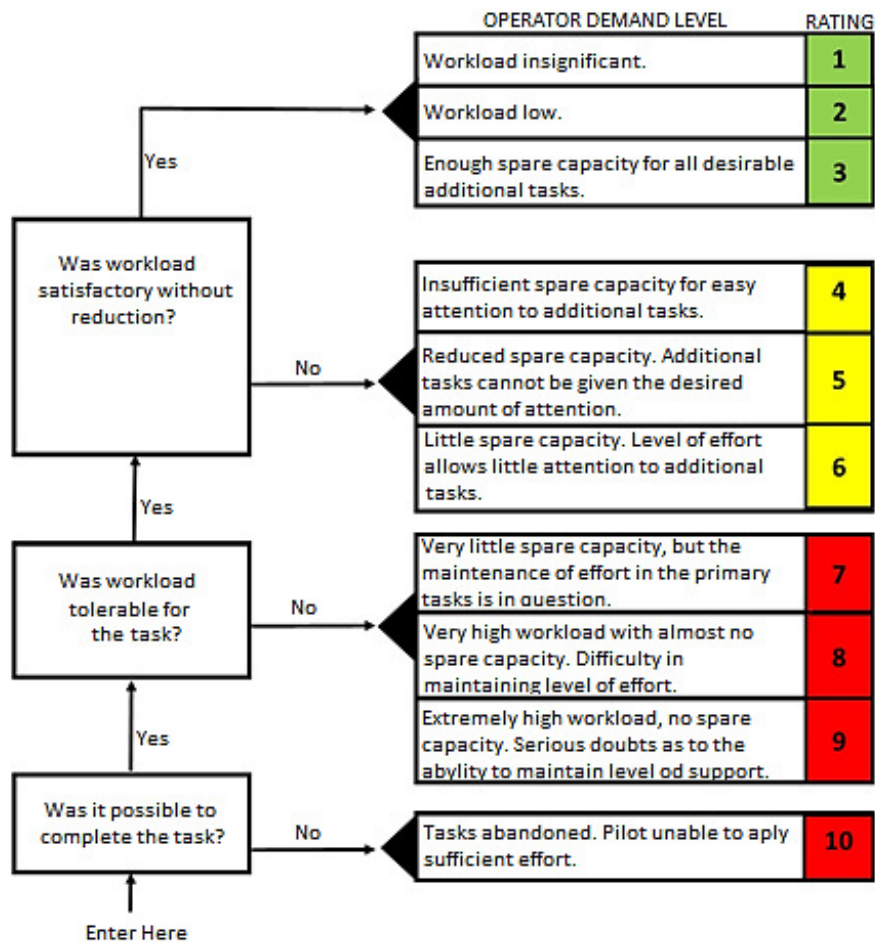


Figure 4. Bedford Workload Scale.

Source: own study based on research results Mari, et al., 2014.

Instantaneous Self Assessment (ISA)

ISA is a technique for immediately assessing the extent to which an operator's resources are committed to performing tasks (Hamann, Carstengerdes, 2020). The assessment is made by selecting the appropriate key on the keyboard located at the workstation. The subject assesses the degree of load by selecting a key in the appropriate colour, additionally marked with a description. The operator is informed about the need to perform an assessment by the illumination of a diode, that is located at his eye level. What is characteristic of this method is that the assessment is made while performing the task (Radüntz, Fürstenau, Tews, Rabe, Meffert, 2019). A description of the individual levels of load assessment is provided in Table 1.

Table 1.
Instantaneous Self Assessment (ISA) stress levels

Rating	Load	Description
1	Unused	Nothing to do, boredom
2	Relaxing	More than enough time to complete all tasks. Task-related activity for less than 50% of the total expected time
3	Comfortable	All tasks possible to complete. Brisk and stimulating pace of load development. Work is still possible at this level
4	High	Insignificant difficulties in performing tasks. Work at this level cannot be performed for too long
5	Excessive	Delays in completing tasks. Loss of full picture of activities performed

Source: own study based on Rusnock, Geiger, 2017.

The ISA method is most often used in examining the work of air traffic controllers. It would be difficult to use it in the study of a pilot's work during a flight, especially in the key phases that are most interesting from the researcher's point of view and generate the greatest load - such as take-off or landing. However, there are known cases of this method being used in a flight. An example would be research conducted during experimental flights conducted by Airbus. During the tests, a keyboard was mounted to the aircraft's instrument panel. The diode was activated manually by an observer on board when the nature of the tasks performed changed significantly or at a standard three-minute interval. In addition, the observer assessed the load level of both pilots performing the flight on a seven-point scale and recorded the errors made on a three-point scale, identifying them as: minor, significant and having an impact on safety.

Due to the need to provide answers while performing the task, this method is useful from the point of view of examining the pilot's load in the simulator. Unfortunately, the impact of the conducted research during the flight may be too great on its safety (ISA, 2023).

Research is also carried out to develop other methods of assessing task load (especially objective methods). Unfortunately, due to their lack of availability or lack of confirmed effectiveness, they were not included in this study. It is possible that over time, thanks to intensive research and development work, in the near future they will become available and useful from the point of view of measuring task load and managing flight safety (Berlik, 2023).

3. Research methodology

As part of the selection of tools for assessing the pilot's task load, the selected tools were tested during flights. The verified tools were selected on the basis of a focused interview and the results of an assessment conducted by experts in 2020. The following describes the interview and expert assessment, as well as the experience gained during the test flights.

When selecting the experts, it was assumed that they should have extensive aviation experience, especially experience in training, observing and assessing pilots' behaviour in various workload situations. Based on these assumptions, the following requirements were adopted:

- possession of a pilot license,
- possession of a valid general training instructor certificate (formerly 1st class) authorizing the student pilot to perform the first solo flight and the first solo flight/route flight in his/her life,
- having at least 400 hours of general flight time,
- having at least 100 hours of flight time as an instructor.

The interview was helped by the fact that the author, being a pilot and instructor himself for many years, met the above requirements and well understood the issues raised.

The experts' task was to assess the usefulness of the proposed tools from the point of view of practical application in a small general aviation organization.

Instructors were to take into account aspects such as:

- the possibility of conducting a comprehensive load assessment, also including technical, environmental, management and procedural factors affecting the pilot's load;
- feasibility of using the solution in the organization. The following was considered: tendency of pilots and instructors to perform additional tasks and the possibility of analysing data obtained with means of tools and by people operating in the organization;
- functionality and possible difficulties resulting from the use of tools, especially during flight;
- the impact of the applied tools on the safety of flights.

Instructors rated the tools on a scale of 1 to 5 points, where 1 point meant the least usefulness and 5 points the most usefulness.

An average score of 2.5 points or more was considered satisfactory.

4. Research results

The results of the evaluation of individual tools are presented in the table below (Table 2). In the instructors' assessment, the NASA-TLX and Bedford Workload Scale methods achieved a score of 2.5 points and higher. The most useful tool was the NASA-TLX questionnaire (4.5 points), and the second tool - the Bedford task load questionnaire - was rated at 3.75 points.

Table 2.

Results of the method usefulness assessment for measuring the pilot's task load

Results of the method usefulness assessment for measuring the pilot's task load					
	instructor 1	instructor 2	instructor 3	instructor 4	average rating
Subjective Workload Assessment Technique (SWAT)	2	1	1	2	1,5
National Aeronautics and Space Administration Task Load Index (NASA-TLX)	5	3	5	5	4,5
Bedford Workload Scale	5	1	4	5	3,75
Instantaneous Self Assessment (ISA)	1	1	2	1	1,25

Source: own study based on (Berlik, 2023).

In their comments, instructors mainly indicated practical aspects. They found that the NASA-TLX and Bedford Workload Scale methods are the most useful from the point of view of a small general aviation organization, because their application is the simplest and does not require the installation of additional devices and long-term familiarization of the pilot with the assessment principles. At the same time, it was demonstrated that tools based on questionnaires are useful in methods that build awareness of the risks and difficulties that may be encountered during the flight, when the pilot, who is familiarised with the assessment method before the flight, will be able to interpret the level of his skills and preparation for the flight and compare this knowledge with his thoughts on the difficulties related to the performance of the task. This is especially important for less experienced pilots and may also contribute to better preparation for the flight. At the same time, concerns were expressed that an inexperienced pilot may not be aware of potential difficulties during the flight or may even not know what factors may affect the load. It was suggested that the use of auxiliary questions, to which the pilot should answer before the flight, could help the pilot take a comprehensive insight into various aspects of the planned task and compare own capabilities with the conditions of the executed task (Berlik, 2023).

NASA-TLX

It was demonstrated in the experts' assessment, that it may be quite a problem to explain to respondents the meaning of the names of individual categories.

Also during the tests, it turned out that the simplicity of the method was its drawback. It was found that a major problem may be not only explaining to respondents the meaning of the names of individual categories, but also the load factors occurring in them.

Despite the above problems, completing the post-flight survey was not difficult. Unfortunately, pre-flight load prediction using this method was difficult. This was due to the fact that particularly the inexperienced pilots had trouble understanding the factors that could generate load in given categories. They did not take into account many aspects and needed advice on what load-related factors may occur during the flight.

The above problems contributed to the development of own questionnaire, based on the areas identified by NASA-TLX. It consisted of specific questions about the various factors that generate load during and before flight on a given day, organized into 6 NASA-TLX load-related groups.

Bedford Workload Scale

The tests demonstrated the possibility of carrying out the method very quickly, as well as its convenience in assessing the load during the flight or its selected phase (e.g. landing). During the tests, the pilot was also asked to indicate the phase of flight in which he felt the greatest load and to rate it on the Bedford scale. In the case of the research conducted, the method was considered unusable due to its poor usefulness in terms of load forecasting.

5. Conclusions

The analyses carried out and the obtained research results indicate the greatest usefulness of the NASA-TLX method for the purposes of assessing the pilot's task load in general aviation organizations. However, the use of this method may be difficult due to the unclear definition of the six areas of task load identified in the questionnaire.

A much easier and less time-consuming method is the Bedford Workload Scale. The one-dimensional result obtained in this method can be an advantage because it clearly helps to determine to what extent the task performed was adequate to the level of knowledge and skills of the pilot. An important advantage may also be the ease of answering by the respondent.

Unfortunately, in the author's opinion, the usefulness of all analysed methods for pre-flight load prediction is low. This problem particularly concerns pilots with little experience, who have little awareness of the factors affecting the task load during a flight and for whom making a prediction may be extremely difficult, and it cannot be ensured that such a prediction will be made in a comprehensive manner.

According to the author, it is advised to develop a special questionnaire dedicated to predicting task load before a flight, which would take into account individual task load factors. Completing such a questionnaire, which included detailed questions about the factors affecting the task load associated with the flight, could facilitate accurate prediction of the load, but also increase the pilot's awareness of the risks associated with the flight and be helpful in self-

monitoring the flight preparation. The questions included in the questionnaire should concern various issues related to the performance of the task by the pilot, such as: weather conditions, the type of space in which the flight will be performed and the procedures applicable there, knowledge of the aircraft and the difficulty of piloting it, the pilot's well-being, etc.

The development of such a questionnaire should be preceded by literature research, and its usefulness should be verified during the research. Due to the specificity of general aviation organizations, which usually employ only a few people, have a small budget and where the pilot is also the customer, it is particularly important to select the methods that are as least burdensome as possible. Some of the most important criteria when developing it should be: low time consumption related to both its completion and analysis of results, simplicity and low cost (Berlik, 2023).

6. Summary

This article discusses the importance of the human factor in managing flight safety, as well as the importance of the pilot's task load in this area. The basic limitations faced by general aviation organizations in managing flight safety and monitoring the pilot's task load were also discussed.

Based on the analysis of four selected subjective methods, which can also be used as semi-objective methods, their usefulness in assessing the task load after a flight was noticed. Unfortunately, they turned out to be of little use in terms of the pilot's pre-flight load prediction. This is especially a problem for young, less experienced pilots who are less aware of the factors that may occur during flights. It is advisable to develop questionnaire methods containing detailed questions regarding pilot load factors during the flight. They should take into account as comprehensively as possible the factors affecting the pilot's task load and refer not only to the person himself, but also to the fullest extent possible to the elements of technology or the environment influencing the performance of the aviation task. The use of questionnaires constructed in this way could enable the prediction of the pilot's task load during the flight, and thus the prediction of the operational risk associated with the flight. Such questionnaires could also contribute to the increased level of safety of air operations by increasing the pilot's awareness of the task being performed and enabling self-monitoring of his or her preparation for the flight.

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CARE FARMS AS A FORM OF VOCATIONAL ACTIVATION. A CASE STUDY

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Purpose: The purpose of this paper is to present the care farm as a form of vocational activation for the farmer, their family members, or their employees, as well as to prepare or reintegrate into the labour market individuals who use the services of these farms, based on the project "Independently (not alone) – supporting people with disabilities in the Tuchola County".

Design/methodology/approach: The article presents the functioning of care farms based on the literature on the subject. A case study of care farms that directed their services to people with intellectual disabilities was presented based on information obtained through an expert interview with the leader of the project "Independently (not alone) – supporting people with disabilities in the Tuchola County" and a representative of the Kuyavian-Pomeranian Agricultural Advisory Centre in Minikowo, a project partner.

Findings: As part of the project "Independently (not alone) – supporting people with disabilities in the Tuchola County", jobs were created for 10 people in the examined care farms, and 4 people from supporting institutions were employed for 2.5 full-time positions. An undeniable success of these care farms was the vocational activation of 22% of the participants in the project.

Research limitations/implications: The article describes a case study of the completed project "Independently (not alone) – supporting people with disabilities in the Tuchola County". Future research should expand the scope of the study by increasing the number of examined care farms and directly obtaining the opinions of project beneficiaries (people with disabilities and their caregivers).

Practical implications: Expanding knowledge about the functioning of care farms may increase interest among farm owners in diversifying their activities in this direction. Identifying the needs of people with disabilities and their caregivers can contribute to improving work organization and management in care farms.

Social implications: To include people with disabilities and their caregivers in society, awareness of the needs of people with disabilities and their caregivers must be raised among both entrepreneurs and the general public.

Originality/value: The article describes the effects of a completed project aimed at supporting people with disabilities in care farms. Agricultural farms have recently expanded their activities to include the provision of care services, for example, for seniors or people with disabilities. The article is informational and educational, pointing out the possibilities of diversifying the activity profile and sources of income for agricultural farms and drawing attention to the needs of people with disabilities and their caregivers.

Keywords: care farm, vocational activation, intellectually disabled.

Category of the paper: research paper, case study.

1. Introduction

The Polish countryside has changed over the past few years. More and more people are choosing the countryside as a place to live. In 2000, 14.6% of the total population lived in rural areas, and by 2022, this figure had risen to 15.3%. However, agriculture is not the main source of employment for rural residents. In 2000, 27.8% of people worked in agriculture, but by 2022, this percentage had decreased by 19.4 percentage points, reaching 8.4%. The reduction in agricultural employment may be due to concentration processes in agriculture. The average size of a farm in 2020, compared to 2010, increased by almost 16%, reaching 11.8 hectares. The structure of farms is also changing and varies regionally. In the Kuyavian-Pomeranian Voivodeship, farms over 15 hectares are more common than the national average, and large farms, over 100 hectares, constitute over 24% of all farms in the voivodeship. The transformation process in the countryside also affects the farmers themselves, who, in the face of challenges, seek alternatives to diversify their activities and income sources. One option is running a care farm.

Care farms are part of the so-called social farming movement. This is an innovative approach to agriculture that involves introducing social services into functioning farms. It is important that the provision of these services is based on the resources and activities of the farm. Thus, the essence is the multifunctionality of the farm, understood as the ability to meet not only production-market needs but also non-agricultural needs—environmental, cultural, economic, and social (Lenard, 2023). Care farms are run by farmers or household members, and their clients are people in need of support, mainly seniors, but also dysfunctional individuals, those struggling with addictions, the unemployed, and so-called troubled youth (GROWiD, 2021).

This study aims to present care farming as a form of professional activation for the farmer, his family members, or his employees, as well as to prepare or reintegrate into the labour market those who use these services, based on the project "Independently (not alone) - supporting people with disabilities in the Tuchola County".

The article, based on the subject literature, outlines the functioning of care farms. A case study of care farms offering services to people with intellectual disabilities is presented based on information obtained through expert interviews.

2. What is a care farm?

The idea of care farms is to adapt agricultural farms so that elderly people or those in difficult life situations can actively spend their free time and receive support enabling social

integration. Thanks to the agricultural nature of the farm, the beneficiaries can experience the therapeutic effects of nature and contact with animals, and by engaging in small household or farming tasks, they can enjoy human interaction and feel needed (Lenard, 2023).

In the field of care farming, the Netherlands is one of the pioneering countries. Compared to other countries, this sector is well-developed there, thanks to the cooperation of farmers at both regional and national levels and the diversity of initiatives undertaken. Care farms are firmly embedded in the perception of Dutch society, particularly in the co-functioning of the social and healthcare sectors. Currently, Dutch care farms are considered a dynamically developing sector of innovative services, actively responding to the changing needs of society (Hassink, Agricola, Veen, Pijpker, de Bruin, van der Meulen, Plug, 2020).

As Hemingway, Ellis-Hill, and Norton (2016) indicate, in the United Kingdom and other parts of Europe, care farming is the potential of agricultural activities that can be used to achieve health, social, and educational benefits. Therefore, they define care farms as the therapeutic application of agricultural practices. According to their research on the English market, staff employed on care farms perceived them as friendly and supportive places where people can experience closeness to nature and sustainable food production. Care farms are considered places providing an inclusive environment conducive to the personal development of clients, offering the opportunity for integration with others, and a place where one can learn about nature and oneself.

In Poland, as Kamiński (2015) points out, the beginnings of care farms can be traced back to the second half of the 19th century when people with disabilities were sent to special care institutions located in rural areas and on enclosed grounds near parks and forests on the outskirts of large cities. It was already noticed then that the natural environment had a calming effect on such patients. A common phenomenon in these institutions was the establishment of one or more farms producing basic foodstuffs, which helped reduce their operating costs. Where appropriate, patients could participate in agricultural work. Besides clear financial benefits, it was observed that the work performed had a positive effect on patients. The concept of combining the productive and therapeutic roles of farms has returned, and for example, in 2019-2022, the Ministry of Agriculture and Rural Development implemented a care farm project (GROWiD). This project responded to the aging rural population and aimed to create a model that would enable the establishment of a network of care farms in Poland (Lenard, 2023). The Kujawsko-Pomorski Agricultural Advisory Center in Minikowo promotes the implementation of the care farm concept as the coordinator of projects such as "Green Care Farms", "Care in the barnyard", and "Independently (not alone)" (Czarnecki, Dudek, Kamiński, Komorowski, Stanny, Wilczyńska, 2021), which is the subject of this study.

The role of care farms results from the multifaceted nature of their activities. As a result, through their activities, they can generate positive external effects and thus contribute to social development. According to a study conducted by Nazzaro and his team (2021), the factors determining the development of care farms are primarily: the desire to develop one's farm in

line with the idea of sustainable development (indicated by 64% of respondents), diversifying the source of income (36%), conducting socially responsible (ethical) activities (24%), and increasing employment opportunities (20%). Despite many benefits, the development of care farms faces many barriers. The biggest problem is the mentality of farmers and their resistance to change, and the need to invest additional funds (28% of indications each), as well as limited access to information (20%) and bureaucratization (12%).

Social farming, which includes the activities of care farms, combines agriculture with activities related to tourism, education, healthcare, or social care, and also the labor market. Therefore, depending on the sector with which the farm cooperates, there are agrotourism, educational, therapeutic, care, or integrative farms (GROWiD, 2022). In the Netherlands, Hassink and his team (2012) divided farms performing care roles according to the following criteria:

- Types of Services Provided [Emergency Assistance (Helping Hand); Basic and Integrated Care Services; Integration Services].
- Engagement of Household Members in Conducting Care Activities [Farmer (Farmer's Wife); Employed Workers from the Care Services Sector; Others (e.g., Volunteers)].
- Form of Conducting Activities (Independent Household, Cooperation, Outsourcing).

Based on their research, six main types of care farms were identified (Table 1). These vary in terms of the funding model, level of investment and costs, and the predominant source of income.

Table 1.
Characteristics of the main types of care farms

Type of care farm	Characteristic features
Farms providing emergency assistance services (<i>helping hand</i>)	<ul style="list-style-type: none"> • Low circulation and costs. • The main revenues come from agricultural activities. • Customers are involved in agricultural activities. • Subcontracting services.
Farms providing basic care services	<ul style="list-style-type: none"> • Low circulation and costs. • Revenues come from agricultural and care activities. • Financing mechanism – deductible or subcontracting of services.
Integrated Care Farms	<ul style="list-style-type: none"> • Significant expenditures and costs. • Revenues come from agricultural and care activities. • Financing mechanism – deductible or subcontracting services.
Independent care farm (services provided by a farmer)	<ul style="list-style-type: none"> • Significant expenditures and costs. • The main revenues come from care activities. • Diversified financing mechanism.
Independent care farm (services provided by persons employed by the farmer)	<ul style="list-style-type: none"> • High outlays and costs. • The main revenues come from care activities. • Diversified financing mechanism.
An independent care farm run in a different form, e.g., a foundation, an association	<ul style="list-style-type: none"> • High outlays and costs. • The main revenues come from care activities. • A diversified financing mechanism. • Fundraising.

Source: own study based on Hassink, Hulsink, Grin, 2012, pp. 569-600.

Sedlak and his team (2021), on the other hand, used the following classification of social farms in their study:

- rehabilitation farms,
- social and rehabilitation farms,
- social farms,
- cooperative farms – educational,
- care farms.

Undoubtedly, care farms, regardless of the type, have specific goals to fulfill. According to Hemingway and Co. (2016), the conditions for the functioning of a care farm are to give their clients a sense of acceptance and belonging, as well as to increase their self-reliance and independence. The participants learn through entertainment and fun. All these activities are aimed at building social relationships in harmony with oneself and nature (Fig. 1).

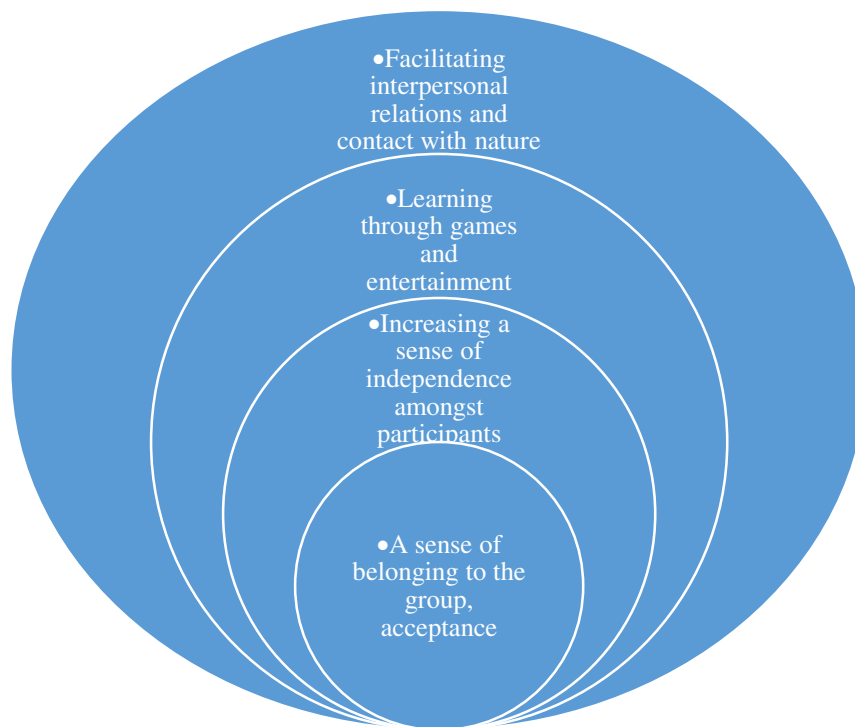


Figure 1. The purpose of functioning of care farms.

Source: Hemingway, Ellis-Hill, Norton, 2016, pp. 23-29.

Participants of care farms are oriented towards working during the day and having closer contact with society. They perceive care farms as open, real workplaces where they can demonstrate responsibility and integrate with others (Iancu, Zweekhorst, Veltman, van Balkom, Bunders, 2014). According to Elings (2012), participants in activities conducted by care farms feel more capable and useful when they work together. This combination of various opportunities distinguishes care farms from other work or daycare projects. Care farms are seen by many participants as a pleasant and safe haven between their illness and/or addiction and society in general, providing them with the opportunity to gain regular or volunteer work.

3. "Independently (not alone)" - care farms supporting people with intellectual disabilities

Care farms often tailor their services to the needs of an aging society, frequently targeting their offerings towards seniors. Therefore, the care farms project dedicated to people with intellectual disabilities deserves special attention. The scale of problems faced by people with various dysfunctions is undoubtedly very broad. However, it is difficult to estimate the number of people with disability certificates. Some data is contained in the Electronic System for Monitoring Disability Certification (EKSMOON). The Social Insurance Institution (ZUS), the Agricultural Social Insurance Fund (KRUS), and the Ministry of Interior and Administration (MSWiA) also have their databases. Some people may still have certificates issued by the now-defunct Commission for Disability. Additionally, disability certificates can still be issued by County/Municipal/Voivodeship Teams for Disability Certification. These systems are not cohesive, and individuals may hold certificates issued by several of these institutions. Therefore, the support provided to people with disabilities follows the provisions of the Act of August 27, 1997, on professional and social rehabilitation and the employment of disabled persons (Journal of Laws of 2019, item 1172, as amended), which indicates that not only certificates issued under this Act, but also equivalent certificates should be honoured.

According to data published by the Central Statistical Office (GUS) (2023a), in Poland (as of December 2022), there were 2.3 million people receiving pension or disability benefits or registered for insurance by premium payers in ZUS, who had a disability certificate or degree of disability (issued by disability certification teams) or a certificate of incapacity for work (issued by ZUS). Notably, nearly 700,000 people registered for insurance in ZUS by premium payers presented a disability certificate or degree of disability (issued by a disability certification team) or a certificate of incapacity for work (issued by ZUS). The highest number of people per 10,000 population was reported in the Lubusz Voivodeship (319), and the lowest in the Mazowieckie Voivodeship (127). In the Kuyavian-Pomeranian Voivodeship, this number was intermediate, amounting to 204 people per 10,000 inhabitants.

To estimate the scale of the problem, data from GUS (2023), indicating beneficiaries of community social assistance (with income below the criterion) who were granted benefits due to disability, was used. Based on the data in the table (Tab. 2), we can see that disability is the reason for using social assistance for nearly 45% of all households receiving social assistance. Beneficiaries are more often city residents (about 63%) than village residents (about 38%). Approximately 8% of all households receiving social assistance in Poland are located in the Kuyavian-Pomeranian Voivodeship. In the Kuyavian-Pomeranian Voivodeship, about 6% of all households receiving social assistance and 37% of households in the voivodeship use social assistance due to disability. The share of households located in the countryside is 34% and is almost 3 percentage points lower than the national average.

Table 2.

Households benefiting from social assistance with an income below the criterion by type of household and disability as the reason for granting the benefit in 2022

Specification	Number of farms	Share (%)
Poland	422 276	-
Including:		
Because of disability	188 650	44,7
In town	117 953	62,5
In the countryside	70 696	37,5
Kuyavian-Pomeranian Voivodeship	32 337	7,7
Including:		
Because of a disability	12 075	37,3
In town	7 976	66,1
In the countryside	4 099	33,9

Source: Beneficiaries of community social assistance in 2022 r. GUS 2023.

The higher number of households receiving assistance in cities compared to rural areas can be attributed to greater accessibility and fewer barriers to accessing such help. The availability of health and social services is a social issue affecting not only farmers but entire rural communities. Rural society, including farmers, is at a disadvantage compared to urban populations in terms of spatial, temporal, and cost-related factors, as well as the quality of services provided. Due to poorer transportation conditions in rural areas (it takes an average of about 40 minutes to reach places offering support, and depending on the region, it can take over 85 minutes), access to various types of support is much more difficult. As a result, there is more often underutilized human capital in rural areas compared to cities (Czarnecki, Dudek, Kamiński, Komorowski, Stanny, Wilczyńska, 2021). Therefore, it is crucial to create support offerings in rural areas, encourage activation, and present interesting self-realization opportunities (Chmielewska, 2018), as well as to continue reducing the disparities between rural and urban areas.

From the perspective of the labour market, the functioning of care farms should be viewed from two angles. First, providing opportunities to enhance skills and qualifications for members of the farming household, simultaneously allowing them to diversify their sources of income. Secondly, the possibility of participating in therapeutic activities offered by care farms opens various perspectives for their participants, including finding their place in the open labour market. In such cases, even a single instance of professional activation is a significant success, especially in peripheral, low-industrialized areas where the unemployment rate is higher than the national or regional average, and finding a job is more challenging even for people without health deficits. Therefore, special attention is warranted for the project "Independently (not alone) – supporting people with disabilities in the Tuchola district", which was implemented from June 1, 2019, to December 31, 2023, by the Tuchola County Family Assistance Centre in cooperation with the Kuyavian-Pomeranian Agricultural Advisory Centre in Minikowo, the Polish Association for People with Intellectual Disabilities, the Chojnice Branch, and the Association of Parents of Special Care Children in Tuchola in the Tuchola district (Kuyavian-Pomeranian Voivodeship). Funding for the project was obtained based on

an application for macro-innovations on the topic: "A community support system for adults with intellectual disabilities – stage II" and amounted to over PLN 5.82 million. Based on the project, care farms were established in three municipalities, and its participants came from five municipalities. The program's direct beneficiaries were people with intellectual disabilities (41 people; including 24 women and 17 men), and indirectly also their caregivers (28 people; including 20 women and 8 men). As part of the project, three Open Integration Points, one Training Apartment, and one Supported Apartment operated in the Tuchola district. As previously mentioned, a care farm is not only about helping those who use its services. It is also an employment opportunity for those who create and manage it. In the discussed example, in two farms, the owner served as a full-time caregiver-instructor, in another farm, no external caregiver-instructors were employed (these roles were filled by family members), and in yet another farm, the owner served as a half-time caregiver-instructor, while the remaining 1.5 full-time positions were filled by external employees. The supporting work of volunteers is also invaluable. In total, in the cited project example implemented by care farms, 10 people were permanently employed, additionally engaging individuals from partner institutions for other activities (creating a total of 2.5 full-time positions for 4 people) and hiring a lawyer on a contract basis for 40 hours/month. Moreover, the care farms directly employed specialists according to the needs of their beneficiaries. Thus, in each farm, specialists, including psychologists, speech therapists, rehabilitation specialists, and career advisors, provided services for 20 hours/month. To implement the project, the following job positions were created:

- Specialist for the activation of people with disabilities (1 full-time position).
- Therapy specialist (1/2 full-time).
- Supervisor (1/2 YTU).
- Supported Housing supervisor (80/90 hours/month).
- Legal Assistance Specialist (40 hours/month).
- and a 5-person Coordinating Team was appointed (working 10 hours per month).

The project aimed to provide day support services, primarily focusing on training, various therapeutic activities, meals, and transportation from participants' residences. Care households offered activities averaging 40 hours per week, including a minimum of 5 hours of therapeutic activities daily, Monday through Friday, and at least one Saturday per month.

Beneficiaries received specialist support from physiotherapists, psychologists, or counsellors, along with assistance in non-care farm-related matters such as obtaining hearing aids, pursuing education, or engaging with potential employers. The project's success is evident in the increased independence of almost two-thirds (66%) of participants, notably higher among women (67%) than men (65%).

The most significant outcome of the project was the professional integration of nine individuals (22% of participants). Specifically, three individuals (7%) secured positions in the open labour market, while two (5%) found employment in supported employment centres (ZAZ), two (5%) in social enterprises, and two (5%) reported other forms of income generation.

Summary

The establishment of care farms facilitating the integration of individuals with intellectual disabilities into or back into the labour market is crucial for promoting social and economic inclusion. To this end, it is recommended to:

- Continue existing programs and develop new initiatives tailored to beneficiaries' needs, focusing on professional integration aligned with their skills.
- Extend service hours beyond 40 hours per week to enable carers to pursue professional activities.
- Enhance programs to encourage employers to create positions suitable for individuals with intellectual disabilities.
- Conduct public education campaigns aimed at dispelling stereotypes and raising awareness about the potential of individuals with intellectual disabilities, thereby reducing employment barriers.

These efforts can empower individuals with disabilities and their carers to actively participate in social and professional spheres.

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SELECTED ASPECTS OF SOCIAL DEVELOPMENT INDICATORS

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Purpose: The aim of the research was a comparative analysis of the level of social development in the European Union countries, taking into account the income inequality index.

Design/methodology/approach: Research in this area is conducted using multidimensional analysis, because this phenomenon can be described based on many partial criteria. The article uses QGIS software to classify European Union countries according to the selected indicators such as: the Human Development Index and the Ginni Index describing the level of income inequality.

Findings: W artykule zidentyfikowano aspekty wpływające najistotniej na poziom rozwoju społecznego oraz określono kryteria wpływające na wzrost zadowolenia społecznego w krajach wysokorozwiniętych.

Practical implications: The article shows several trends on the example of European Union countries, that the level of development varies within the EU itself, but on a global scale on a very large scale. The presented HDI and inequality index can be a very important measurement providing synthetic information. The trend of these parameters over time is also an important element of the assessment. It has also been shown that countries with the lowest level of human development are characterized by the highest level of income inequality.

Originality/value: Research has shown that European Union countries are among the countries with the highest level of human development in the world. However, EU countries vary greatly in terms of income inequality.

Keywords: social development, inequality, sustainable development, classification.

Category of the paper: research paper.

1. Introduction

The issue of measuring social development is a very complex scientific problem. Measurement of this area is possible on the basis of synthetic meters, which assess many areas at the same time. Synthetic indicators of social development are characterized by the fact that, on the one hand, they constitute an important carrier of information, but depending on the component criteria, the value of this information describes the selected area of assessment. The development of society means, very generally, striving to increase the well-being of society.

The literature devoted to the criteria for assessing well-being presents a very diverse approach to this issue. This is primarily related to the perception of society's well-being in the context of striving to achieve sustainable development goals (Chomiak-Orsa et al., 2024; Hudaszek et al., 2024; Petri, Chomiak, 2024).

Moreover, the correlation of society's well-being with the level of digitalization and the use of information and communication technologies, in particular artificial intelligence, further broadens the perspective of scientific and empirical considerations. Broadcasts and analyzes are carried out on the impact of ICT on the level of well-being in the context of the impact on each person as well as in the context of cities, agglomerations or the country or the entire society of a selected geographical area (Chomiak-Orsa, 2017; Chomiak-Orsa, Hauke et al., 2023; Jelonek, Chomiak-Orsa, 2018).

The concept of well-being can be described by a wide range of factors reflecting the progress and well-being of societies. These indicators are critical to assessing the overall health and quality of life in a community or country.

The selection of the scope of factors to be analyzed and assessed depends on the perspective of assessing the well-being of society. This may concern the level of education, the use of technology, the assessment of digital or social exclusion, the state of ecological awareness, ensuring high quality education and lifelong learning or, for example, attention to gender equality (Chomiak-Orsa, Greńczuk, et al., 2023; Chomiak-Orsa, Smolag, 2024).

There are many aspects that can be analyzed and assessed. This contributed to the need to narrow down the topic of the article to select only one area of social well-being.

The article discusses the issue of assessing the well-being of society in the European Union countries. Popular synthetic indicators such as the Human Development Index and the Income Inequality Index were selected for analysis. The aim of the article is to answer the question which aspects influence the well-being of society and whether economic criteria are still the main determinants of social development. The literature characterizes the main aspects of social development indicators (Bluszcz, 2016), which include, among others: Aspects of a society's educational level measured by the literacy rate as the percentage of people aged 15 and over who can read and write, or by the school enrollment rate, which is the percentage of children

and young people attending primary, secondary and tertiary schools. Another aspect is health, which can be assessed based on the life expectancy indicator, measured as the average number of years a person can live, or the infant mortality rate, i.e. the number of deaths of infants under one year of age per 1000 live births. The most popular area is expressed by economic well-being, which is measured, among others, by the poverty index, i.e. the percentage of the population living below the national poverty line, or by the level of income inequality (Zwiech, 2022): the distribution of income between individuals or households in the population.

The article focuses on these three main areas of society's well-being, although there are many other aspects in the literature, such as: gender equality, level of security, society's involvement in social matters, ecological aspects or quality of life, however, in order to maintain the readability of the presented research, these areas will not be discussed in this article. These indicators provide a holistic view of a society's development, helping policymakers and researchers identify areas that need improvement and monitor progress over time. It's important to consider these aspects collectively to gain a comprehensive understanding of social development. Monitoring these indicators helps governments, policymakers, and researchers understand the social dynamics of a society, identify areas for improvement, and track progress over time.

2. Methodology

Human development index has two sides: the formation of human capabilities – such as improvement health, knowledge and skills – and the use people make of their acquired capabilities – for leisure, productive purposes of being active in cultural, social and political affairs. If the scales of human development do not finely balance the two sides, considerable human frustration may result. According to this concept of human development, income is clearly only one option that people would like to have, albeit an important one. But it is not the sum total of their lives (Bluszcz, 2017; Bluszcz, Kijewska, 2016). Measuring the level of social development requires a multidimensional approach, because of various aspects affect its level. Therefore, there are many kinds of synthetic indicators that enable an assessment of the level of social development through the aggregation of multiple variables in one synthetic indicator, which is a point of reference and enables conduct comparative analyzes between countries (Bluszcz, 2017; Zwiech 2016). The scope of social aspects (Grabowska et al., 2022, Saniuk et al., 2022) and social indicators in the literature is very widely discussed (Breslow, 2017) as it covers many measures developed by the OECD over the years. Social indicators provide objective measures of people's living conditions, the factors that shape these conditions, and the actions taken by governments to preserve them and improve social conditions. Social indicators provide objective measures of the conditions in which people live, the factors shaping these

conditions and the actions taken by governments to preserve and improve them (Bluszcz, Manowska, 2019).

The HDI index is a synthetic measure describing the level of social and economic development in individual countries, built on the three basic dimensions of social development: health (longevity), access to knowledge and standard of life (the material aspect). Formula of Human Development Index is the geometric mean of the normalized average indexes achieved in all areas (HDR, 2021):

$$HDI = \sqrt[3]{I_I * I_{II} * I_{III}} \quad (1)$$

where:

I_I - the index related to longevity,

I_{II} - the index related to education,

I_{III} - the index related to national income per capita.

The general formula for creating indexes for three areas has the form of:

$$I = \frac{X_{cur} - X_{min}}{X_{max} - X_{min}} \quad (2)$$

where:

X_{cur} —the current value

X_{max} —the maximum threshold value

X_{min} —the minimum threshold value

The level of the HDI indicator is normalized in the range of <0.1>. The calculations started in 1990 and are published annually in the form of ranking countries. Minimum and maximum values (goalposts) are set in order to transform the indicators expressed in different units into indices between 0 and 1. These goalposts act as the “natural zeros” and “aspirational goals”, respectively, from which component indicators are standardized.

3. Results

Table 1 presents the set at the following values for calculation HDI index:

Table 1.

Minimum and maximum values for calculating HDI index

	Life expectancy at birth	Expected years of schooling	Mean years of schooling	Gross National Income (GNI) per capita (2017 PPP \$)
Min	20	0	0	100
Max	85	18	15	75000
Poland	76.5	16	13.2	33 034

Source: own elaboration based on (HDR, 2021).

The calculation of the HDI 2021 for the Poland based on the models 1 and 2 are shown below:

$$\text{Longevity index of Poland} = \frac{76.5 - 20}{85 - 20} = 0.86$$

$$\text{Mean years of schooling index of Poland} = \frac{13.2 - 0}{15 - 0} = 0.88$$

$$\text{Expected years of schooling index of Poland} = \frac{16-0}{18-0}=0.88$$

$$\text{Education index of Poland} = \frac{0.88 + 0.88}{2} = 0.88$$

$$\text{Income Index of Poland} = \frac{\ln(33034) - \ln(100)}{\ln(75000) - \ln(100)} = 0.87$$

$$\text{HDI 2021 of Poland} = (0.86*0.88*0.87)^{1/3} = 0.87 \quad (3)$$

In its annual Human Development Report, the United Nations Development Program (UNDP) presents a ranking for 191 countries according to the Human Development Index (HDI). In 2021, selected countries Poland was classified as highly developed countries, achieving the HDI level Poland =0.87 (formula 3). In European Union countries the average values for 2021 year based on 27 countries was 0.896 points. The highest value was in Denmark: 0.948 points and the lowest value was in Bulgaria: 0.795 points. The indicator is available from 1980 to 2021.

Based on the classification of EU countries according to the level of the HDI index, three groups of similar countries were selected. The group of countries marked in yellow has a very high level of development, for which the HDI index ranged from 0.896 to 0.948. The second group consists of countries with an average EU level of HDI development between 0.829 and below 0.896, marked in gray. The third group includes countries with the lowest HDI level in the EU, up to 0.829.

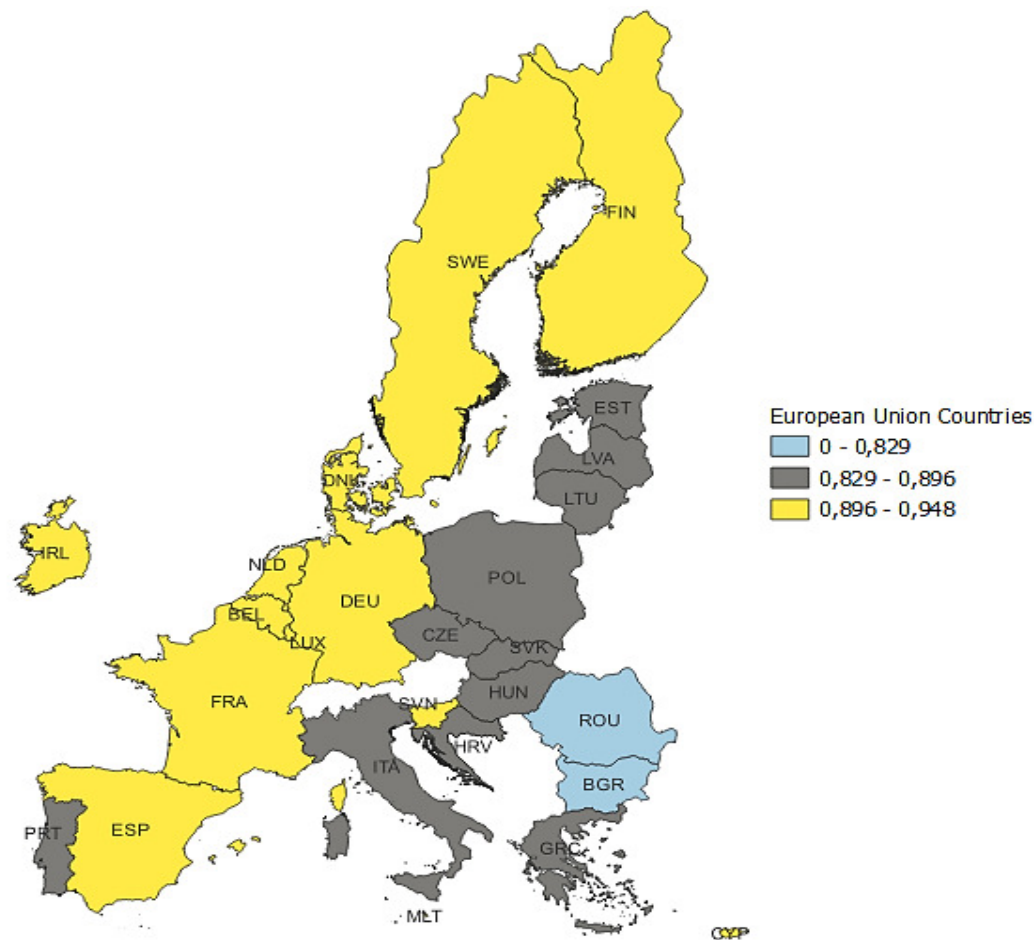


Figure 1. Classification EU according to HDI level for 2022.

Source: own elaboration.

The presentation of data in this area is very necessary to assess the general social situation in given countries. However, it should be added that the level of total data collected at the national level involves the risk of large disproportions in various social classes, therefore general indicators can be used for general analysis, while for more detailed conclusions, information should be sought on possible indicators of differentiation according Gini coefficient. Inequality levels indicators provide insights into the distribution of resources, opportunities, and well-being across different segments of a population. These indicators are crucial for understanding the disparities that exist within a society. A popular indicator describing the stratification of society is the Gini index, which is a measure of concentration (unevenness) of the distribution of a random variable used in statistics. In economics, a measure of the degree of income inequality. The name of the coefficient comes from the name of its creator, the Italian statistician Corrado Gini. The Gini coefficient is a widely used measure of income or wealth inequality. It ranges from 0 (perfect equality) to 1 (perfect inequality). A higher Gini coefficient indicates greater inequality. A zero value of the coefficient indicates full uniformity of the distribution, an increase in the coefficient value means an increase in the inequality of the distribution. The higher the percentage level of the coefficient, the phenomenon should be assessed negatively, because it means a significant stratification of

society in terms of income, while the lower the stratification, the more positively the socio-economic changes are assessed (Zwiech, 2013). Based on Eurostat database data, in 2022 the average level of the coefficient for European Union countries was 29%. Figure 2 presents the classification of EU countries into three clusters of countries similar in terms of the level of the Ginni index. Grouping was performed in QGIS.

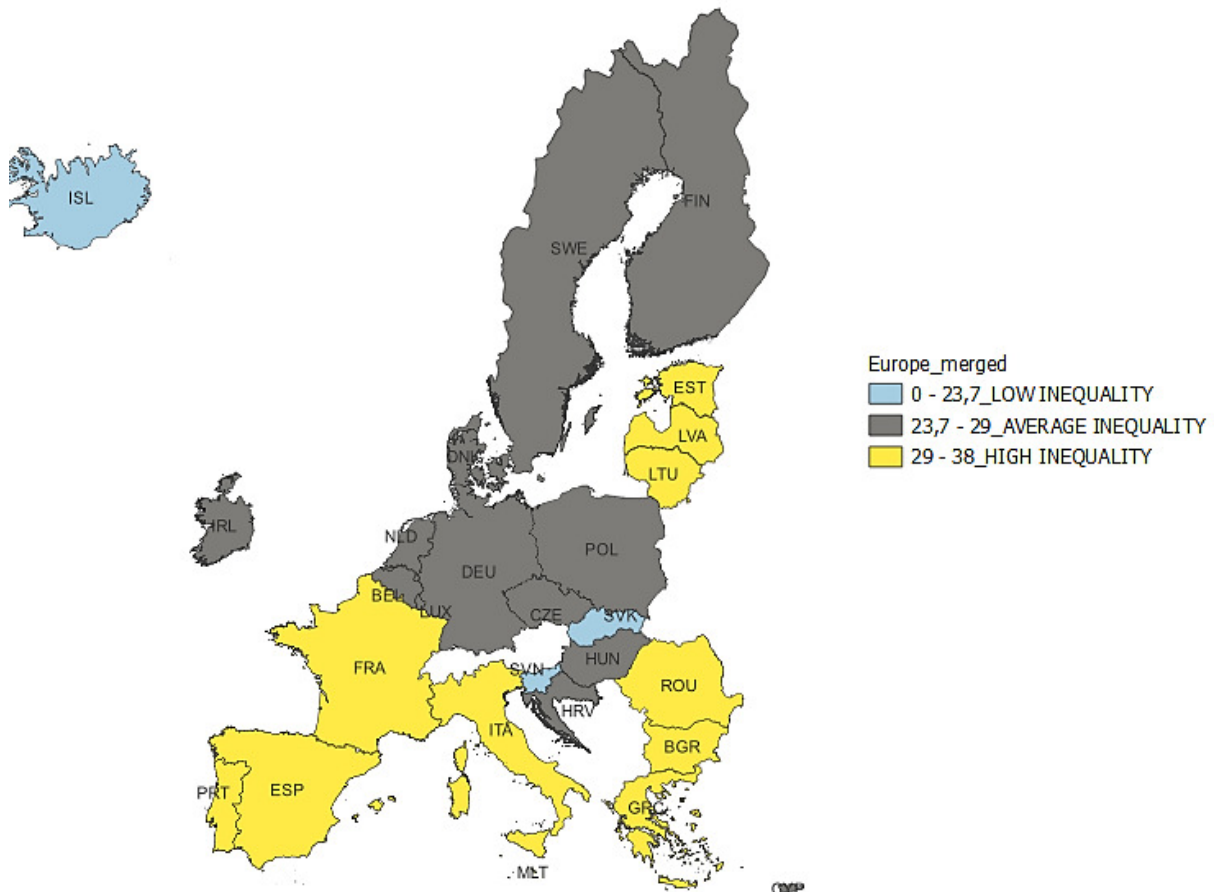


Figure 2. Classification EU according to Inequality level for 202.

Source: own elaboration.

Figure 3 presents the relationship between HDI and the Gini index. It can be seen that countries with the lowest HDI level are characterized by the highest level of social inequality. This phenomenon is also observed in the world ranking, where for the 186 countries surveyed the discrepancies are significant, but the highest are in the group of the least developed countries. The highest level of social inequality was recorded in countries with the lowest level of human development, which include African countries (South Africa, Namibia, Suriname, Zambia), where the level ranged from 50% to 63%. The lowest level of inequality occurred in countries with the highest level of development, which include, among others, EU member states, and the level of inequality was up to 30% (www. wisevoter).

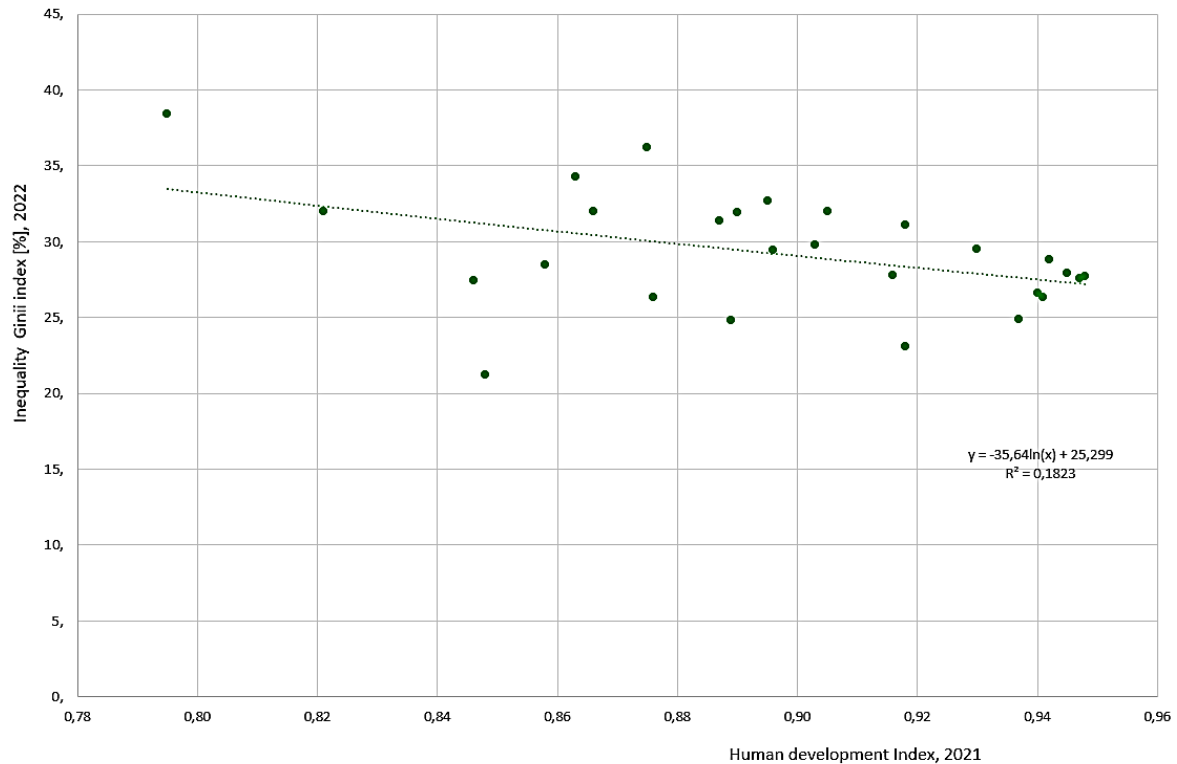


Figure 3. The relationship between HDI and the social inequality index for EU countries.

Source: own elaboration.

Searching for answers to the question of how to best describe the increase in society's well-being and how to best measure it, many economists emphasize the fact that in highly developed countries, which include EU countries, the constant increase in GDP/capita no longer contributes so significantly to the increase in satisfaction from the life of the population as it might have been a decade or two decades earlier. This statement refers to a phenomenon that is widely analyzed in the field of economics and psychology, known as the "paradox of life satisfaction and national income (Headey, 2019)". In short, this paradox suggests that despite increases in national income, individual life satisfaction in highly developed societies may not increase at the same rate. Several factors influence this paradox, including: the so-called saturation point, which means that in wealthy societies, when the standard of living is already high, an additional increase in income does not necessarily translate into increased life satisfaction. People reach a saturation point where further material growth is no longer a key factor in their happiness. Another factor may be social differentiation, where in highly developed countries, social inequalities and lack of equal access to resources (e.g. education, health care) may affect life satisfaction more than the increase in GDP per capita. Another aspect may be the quality of life indicator (Bluszcz, 2017), as life satisfaction itself may be more related to the quality of life, access to education, health care, social security and equality, than to income alone. The final factor may be the influence of social and psychological factors, as social elements such as interpersonal relationships, social support, or feelings of belonging may have a greater impact on life satisfaction than material growth. Therefore, while GDP per

capita growth is still an important indicator of economic progress, research shows that other aspects, such as social equality, quality of life and mental well-being, are becoming increasingly important in understanding the full picture of society. This may have implications for the direction of social and economic policy in highly developed countries, where the priority is not only economic growth, but also equal access to prosperity and improving the quality of life.

4. Conclusions

The issues of measuring and describing the level of well-being and development of society as presented in the research are very extensive. The article shows several trends on the example of European Union countries, that the level of development varies within the EU itself, but on a global scale on a very large scale. The presented HDI and inequality index can be a very important measurement that provides synthetic information. The trend of these parameters over time is also an important element of the assessment. Studies have shown that European Union countries are among the countries with the highest level of human development on a global scale. However, EU countries are very diverse in terms of income inequality. It has also been shown that countries with the lowest level of human development have the highest level of income inequality. The research presented the classification of countries using QGIS software, which allows the results to be presented on maps. The issues presented in the article do not completely exhaust the problem of measuring social development, but they provide important information that may be useful in monitoring this area.

Acknowledgements

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MACROERGONOMICS IN THE STRUCTURE OF THE ISO 45001 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

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Purpose: The purpose of this article is to indicate the research and scientific activities of macroergonomics in the structure of the occupational health and safety management system proposed in 2018 by the international standard ISO 45001. The article was created to promote and broadly discuss the topic of macroergonomics in literature studies.

Design/methodology/approach: The theoretical scope of the article includes a literature analysis of the issues of macroergonomics used and standards in the field of occupational health and safety management, with particular emphasis on the ISO 45001 standard. The research methodology consisted in combining the structure of both research teams of the ISO 45001 standard and macroergonomics, which in their implications create a comprehensive project of the work system in organizations.

Findings: The research analyzes used in the article indicated a strong connection between macroergonomics and occupational health and safety management standards. Analyzing the currently applicable ISO 45001 standard, the authors indicated that the elements of macroergonomics are primarily documentation and information media contributing to the creation of comprehensive internal audits and reviews of organizational management.

Research limitations/implications: The macroergonomics research process is as variable as the changes that are introduced to the structure of proposed standards related to occupational health and safety management. Future research on this issue should take into account economic changes that affect the processes of management, transfer and storage of all information media in the organization.

Social implications: Macroergonomics, by understanding the type of connections between sociotechnical and organizational systems that are responsible for designing safe and accessible work management systems. Update management and occupational health systems, which have been created by many standards and legal regulations, are now used in entrepreneurial organizations in normative standards contexts. ISO 4500 offers many alternatives to ensure security. For this purpose, the organization must implement many disclosed procedures that are defined with the achievements of macroergonomics. By collaborating the solution in the structure of the science system, it allows for the creation and results of the work of an entrepreneurial organization, preparation for elements of risk, but also the use of practical and external opportunities.

Originality/value: The article discusses the subject of the third ergonomics research methodology, i.e. macroergonomics, which is often confused with general activities aimed at improving the health and life of employees in the organization through the use of anthropometric data. The study wants to emphasize the importance of studying complex systems of macroergonomics and the multi-object design object (organization) as an inherent component of the external environment, always as a part of a larger whole.

Keywords: macroergonomics, occupational health and safety management system, ISO 45001, work process.

Category of the paper: Literature review.

1. Introduction

The tasks facing the scientific discipline of ergonomics are inextricably linked to the humanistic and applied optimization of human work processes. Ergonomics is shaped by many research disciplines including work physiology, work psychology, occupational medicine, work pedagogy, work sociology, but also anthropology, bionics, work organization, environmental protection and technical sciences. The aim of the multidisciplinary pooling of the knowledge resources of these disciplines is to create a work system based on the principles of ergon (work) and nomos (law, regularity) adapted to the characteristics of the human organism, which functions within the rigid boundaries of its internal environment taking into account the external environment (Tytyk, 2009).

Ergonomics is an applied science that develops in the direction in which changes occur, but also in the direction in which there is a need to design a proper work process or system resulting from legal, technical or organizational changes, which is why it is assumed to be considered on a micro and macro scale. In the literature, one can also find a proposal for its division into three main generations (Jasiak, 2015).

The first generation of ergonomics is the knowledge of man, i.e. the study of anthropometry issues, the study of human perception phenomena but also the design of isolated man-technical object systems. Second-generation ergonomics is the study of human cognitive and decision-making processes and the determination of human-computer interaction indicators. The third generation of ergonomic science is macroergonomics which deals with the study of complex systems.

Macroergonomics deals with multi-objective design, treating the organization as an integral part of the internal and external environment of the work system under analysis. In its solutions, it seeks to achieve the optimum functioning of the entire system, together with a consideration of its efficiency, taking into account the interdependence of all the elements (human, technical, organizational) involved in the work process.

In macroergonomics, the entrepreneurial organization is captured and described in holistic terms, which should be properly examined in terms of complexity, centralization and formalization. It is also based on the principle that one cannot effectively design the components of a work system if one does not first scientifically justify the decisions related to how to control them. This is where the process support of ready-made legal and standardization solutions comes in. One of them is the ISO 45001 international occupational health and safety management standard proposed in 2018. In this standard, a synthesis of all activities related to the scientific concern for human, technical and social well-being that is associated with the conduct of business appears.

In this paper, by analyzing the structure of the ISO 45001 occupational health and safety management system, the authors will identify the specific activities of the hierarchy of macro-ergonomic analyses in supporting the operational decisions of organizations implementing the considered support system.

2. Macroergonomics and participatory ergonomics

Literature sources define macroergonomics as a top-down socio-technical approach to work systems design and the application of overall work system design to the design of the three main interfaces, such as human-work, human-machine and human-software. The authors of this definition identify macroergonomics as a tool for optimizing the design, ergonomically participatory work systems. Participatory ergonomics as a fundamental method of macroergonomics focuses on the involvement of people in planning, controlling and achieving the desired goals related to their work process in an entrepreneurial organization (Pacholski, Jasiak, 2011).

Implementing elements of participatory ergonomics in an entrepreneurial organization means structuring plans and processes in which the work team must pay attention to:

- motivating factors,
- factors influencing the structure of the implementation plan,
- factors influencing the choice of implementation method,
- the environment,
- social, economic and technical legal factors.

Participatory ergonomics within an organization varies according to the formalized requirements, the commitment and the method of implementation, and the analytical tools of macroergonomics allow it to be implemented by an employee. An employee who will help analyses and design it at individual as well as group level. Methods supporting the evaluation and macroergonomic analysis of the work system include:

- field studies and experiments,
- laboratory experiments,
- questionnaire-based organizational review,
- interviews and focus groups.

In macroergonomics, the design of the work system is considered in the context of the socio-technical systems (technology and degree of automation of the organization), the personnel system (degree of professionalism, demographic characteristics, psychosocial aspects of the employees) and the external environment (adaptation of the organization to the environment and monitoring of its critical feedback). Table 1 provides guidance on the main features of macroergonomic design that the designer, the object to be designed, the criteria that must exist and the necessary knowledge that is needed to succeed in the field of the macroergonomic element to be designed.

Table 1.
Features of macroergonomic design

Macroergonomic design	
Person/feature	Feature element
Designer	Examines cognitive and decision-making processes. Examines the relationships between system elements. Examines the influence of the external environment.
Subject	A system involving the location of several human-technical object systems in the internal and external environment of an organization.
Criteria	The human factors criterion. Human-technology relationships. The physical and psycho-physical environment of man.
Knowledge	Knowledge of anthropometry. Sociology and psychology. Organization and management of work systems. Technical design and engineering science.

Source: Own elaboration based on Jasiak, 2015.

Once the component features of Table 1 are in place, it is possible to proceed to the design of the chosen system. Macroergonomic work system design consists of ten phases during which specific tasks are carried out to shape production and service (non-production) processes. The research methodology for these processes is a modified socio-technical analytical model focused on:

- a scanning analysis involving the definition of the mission, vision and organizational principles of the internal and external structures of the enterprise and the clarification of the dimensions of the system design,
- analysis of the type and performance of the system related to the definition and clarification of expectations and allocation of system functions,
- technical analysis of the work process, i.e. defining unit operations and the block diagram of the designed system,
- collection of variant data on differences and incompatibilities arising in the enterprise organization (input and output data),

- matrix analysis of key system inconsistencies,
- variant analysis of control consisting of building control tools, defining the grid of roles in the system and specifying the performance evaluations of the objectives,
- organizational design of technical, human resources and organizational subsystem links and functions,
- analysis of the perception of responsibility and training support,
- design of support system and interfaces related to the system linkage of the physical environment,
- implementation, iteration and improvement of the implemented management system (Pacholski, Jasiak, 2011, pp. 9-54).

In the macroergonomic design of a work system, it is important to remember that there are also many variables such as task heterogeneity, importance, autonomy, feedback or identification. These variables have an important influence on the individual design of jobs organized in a specific system. The design approaches of macroergonomics also shape the operational costing methods of design-technology-structural improvement methods of work. Structural macroergonomic analysis thus covers the whole system as it should be shaped to implement positive and effective changes such as maintenance and health and safety management.

3. Occupational health and safety management system

The traditional instrument used to improve the safety and health of workers in an organization is legislation, which has been transformed over the years into systemic developments. A key influence on change was the Framework Directive 89/391/EEC, which recommended measures to improve the safety and health of workers at work. In Poland, the first edition of the PN 18001 standard appeared in 1999, which made it possible to implement occupational health and safety management systems in organizations. It was built on the theory of the classical pursuit of quality improvement, and was based on the philosophy of continuous improvement in line with the Deming Wheel (and this has not changed in any of the systems to this day).

A management system is a set of functions and activities which, by interacting with each other in a compatible way, realize specific goals of entrepreneurial organizations. The Polish Standard PN-N-18001, but also BS 8800 or OHSAS 18001 define the occupational health and safety management system as a composition of organized resources, personnel, procedures and policies guaranteeing the achievement or maintenance of a specific state of the organization. A health and safety management system is part of an organization's overall management system, which includes its organizational structure, planning, responsibilities, procedures,

processes, policies and the resources needed to develop, implement, enforce, review and maintain a health and safety policy. The system is also linked to the topic of management of occupational risks occurring in the direct and indirect work environment of an enterprise organization (Standard PN-N-18001, Standard PN-N-18004).

In 2018, the international standard ISO 45001 was proposed. According to it, an occupational health and safety management system is a system or part of a management system for establishing and implementing an occupational health and safety policy (Standard PN-ISO 45001). The expected results of the implementation of this system are the effective prevention of accidents at work and the minimization of the risk of occupational diseases. According to the system, an enterprising organization is expected to create safe workplaces using all available scientific and technical knowledge.

According to the definition of the ISO 45001 standard, an occupational health and safety management system is a set of interrelated and interacting elements of an organization, necessary to define and achieve policies, objectives and processes. The procedural provisions of the standard indicate that:

- a management system may encompass several areas of activity,
- the elements of a management system include not only the structure of the organization, but also roles, responsibilities, planning and operational activities,
- the scope of the management system does not only cover the whole organization, it can be implemented in specific units or organizational functions.

The normative provision of the ISO 45001 standard indicates that the primary objective of the implementation of the management system is the continuous improvement of elements related to the area of occupational health and safety, the prevention of accidents at work, occupational diseases and the shaping of safe workplaces, and the activities carried out in this system should make it possible:

- compliance with requirements related to applicable national legislation and work organization, including compliance with internal legal requirements and other regulations and policies adopted within the organization,
- integration of health and safety management processes into the organization's business model,
- achievement of the agreed general and specific objectives set out in the health and safety management framework,
- definition of responsibility and authority for health and safety (assignment of roles and competencies to each member of the organization),
- development and promotion of a safety culture,
- communication, consultation and participation of workers,
- providing the necessary resources,

- implementation of an occupational health and safety policy in line with the overall strategic objectives of the organization,
- the effectiveness of the identification of safety and health risks,
- reducing all risks inside and outside the organization,
- effective use of opportunities,
- continuous critical evaluation of the results achieved,
- as well as monitoring the management system and improving it when necessary (Pawłowska, Peçiłło, 2018).

These elements form, according to the generally accepted definition, the occupational safety and health (OSH) management system is part of the overall management system of the enterprise, which includes: the organizational structure, planning, responsibilities, policies, procedures, processes and resources needed to develop, implement, execute, review and maintain an occupational safety and health policy and thus to manage occupational risks occurring in the working environment in connection with the enterprise's activities (Pacana, 2020). It is widely perceived that an occupational health and safety management system is a tool that facilitates the enterprise to meet the requirements of the applicable legislation and to provide adequate protection for the safety and health of workers (Karczewski, Karczewska, 2012). This system must be standardized.

The legal standards for occupational health and safety management systems are a tool to help improve occupational safety, but for them to really work it is important to have an implementation plan, i.e. a methodology for conceptualizing the areas that need to be designed or transformed in order to provide workers with the required level of protection of health and life against the hazards present in the working environment.

4. System analysis of the ISO 45001 standard - macroergonomics methods

The system analysis of health and safety management described in ISO 45001 is based on the concept of continuous improvement proposed by Deming (PDCA). At the heart of this model (Figure 1) appears the leadership of top management and the participation of employees, who are to be the guarantors of ensuring effectiveness in health and safety management.

By definition, the standard helps an organization achieve the intended results of its occupational health and safety management system, which, in accordance with the organization's occupational health and safety policy, include, among others, continuous improvement of health and safety performance; meeting legal and other requirements and achieving health and safety goals (Standard ISO/PAS 45005:2020).

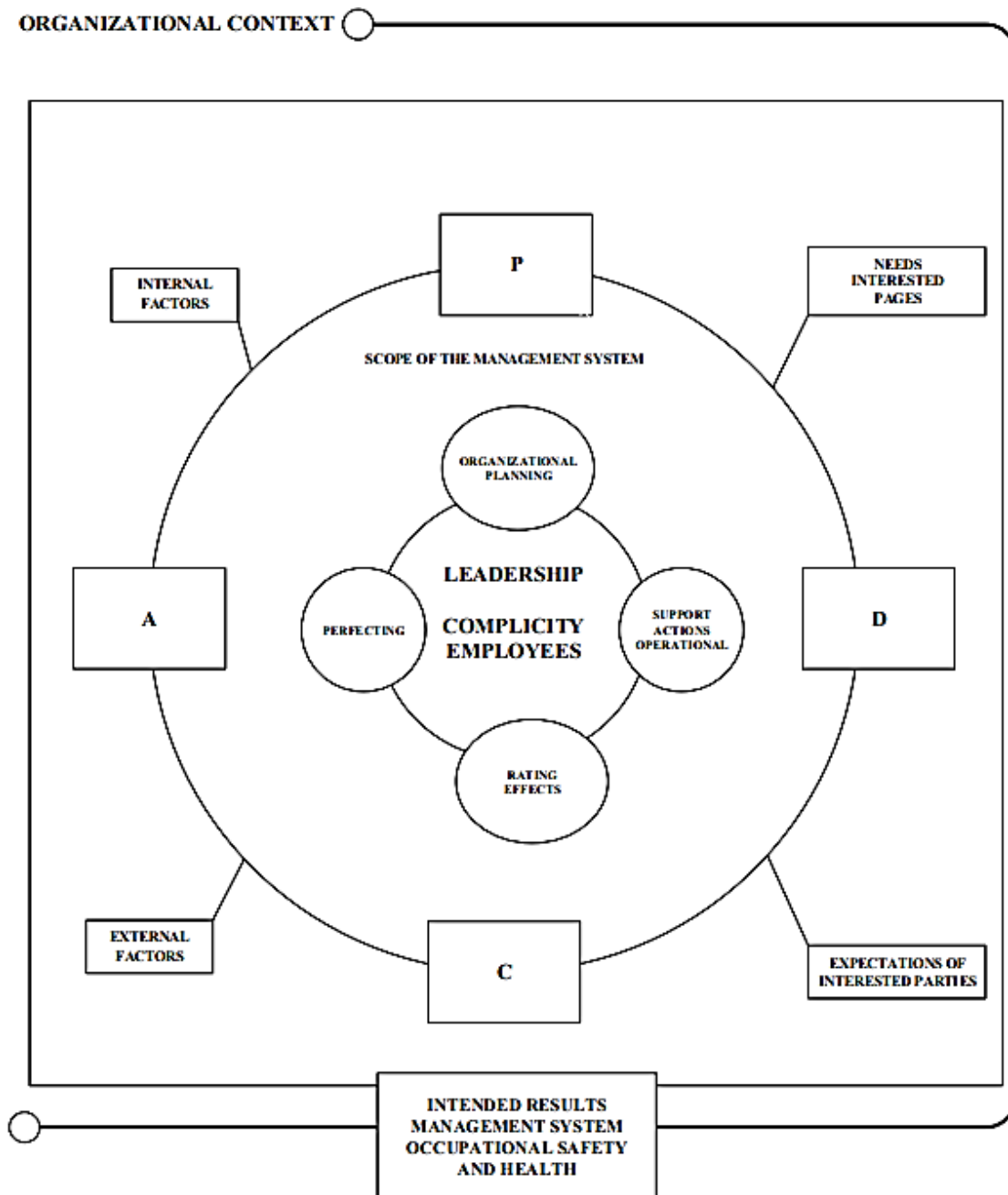


Figure 1. Model of the occupational health and safety management system according to ISO 45001.

Source: own development based on the PN-ISO 45001 standard.

The elements of the health and safety management system model consist primarily of human correlations, i.e. clearly emphasized leadership and participation of workers, who are supported by:

- planned actions that identify risks and opportunities, and set plans and objectives aimed at achieving positive results,
- adequate resources and competences to develop awareness and ensure effective communication on the functioning of the system inside and outside the organization,
- operational planning of activities and supervision of management processes,

- monitoring, analysis and performance measurement, i.e. internal audit and management review,
- improvement planning, non-conformity analysis and corrective action.

The design of the ISO 45001 system and its activities are significantly influenced by the organization's environment or context model, which is based on a process approach or management process. These processes may encompass any sequence of activities carried out in an organization, whether related to production or non-production processes (e.g. services). An example of a management process is provided in Figure 2.

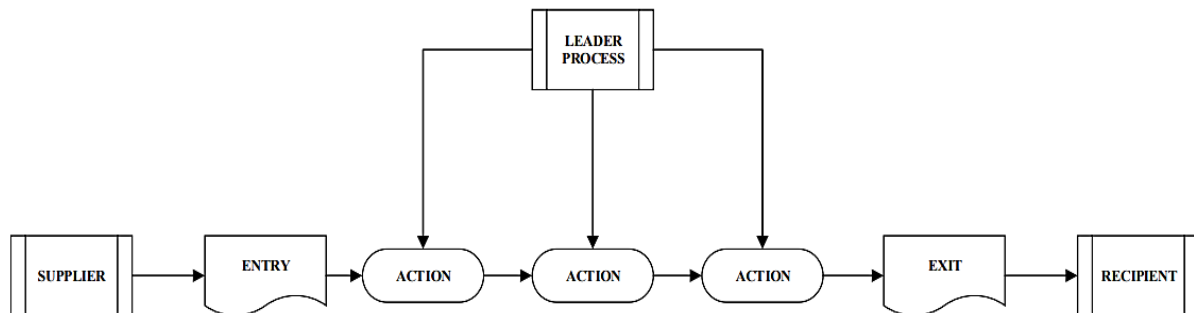


Figure 2. Organizational process according to the ISO 45001 standard.

Source: own development based on the PN-ISO 45001 standard.

The basic organizational process of a system consists of the interaction of input and output data in which people (suppliers, process leaders, customers) participate. The activities realized in it are understood as single activities or sequences of sets of activities, called elementary processes realized by a person or organizational unit. The elementary processes realized in the system combine with each other to form cross-cutting processes, creating tasks in the implementation of which various organizational units participate, which in turn combine with each other to form a network (chain) of processes (Pawłowska, Peçiłło, 2018, p. 14). Among its key processes to ensure the effectiveness of the management of the occupational health and safety system, the ISO 45001 standard lists processes related to:

- system planning,
- consultation and participation of workers,
- elimination of hazards,
- risk reduction within the organization,
- internal and external communication,
- ensuring access to and ongoing updating of legal requirements,
- implementing temporary and permanent changes,
- supervising supplies and services as well as outsourcing,
- preparing an emergency response plan,
- monitoring, measuring, analyzing and evaluating the achieved (planned) results,
- assessment of compliance with legal requirements and related elements,

- reporting and investigation of incidents and non-conformities,
- taking corrective actions.

The documentation of the occupational health and safety management system is also the policy, the objectives, the links of the system and its whole organization in the internal as well as the external structure. And by analyzing the requirements of the occupational health and safety management system as defined in ISO 45001, it can be seen that its main role apart from the human leader-coordinator is information. And here the direct structural links of the management system with macroergonomics will appear. The information contained in a health and safety management system, as in a macroergonomic analysis, must take a researched, documented and comprehensible form.

The simplest, yet documented form of the elements of a health and safety management system are procedures. Procedures describe how individual activities are to be carried out, who is responsible and how they are to be assessed, monitored and corrected (Table 2). The documented procedures of the system must be in line with reality and with the activities or processes carried out in the organization.

Table 2.

Documented procedures as required by ISO 45001

ISO 45001 standard Documents	Internal and external audit of the organization
	Investigation of accidents and incidents
	Corrective and preventive action
	Identification of opportunities
	Hazard identification
	Communication (structure and route of communication)
	Monitoring of measurements and all incidents in the organization
	Supervision of records
	Risk assessment
	Compliance assessment
	Emergency preparedness
	Emergency and non-compliance response
	Operational control
	Training
	Legal requirements
	Internal requirements, records, regulations, procedures
Cooperation customer, supplier, external companies, etc.	

Source: own development based on the requirements of the ISO 45001 standard.

The documentation of the occupational health and safety management system is the policy, the objectives, the linkages of the system and its whole organization in the internal as well as the external structure. The macro-regional linkages of the ISO 45001 standard can also be found in the context of the requirements related to the media of recorded information (Table 3), which are intended to provide evidence of the performance of activities in accordance with the established health and safety management system.

Table 3.
Information media according to ISO 45001

ISO 45001 standard organizational information carriers	Scope of the health and safety management system
	Health and safety objectives and plans
	Incidents or non-conformities, corrective actions and their results
	Information to confirm that processes are running as planned
	Competence of all in the organization
	Methods and criteria for assessing safety and health risks
	Policies in and around the organization
	Emergency response processes and plans
	Audit programmes and results
	Roles, responsibilities and authorities in the OSH management system
	Safety and health risks and opportunities to eliminate or better mitigate them, and processes implemented to mitigate them
	Legal and other requirements
	Results of continuous system improvement
	Results of monitoring
	Results of assessing compliance with legal and other requirements to which the organization has committed itself
	Results of measurement and analysis and evaluation
Results of management reviews	

Source: own development based on the requirements of the ISO 45001 standard.

The documented information is an analytical and research tool for those responsible for the control and supervision of the system. The information produced in the health and safety management system should be easily identifiable, easily reviewable and always validated. In the process of its validation, the enterprise organisation has the task of ensuring that it is available in the designated places (where it is needed), appropriately protected, but also disseminated, updated and, above all, withdrawn (or protected) from use if it becomes outdated at some point.

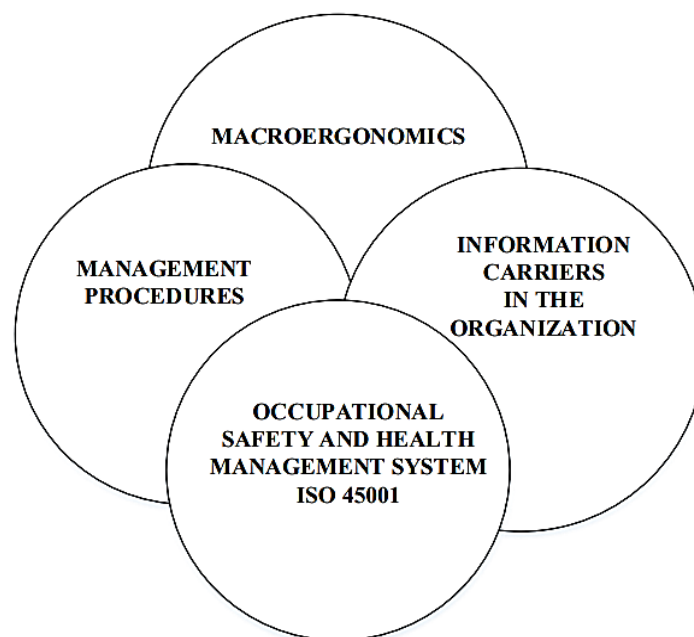


Figure 3. Macroergonomics - ISO 45001.

Source: own development based on the analysis of research on the ISO 45001 standard.

Applying the analytical tools of macroergonomics to the structure of the ISO 45001 occupational health and safety management system (Figure 3) provides the opportunity for agile detection of weak and critical points related to the human-work system interaction that should be subjected to improvement actions. Conducting complex analyses in the system documentation shapes the correct identification of the human work context (in technical and socio-technical terms) in an entrepreneurial organization.

5. Summary

The occupational health and safety management system according to the normative standard ISO 45001 indicates that it is necessary to implement procedures and information carriers that define its improvement functions. Functions that should be continuously monitored, analyzed, developed and reported in the context of:

- the entire organization (and its context),
- actions aimed at eliminating risks,
- activities aimed at exploiting opportunities,
- achievement of objectives and plans,
- human participation and consultation inside and outside the organization (direct and indirect information and communication),
- monitoring, measuring, analyzing and evaluating performance,
- internal audits and management reviews.

The analysis of this data in the context of the macroergonomic tasks of optimizing system work enables appropriate changes to be made for the safety and health of the organization's employees, but also contributes to responding to, correcting and rectifying the effects of root incidents or non-conformities. Analysis of the ISO 45001:2018 standard has proven that macroergonomics in the structure of this system contributes to the procedural identification and implementation of necessary corrective actions, taking into account the applicable hierarchy for the application of risk mitigation measures in line with the continuous improvement of the enterprise organization (Deming cycle PDCA). It also contributes to the creation of criteria for evaluating the system relationships of health and safety management.

Changes in the elements of the standards should be monitored all the time, because with their change the structure of macroergonomics is also transformed. The authors, as part of their research work, decide to follow these transformations in order to further improve the stages of scientific development.

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PSYCHOLOGICAL DETERMINANTS OF EFFICIENCY LOSS: ATTACHMENT STYLES AND BURNOUT

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Purpose: The aim of this article is to present the documented relationships between individual attachment styles reported by adults, and job burnout defined as a syndrome of work efficiency loss. In addition to highlighting the role of childhood patterns and their impact on adult professional life, the article also discusses direction of practical use of this interdisciplinary framework in the field of HR.

Design/methodology/approach: The study of the literature and research findings related to the theory of attachment and its correlates with burnout, as well as the study of the current reports on burnout scale, definition and legal regulations.

Findings: Evaluation of the research findings revealed the gap in theoretical knowledge and practical application of the attachment concept in organizations, especially with regard to Polish workplaces and burnout problem.

Research limitations/implications: Application of attachment concept in burnout research may require a dedicated tool with reference to work setting, as proposed by Leier et al., 2015.

Practical implications: The article promotes interdisciplinary approach, also with possibility of use in multicultural work settings; introduces a relatively new framework for stress/burnout intervention and prevention aimed at increasing quality of social environment and support systems. Research on the relationship between attachment style and occupational burnout has implications for HRM. Understanding employees' attachment types can assist organizations in adapting stress management and burnout prevention strategies by creating a supportive work environment, attentive recruitment and leadership, adjusting coaching and mentoring techniques, and promoting autonomy and extensive support for employees.

Social implications: In the face of currently observed burnout scale, both in Poland and globally, it is crucial to undertake actions toward reducing its spread. Building employees' awareness and stress resilience through better self-knowledge and modification of less effective operational models (i.e. non-secure attachment style), may be valuable for employees and managers. Research on relationship between attachment styles and burnout also provides a solid basis for organizational level interventions, as a better care and investments in more balanced and harmonious work environments.

Originality/value: Application of the psychological concept of attachment style typology to the field of work psychology, especially in Polish context; identification of the possible areas of implementation with the use of HR tools in reducing burnout.

Keywords: job burnout, adult attachment styles, human resource management.

Category of the paper: Conceptual paper, general review.

1. Introduction

In this article it will be discussed the relationships between individual attachment styles reported by adults (Bowlby, 2007/1969; Ainsworth, 1989; Plopa, 2019) and job burnout, defined as a syndrome of work efficiency loss (Maslach, Jackson, 1986; Maslach et al., 2001; Pines, 2004; Leiter et al., 2015). In addition to highlighting the role of childhood patterns and their impact on adult professional life, the article also presents practical proposals in the field of HR. This is a relatively new research perspective in work psychology, particularly in the Polish work environment context. It allows the integration of developmental psychology achievements into the area of people management, focusing on optimizing employee and organizational functioning.

Attachment style is a universal characteristic, developing in all humans and also in animals (see Marchwicki, 2006 on the ethological origins of attachment theory). It is understood as a relatively stable behavior pattern conditioned by an operational model (Kozłowska, 2010), which serves as a prototype for social relationships in adult life stages (Plopa, 2019).

Attachment style crystallizes from the moment of birth through the experience of care provided by primary caregivers. Over the course of research, these observations were extended to further life cycles, surpassing the barrier of childhood and applying attachment style typology to adult romantic relationships and marital couples (Hazan, Shaver, 1987; Plopa, 2019). Concurrently, studies on the correlates of mental health, addictions, and social functioning disorders in various age groups were conducted. Influences from childhood were also highlighted in numerous studies on stress, which paved the way for incorporating attachment style typology into research on job burnout.

Ayala Pines (2004) was one of the first to do this, confirming in pilot studies among working adult students from different national cultures. She formulated the hypotheses about the relationship between attachment style and reported job burnout. The direction of the relationship was shown as expected: a secure style correlated negatively, while the so-called insecure styles (anxious-avoidant and ambivalent) correlated positively with burnout. This highlighted the role of previously underestimated early life experiences in shaping professional attitudes and employees' subjective well-being. The concept of attachment styles brought new interpretative possibilities for the theory and practice of people management, providing arguments for actions towards the individualization of employee development (through feedback, coaching, or mentoring) and ensuring them autonomy and a supportive work environment (onboarding, training, integration), with an emphasis on the role of social resources (Leiter et al., 2015).

2. Job Burnout – A Global Efficiency Loss

In the late 1990s, pioneering job burnout researcher Christina Maslach, along with Canadian professor specializing in work engagement field, Michael Leiter, described the atmosphere and management philosophy in American organizations in their book “The Truth About Burnout: How Organizations Cause Personal Stress and What to Do About it” (Maslach, Leiter, 1997, 2011 Polish edition). The authors sharply criticized the contemporary work environment in North America: "Burnout is reaching epidemic proportions among employees... Today's workplace is a cold, hostile, and demanding environment, both economically and psychologically... People are emotionally, physically, and spiritually exhausted... Commitment and engagement in work are fading..." (Maslach, Leiter, 2011, p. 15). This grim picture of workplaces has not only persisted but has worsened. More than twenty years later, the World Economic Forum (2019) document calls job burnout "an emerging global crisis" (WEF, 2019). In the same year, the WHO defines job burnout as an "occupational phenomenon" and includes this syndrome in the international classification ICD-11 (www.who.int/news, Fitko, 2024).

Burnout is defined as "a syndrome resulting from chronic workplace stress that has not been successfully managed". The syndrome is structured in three dimensions, describing burnout as increasing feelings of (i) exhaustion or loss of energy, (ii) psychological distance, negativity, or cynicism (indifference) towards work and colleagues, and (iii) reduced professional efficacy, i.e., a subjective sense of lack of achievement or loss of personal competence.

Additionally, the scope of the phenomenon is defined—according to the WHO, burnout specifically refers to the work environment and should not be considered in the context of negative experiences in other areas of an individual's life. It is also not recognized as a disease or disorder, but as a reason prompting an individual to seek health care. As a result, burnout has been officially included among factors influencing health status and well-being (chapter: "Factors influencing health status or contact with health services", *ibid*). It should be noted that in Poland, the implementation of the ICD-11 classification began only in 2023, and until its full adaptation, the previous version, ICD-10, remains in use, where burnout is similarly defined.

Job burnout, a term now widely used, is agreed as ascribed to writings by American psychiatrist Herbert Freudenberger in the 1970s (and almost simultaneously by Christina Maslach). Freudenberger based his description on observations of volunteers in aid centers and his personal experiences of losing motivation, effectiveness, and initial enthusiasm at work. The history of research on job burnout spans four decades and thousands of publications. Initially, descriptions of the phenomenon were case studies, but more systematic empirical research began after the "pioneering" phase (Schaufeli, Enzmann, 1997). Christina Maslach, a long-time professor at the University of California, Berkeley, contributed significantly to popularizing the term. Maslach and her colleagues developed the most frequently cited definition of job burnout (Maslach, Jackson, 1986, p. 1), however the first conceptualization

was limited to the helping professions exclusively. Job burnout was defined as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment, primarily affecting those in "people-oriented" professions (doctors, therapists, nurses, teachers). Later, the scope of burnout research expanded to include all professional groups, with depersonalization encompassing not only interpersonal relationships but also the relationship with work itself. By the mid-1990s, a new version of the Maslach Burnout Inventory (MBI-GS, 1996) was developed (Schutte et al., 2000).

Maslach and Leiter frequently emphasized the negative impact of organizations on employees in terms of competitive organizational culture, profit-driven attitudes, excessive workload, and systematic downsizing. Functioning in insensitive organizational cultures causes constant tension and psycho-physiological arousal, with chronic stress accumulating and weakening employees' mental, emotional, and physical condition. Job burnout represents an extreme form of work-related stress, where experienced overload leads to psychological and emotional exhaustion. Authors, in their next book (Leiter, Maslach, 2010 Polish edition) listed six organizational risk factors and proposed strategies for improving the relationship with work in areas of workload, low autonomy, value conflict, injustice and favoritism, inadequate reward systems, and lack of team and supervisory support.

Analysis of reports on work-related stress reveals the global scale of the problem. Studies conducted by Mental Health America and FlexJobs show that 76% of respondents reported that work stress negatively impacts their mental health and that they have experienced job burnout. Selected sources on the indicators and costs of work-related stress and job burnout are presented below (see Table 1). These data were compiled in various countries and regions either before or during the Covid-19 pandemic. The pandemic drastically altered the landscape of the world, including the workplace. According to the American Institute of Stress (AIS, 2020), citing Gallup survey results, factors such as isolation, uncertainty, border closures, business shutdowns, and job reductions caused stress levels among surveyed employees to reach a record high—increasing from 38% in 2019 to 43% in 2020 (from Gallup's "State of the Global Workplace Report 2021" conducted in 116 countries). Economic and organizational stressors in companies were compounded by the particularly severe external factor of uncertainty. We are experiencing not only an uncertain work environment but also immense global stress due to the migration and climate crisis, economic instability, rapid technological advancements, and ongoing armed conflicts.

Research on the consequences and costs of burnout is conducted at individual and organizational levels, aimed at specific occupational groups and industry, countries, macro-regions, and globally. Estimates are developed from economic, psychological, social, health, ethical, and legal perspectives. At the macroeconomic level, the effects of stress are calculated by the amount of lost hours and missed days, insurance and treatment costs, or the percentage of GDP allocated to mitigating the effects of stress and burnout. At the organizational level, the consequences of stress typically relate to absenteeism, turnover, reduced efficiency,

withdrawal of work engagement, replacement costs, layoffs, accidents, conflicts, strikes, deterioration of organizational climate and corporate image, increased aggression among staff, incidents of bullying, and even death from overwork (karoshi - a category recognized by the Polish Labour Inspection, PIP 2008, www.pip.gov.pl).

At the individual level, high levels of stress are associated with somatic illnesses, worsening mental health, substance use, and counterproductive coping strategies that intensify anxiety, depressive states, sleep disturbances, decreased immunity, infections, allergies, absenteeism, job resignation, and significant declines in productivity and efficiency.

Table 1.

Effects and costs of work-related Stress and burnout worldwide – selected reports

Institution	Year	Data Source	Data Scope
EU-OSHA	2014	Calculating the cost of work-related stress and psychosocial risks	EU-OSHA report analyzing various methods of estimating costs related to work stress and burnout.
ILO	2016	Work-related stress: A collective challenge	Analysis of global costs related to work stress and burnout, including productivity losses and healthcare costs.
CCOHS	2017	Workplace stress	Information on the CCOHS website regarding the costs of work stress in Canada and stress management strategies.
Eurofound	2018	Sixth European Working Conditions Survey – Overview report	Data on costs related to work stress and burnout in European countries.
WHO	2019	Burn-out an "occupational phenomenon": International Classification of Diseases	WHO announcement highlighting the health, social, and economic costs related to burnout as a global phenomenon.
HSE (UK)	2019	Work-related stress, anxiety or depression statistics in Great Britain	HSE data on costs related to work stress, including productivity losses, sick leave, and treatment costs in the UK.
APS	2019	Stress and wellbeing in Australia survey	Data from APS's annual survey on the costs related to work stress and burnout in Australia.
CDC (USA)	2019	Stress at work	CDC data and research on health costs related to workplace stress in the United States.
WEF	2019	Mental health in the workplace: An emerging global crisis	WEF report analyzing the economic and social costs related to work stress and burnout worldwide, emphasizing the need for preventive and intervention measures.
AIS	2020	Workplace Stress	AIS website containing reports and articles on the costs of workplace stress at national and international levels.

Source: Own elaboration.

Below it will be presented selected studies conducted in Poland after the Covid-19 pandemic (Table 2). Polish reports indicate that the scale of work stress has not decreased in recent years - despite the growing awareness and intensified efforts in occupational health protection. Contemporary stressors stem from post-pandemic economic destabilization, rising inflation and living costs, the necessity of additional employment (reported particularly by younger workers), and the risk of job loss. This is compounded by the rapid digitalization and implementation of artificial intelligence, which add to an overall ambiguity and complexity.

The term VUCA is often referred by strategic management researchers, in order to describe the unpredictable nature of current turbulent changes in the business environment (Machel, 2024).

Table 2.

Work stress and burnout in Poland – current selected reports (2022-2024)

Institution	Year	Data Source	Data Scope
ZPP	2022	Occupational burnout - an issue of our times - social campaign	Report "Occupational burnout in the spotlight" from the Union of Entrepreneurs and Employers. It presents research results on stress and burnout, along with expert recommendations.
INFOR	2023	IKF Platform for Accountants and HR Specialists	Platform providing research findings and information on the latest reports, including stress and burnout, and updates on legal solutions in this area.
PARP	2023	Labor market, education, competencies. Current trends and research results.	Periodic reports from the Polish Agency for Enterprise Development on the labor market, unemployment, and issues related to stress, health, and well-being of workers.
ARC Market and Opinion	2023	Commissioned by Pracuj.pl - study: Well-being in times of uncertainty	Internet service dedicated to the job market and employment, presenting research results on the scale of stress and risk of burnout, as well as health perceptions in the context of work.
Deloitte	2023	Global 2023 Gen Z & Millennial Survey	Results of international research involving Poland among young workers, identifying sources of stress and the scale of burnout.
SW Research	2023	IKF Platform for Accountants and HR Specialists	INFOR (June 2024) "Well-being and mental health of Polish workers" - according to the report, nearly every second Polish employee struggles with burnout, and every fourth experiences its severe form.

Source: Own elaboration.

The compilation of the above studies illustrates a growing trend of interest in the issues of work stress and burnout among practitioners and occupational health institutions in Poland. According to the data collected by Deloitte, half of young workers (respondents born after 1983) report experiencing the effects of burnout. In addition, nearly four in ten Polish respondents simultaneously admit that the issue of reduced subjective job performance and exhaustion is taboo for them. Survey participants acknowledged feeling uncomfortable discussing their mental health with their employers. Globally, one-third of respondents reported similar feelings (see: Deloitte report, 2023).

Research commissioned by Pracuj.pl reveals that nearly 40% of office workers and 32% of manual workers surveyed declare experiencing an episode in their professional lives that they could describe as "burnout". Although burnout is typically a process rather than an episodic event, its initial stages can go unnoticed. According to studies cited by INFOR, young people and middle-aged workers are at higher risk. Psychologically, they exhibit a high need for achievement and success, perfectionism, sensitivity, and difficulty in accepting constructive criticism (see: INFOR reports 2023, 2024). These findings corroborate earlier research indicating that besides young, ambitious individuals dedicated to their professional endeavors,

workers in social services and related professions are also at risk of burnout. In this sector, both individual and organizational factors (such as work environment characteristics and personal resources) can significantly mitigate the development of adverse stress consequences and activate more effective coping strategies (Ogińska-Bulik, 2009). Studies on individual factors related to stress and burnout always consider demographic characteristics such as age, gender, tenure, industry, occupation, and sector. For instance, research among employees of small and medium-sized enterprises in Poland in 2020 showed that over 50% of those employed in this sector exhibit symptoms of burnout (Staszewska, 2020).

3. Attachment styles and burnout

The theory of attachment styles is associated with the names of John Bowlby (2007/1969) and Mary Ainsworth (1979). The attachment theory is increasingly recognized not only in developmental psychology, where it explains behaviors of children and adolescents, but also in the psychology of romantic relationships among adults (Shaver, Hazan, 1987; Plopa, 2006), and notably in the field of occupational psychology, stress, well-being, and the issue of burnout (Pines, 2004; Leiter et al., 2015; Virga et al., 2019).

According to J. Bowlby, the formation of interpersonal bonds is a biologically conditioned need. As pointed out by other researchers, this evolutionary mechanism, instinct, or neuroprogram is also observed in the animal world, including mammals and birds, and has been described by ethologists such as Konrad Lorenz (Marchwicki, 2006). The caregiver's appropriate response to the infant's needs is crucial for its survival. A functional, secure attachment leads to a child's sense of security, contributing to the development of effective coping strategies. A child, and later an adult, possesses in their resources such a disposition for regulating emotions and experiences that helps them cope with difficulties. Conversely, inappropriate caregiver responses somehow compel the child to develop alternative coping strategies for dealing with frustration (Kozłowska, 2010, p. 78). Alternative patterns can take the form of need extinction and reduction of certain behaviors (deactivation) or activation of excessive arousal mode (hyperactivation). While the optimal style serves as a kind of secure base for the child (Marchwicki, 2004), non-secure styles can result in dysregulation of neuro-hormonal responses. Experiencing warm, mutual interactions in early stages of development creates opportunities for displaying mature forms of closeness in adulthood, which are based on acquired attitudes of trust and a sense of self-esteem from childhood (Plopa, 2019, pp. 486-487). The table below presents the basic characteristics of three attachment styles identified by Mary Ainsworth, who, according to many researchers, significantly expanded Bowlby's concept.

Table 3.*Main characteristics of three attachment styles*

Relation	A. Secure	B. Anxious/ambivalent	C. Avoidant
Object of attachment - caregiver	"secure base", "safe haven", consistency of the object	inconsistency of the object	unavailability of the object
Recipient of care - child	trust in the object of attachment, showing sensitivity in uncomfortable situations, feeling of security	heightened alertness, vigilance, and uncertainty, reduced sense of security, fear of separation, experiencing anger but also relief in the presence of the object	avoidance as a defense mechanism against injury, resignation from fighting for the object

Source: Own elaboration according to Plopa, 2006, 2019.

As illustrated above, the secure style is associated with trust, seeking support, functional sensitivity, and flexibility in terms of dependence-independence, activity-passivity (see Kozłowska, 2010; Łoś, 2010). The terms "secure base" and "safe haven" were introduced by M. Ainsworth (Plopa, 2019). The consistent and secure presence of the caregiving object allows the child to experience and accept their efforts and emotions, both positive and negative. In the following compilation, the fourth attachment pattern, the so-called disorganized attachment pattern ("disorganized/disoriented"), described in the mid-1980s by Mary Main and colleagues (Main et al., 1985, cited in Łoś, 2010), is not included. Neither are the intermediate styles or subtypes in the framework of multidimensional models, descriptions of which can be found in Polish publications by Łoś (2010) and Kozłowska (2010).

One of the pioneers who applied attachment theory to test its relationship with burnout in adults was Ayala Pines (2004). Pines represents the existential approach to burnout (Pines, Aronson, 1988) and emphasized the role of initial high motivation in seeking meaning and professional fulfillment. For burned-out individuals, this fulfillment does not occur, the work environment is perceived as stressful and demotivating, goals and expectations are not achieved, leading to feelings of failure and unmet expectations (Pines, 1993, cited in Schaufeli, Enzmann, 1998, p. 112). In her research on the relationships between attachment styles and burnout, Pines (2004) hypothesized a negative correlation between the secure attachment style and burnout, and a positive correlation between insecure attachment styles (avoidant or anxious/ambivalent) and burnout. The results confirmed the researcher's hypotheses, and it should be noted that the studies had a cross-cultural dimension. The universal, cross-cultural nature of attachment mechanisms allows for expanding research to other cultures. The similar results were obtained in studies with participants from China (Gong, 2022), demonstrating associations between attachment styles and burnout. Analyses revealed that participants with an avoidant attachment style reported the highest level of burnout, while those with a secure attachment style reported the lowest level of burnout. An additional variable (mediating) in the studies was stress resilience. In this aspect, it was shown that individuals with a higher level of secure attachment reported the highest resilience, whereas the group with an avoidant attachment style declared the lowest resilience to stress. The majority of respondents declared a secure attachment style.

When we examine the list of possible symptoms of burnout (at the individual level, not organizational), we notice their diversity and similarity to behaviors associated with insecure attachment styles. Among the symptoms of burnout reported by respondents, behaviors, characteristics, feelings, and beliefs such as anxiety, avoidance strategies, external locus of control (low belief in one's agency and ability to cope with difficulties), inability to seek help and support, resignation, perceived burden in direct social interactions, and others have been noted. The following table (Table 4) compiles selected correlates of burnout, which can also be found in literature related to attachment theory. For the detailed list of published findings on stress, coping and the style of attachment see Komorowska-Pudło (2016).

Table 4.

Correlates of burnout in relation to attachment styles A, B, C

Attachment style	Burnout correlates	Possible relations and overlaps
A. Secure	Hardiness, confronting coping style, self-esteem, social support from colleagues and superiors, participation in decision making, autonomy	Negative – burnout may decrease
B. Anxious/Ambivalent	Anxiety, neuroticism (emotional instability), direct social contacts (e.g., with clients), Type A behavior (hostility, competitiveness, over-engagement)	Positive – burnout may increase
C. Avoidant	Lack of feedback, lack of participation, low extraversion level	Positive – burnout may increase

Source: elaboration based on Ainsworth, 1979, 1989; Pines, 2004; Schaufeli, Enzmann, 1998, p. 75.

The causes and correlates of burnout also include: high levels of experienced stress, high initial engagement, sensitivity (feeling type), inflexible thinking style (rigid thinking), and schematic actions. As a consequence, there is withdrawal or irregular and unpredictable activity, decreases in engagement, feelings of isolation, sadness, loneliness, hopelessness, and helplessness. Schaufeli and Enzmann also point out consequences of burnout such as boredom, loss of interest, numerous health problems, demoralization, and intensified experience of negative emotions (anger, cynicism, jealousy, hostility, martyrdom syndrome, or superiority behaviors, see Schaufeli, Enzmann, 1998, p. 23).

Research on the relationships between the aforementioned characteristics and attachment styles in adults confirms these dependencies. In Polish studies, Żechowski et al. (2018) demonstrated through linear regression that an anxious attachment style was a significant predictor of somatic symptoms and impaired social functioning, while a secure style was a negative predictor (protective factor) for depressive symptoms. Similar results were obtained by Wawiórko and Zabłocka-Żytka (2018), who found a positive association between anxious-ambivalent style and somatic symptoms, anxiety, depressive symptoms, and between avoidant style and anxiety and depressive symptoms. A secure attachment style, on the other hand, was negatively correlated with depressive symptoms. Komorowska-Pudło (2016) found that respondents who most frequently exhibited active coping with stress and sought support in difficult situations experienced a secure attachment style and were raised in a stable family environment. Helplessness and avoidant behaviors were more often observed in stressful

situations by respondents raised in an insecure environment, specifically in families characterized by anxious-ambivalent and avoidant attachment styles. Furthermore, in an analysis of the relationship between attachment style and tolerance for ambiguity in career decision-making among young adults, subsequent studies indicated that both anxious-ambivalent and avoidant attachment styles (experienced in relation with mother and/or father) were associated with lower tolerance for ambiguity. Additionally, they demonstrated the mediating role of generalized sense of security, whereby the presence of this resource led to a complete or partial reduction of this relationship (Paszowska-Rogacz, Znajmiecka-Sikora, 2020). In earlier foreign studies, e.g. Leiter et al. (2015) or Virga et al. (2019) there has been similar patterns were shown between those two concepts – burnout and attachment styles.

Arguments supporting the inclusion of attachment style as a variable in research on burnout can be categorized into several categories, as illustrated in the table below (Table 5). The typology of attachment styles meets the criteria of scientific concepts. It is well-described, logically justified, has reliable measurement methods, and is incorporated into research not only in developmental psychology (e.g., social adaptation of children) and social psychology (functioning of romantic and partner relationships), but also in the fields of stress psychology, health psychology, and organizational psychology. There is promising prognostic potential in this concept, indicating that it can likely accurately predict future employee behaviors and facilitate the early design of optimal work environments (e.g., in terms of social support or individualized motivational systems).

Table 5.

Attachment theory in explaining the mechanism of burnout – selected aspects, theoretical and practical implications

Aspect	Description
Breadth of the issue	Attachment style developed in early childhood influences the establishment and maintenance of social relationships in adults, including the workplace. Research indicates that different attachment styles can lead to varied coping strategies with occupational stress, which is crucial for the development of burnout.
Theoretical foundations	The concept of attachment styles has solid foundations in object relations theory and developmental psychology, and even ethology. Theoretical frameworks help understand the mechanisms through which attachment styles impact individuals not only in childhood but also in adult life and in professional contexts.
Practical implications	Research on the relationship between attachment styles and occupational burnout has significant practical implications for human resource management. Understanding employees' attachment styles can assist organizations in adapting stress management strategies and preventing burnout by creating a more supportive work environment, including optimizing HR functions.
Interdisciplinary perspective	The issue of attachment styles in the context of work-related stress and burnout encompasses elements of clinical psychology, developmental psychology, and occupational psychology. Research in this area enables the integration of different perspectives and research approaches, contributing to a better understanding of the phenomenon under study.
Social and economic significance	Occupational burnout represents a significant social and economic problem, leading to reduced quality of life for employees, increased absenteeism, and higher costs associated with recruiting and training new personnel. Research on the relationship between attachment styles and burnout can contribute to the development of more effective prevention and intervention strategies in the field of mental health in the workplace.

Source: Own elaboration.

4. Critical remarks and issues for discussion

Occupational burnout constitutes a significant social and economic problem, leading to reduced quality of life for employees, increased absenteeism, and rising costs associated with recruiting and training new personnel. Research on the relationship between attachment style and occupational burnout can contribute to the development of more effective prevention and intervention strategies in the area of mental health in the workplace and in human resource management, including international environments, due to the universal and cross-cultural nature of individual differences in attachment styles.

Further research on the relationships between attachment styles and job burnout may rise, however, also some theoretical and methodological problems. The topic of attachment styles may prove to be niche or limited to romantic relationships and compared to the concept of coping styles, it may ultimately be less useful (successful attempts to overcome this limitation was shown in Leiter et al., 2015). Also economic limitations may hinder the development of research and practical applications in this field. If personalized support systems are found to be too costly and reserved only for managerial staff, then the analysis of attachment style might remain more of a curiosity or psychological amusement rather than a significant element in stress reduction and burnout programs among ordinary employees. Moreover, attachment style might sound too psychological, and as a specialized term, it could be rejected by managers as inadequate for the field of management and work efficiency. At this point, it's worth recalling that the issue of burnout was not taken seriously even 40 years ago, and mentions of this phenomenon were printed in colorful magazines for more entertainment purposes rather than educational-scientific ones.

Research on the relationship between attachment style and occupational burnout has important practical implications for human resource management. Understanding employees' attachment styles can assist organizations in adapting stress management and burnout prevention strategies by creating a supportive work environment, careful recruitment considering attachment style typologies, adjusting coaching and mentoring techniques, and promoting autonomy and extensive support for employees. Autonomy and teamwork are valuable resources for organizations that significantly mitigate the negative impact of stress on employees (see: Maslach, Leiter, 2010; Leiter et al., 2015; Karasek, 1979; Terelak, Izwatowska, 2009). However, these resources may remain inaccessible to employees whose professional behaviors are dominated by anxious, passive, or avoidant attitudes. Employees with such characteristics or functioning styles may not be open to integrative or team-based actions. This can result in overlooking the developmental needs of some employees, wasting their potential, and harmful evaluation practices. As research reports indicate, employees often do not share information about their mental state or well-being, remaining isolated, with "quiet quitting" being their only strategy. Most respondents would feel discomfort discussing their

burnout issues with their supervisors (see ZPP report, 2023, p. 27). This situation requires awareness and empathy in contemporary HR management and a reevaluation of approaches to burnout, as well as a broader perspective on the causes of work inefficiency (see INFOR report, 2023, 2024).

5. Conclusion

The aim of the article was to outline the issue of efficiency loss understood in terms of occupational burnout from the perspective of attachment styles theory, as a complementary variable explaining the mechanism of engagement erosion and energy depletion. Attention was drawn to the possibilities and limitations of interdisciplinary research using constructs from developmental psychology within the fields of work psychology and HR.

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ORGANIZATIONAL IDENTITY AND PERCEPTION OF VALUES IN THE ENTERPRISE – IN THE LIGHT OF RESEARCH RESULTS

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Purpose: The aim of the article is to present various approaches to organizational identity, with particular reference to the approach of J.M.T. Balmer (2017) and various approaches to values. Moreover, presenting the results of empirical research on the perception of organizational identity by enterprise employees and values in relation to own construct of values oriented towards the functioning of enterprises in their various aspects.

Design/methodology/approach: Theoretical research in the field of organizational identity and values in the enterprise. Conducting own empirical research, also in relation to own value construct, which takes into account various aspects of the company's operation, also relations with the environment. The article is an innovative approach to the presented topic due to the use of author's own value construct in relation to empirical research.

Findings: According to the conducted research, all of the above-mentioned features of the organizational identity of the entities, the respondents are employed in, were considered important. These include: organizational type of the enterprise, purpose(s) of the enterprise/organization, area of activity, geographical scope, ethos and values, market position, management method and employee behaviour, markets and customers served, quality of products and/or services. Moreover, it was shown that all the areas included in the author's value construct are important for the surveyed employees, i.e. customer service, quality, responsibility, teamwork.

Research limitations/implications: Further research will focus on the remaining features of organizational identity by J.M.T. Balmer, also in relation to the analysis of the approach of representatives of different age groups and industry specificity. Moreover, it is worth including the cultural context in future research and indicating, on the basis of a representative sample, how representatives of lower levels of management and the management staff of enterprises approach the aspects discussed in this article. The study has some limitations. The results cannot be generalized because the sample was not selected probabilistically.

Practical implications: The presented original value construct can constitute a set of indications for further diagnosis and modification of the development paths of an economic entity, also in the perspective dimension. Its application can be universal and the research results obtained on its basis may support the targeting of programs to improve the management of various types of business entities, also in the context of shaping their organizational identity.

Social implications: The research presented in the article is part of the research trend that serves to shape attitudes conducive to building awareness of corporate social responsibility in the context of the presented approach to values oriented not only to the development of the enterprise but also to shaping appropriate relations with the environment.

Originality/value: The study showed the perception of organizational identity by company employees in connection with the values identified in author's own construct.

Keywords: organizational identity, employees, values, enterprise.

1. Introduction

According to J. Duraj (2008, p. 90): “changes that take place in the enterprise's environment and in itself” result from globalization processes that are related to the competence and competitiveness of economic entities. Increasing the value of the company's potential should undoubtedly be based on well-established foundations. It is worth looking for them in material resources, but these are not unique. “Referring to the computer analogy, we can say that material resources play the role of “hardware”. Intangible resources, on the other hand, constitute something like the “software” of the organization (...). Generally speaking, material resources can be purchased, but intangible resources must be developed” (de Wit, Meyer, 2007, p. 163). An enterprise is more than just its material potential. Its specificity, unique “image” is created by employees. Their intellectual capital, perceived values and attachment to them as well as identification with their workplace give a unique dimension to the company, just as each person is unique, one of a kind. Enterprises that want to be recognizable on the market and build their organizational identity should systematically identify the features and elements of this identity through the prism of the perception of their employees.

The purpose of the considerations presented in the article is to present various approaches to organizational identity, with particular reference to the approach of J.M.T. Balmer (2017). Moreover, another goal is to present the results of empirical research on the perception of value by company employees in relation to their own value construct oriented towards functioning in various aspects.

The article was prepared on the basis of the results of empirical research conducted from April to September 2023 on a group of people employed in the Lubuskie voivodeship.

2. Organizational identity – approaches, features, importance for the functioning of enterprises

There are a lot of approaches to the issue of organizational identity. It is organizational identity that provides the company's brand promise (Balmer, 2012) and is a kind of platform on which it is built and maintained (Balmer, 2001a). In turn, M. Paliderova, A. Bielikova, E. Spuchl'akova (2015, p. 288) are of the opinion that: “Organizational identity is a complex view of the organization, which is created by its philosophy, history, management, leadership,

contemporary situation in the organization and its outlook on the future". According to G. Davis, R. Chun, R.V. da Silva, S. Roper (2001), it is interpreted as "the internal image of a particular economic entity and applies only to its employees". This perspective on the issue of organizational identity requires taking into account an important aspect of it, namely building organizational identification by taking various actions that ensure that a particular economic entity is well distinguished from the environment and at the same time maintains internal coherence (Stefański, Czarnota-Bojarska, 2020).

According to B. Olszewska and K. Olszewska (2009, pp. 175-176): "The identity of a company is defined as its self-awareness, character, specificity expressed in attitudes and behaviours, in what the company is, what it tries to define when forming its missions. (...) The company's identity, understood as a relatively coherent, internal image of the company, is shaped as a result of the perception and assessment of various forms of its activities, experiences, successes and failures, in the process of changes that the company is undergoing". This, in turn, depends on the level of perception of understanding and remembering, as well as the strengthening of internal coherence represented by employees. This concept must be implemented through communication not only within a particular enterprise but also outside it, organizational behaviour is also important. It is crucial to ensure its harmonization with the organizational structure of the enterprise and changes within it, conditions resulting from taking actions conducive to strengthening the company's position on the market in the form of new expansion activities, or other market conditions (Paliderova, Bielikova, Spuch'akova, 2015). The given issues should also be looked at from a broader perspective. Organizational identity can also be analyzed in relation to the sustainable development of enterprises in the context of globalization processes (Olexova, Chlebikova, 2020). It is worth adding that, as suggested by the research of M.R.Z. Aly, S.A.A.E. Eltanbouly, and R.S. Ebrahim (2023), organizational identity has a positive, direct impact on corporate social responsibility, and by demonstrating appropriate attitudes on the part of top management, it is possible to obtain the commitment of company employees in this area.

According to Ana Čuić Tanković (2020), organizational identity based on solid foundations builds trust and support of various stakeholders and gains an advantage in the business environment, also by attracting highly respected managers to a particular entity. Furthermore, it has a positive impact on the business potential of the organization, its perception by consumers in terms of the quality of products and services, thus contributing to building loyalty, and is also related to the involvement of stakeholders in creating the organizational brand.

The importance and benefits of organizational identity can be evidenced by, among the others (Işık, 2021): its motivational impact on employees who, understanding the features and goals of the organization, show greater support and commitment to its development, shaping attitudes of trust that strengthen the positive behaviour of the environment business as well as the target audience, protecting the brand against competition. This requires an efficient

communication process not only in the intra-organizational dimension but also in terms of contacts with the environment, which should be taken into account from a strategic perspective.

“Typically, key corporate identity traits encompass (but are most certainly not limited to) (Balmer, 2017, p. 1478):

1. an institution’s organisational type,
2. its purpose(s),
3. activities,
4. ethos and values,
5. market position,
6. markets and customers served,
7. product and service quality,
8. management and employee behaviours,
9. geographic scope, etc.”.

The given list of interdependent features shows that they make the company stand out from other entities operating on the market (Balmer, 2001b; Melewar, 2003), and may also contribute to shaping its competitive advantage. Its sources should be sought in the company’s potential, which is based on the most valuable resource – employees. Their satisfaction, according to A. Dewalska-Opitek (2009, p. 32), “depends on the satisfaction of (...) individual and group needs related to the workplace”. This is one of the important determinants of subjective treatment of employees and affects the efficiency of the organization and translates into the creation of an appropriate atmosphere in the workplace. So how can we extract the resources hidden inside the company, how can we build the foundations of pro-identity behaviour of the company’s employees at all levels based on strong foundations? Values can become this important bond. We should agree with the statement of B. Olszewska and K. Olszewska (2009, p. 176) that: “Building identity is a complex and long-term process, it grows from superior values and is aimed at achieving the vision”.

3. Concept of values and their importance in the life of an enterprise

The multidisciplinary nature of the category of “values” is evidenced by the fact that they are issues raised by such sciences as social, empirical and humanities. “A person cannot only adopt the attitude of a passive observer towards values, because values attract him, while anti-values repel him”, they have not only a quantitative but also a qualitative dimension (Kowalczyk, 2006, pp. 149, 166). According to E. Rudawska, values should be identified “with positive attitudes, the main components of attitudes, motivational and perceptual states that guide behaviour aimed at certain preferred goals or a relationship of ideas and attitudes creating a scale of preferences for undertaken actions; they define what is expected and desirable” (2008,

p. 21). A similar approach to this definition is presented by L.J. Krzyżanowski (1999, p. 205). It is a product of “feelings, beliefs or convictions of an entity: a human individual, a social group, a local, national or other community, a cultural community or a global society about what in the natural and psychosocial-cultural reality is positively assessed and considered desirable and aspired”. According to K. Krzakiewicz (2011, p. 103), one of the important elements of management of top-level managers is: “Creating a precisely formulated system of values and a model of organizational behaviour and their uncompromising implementation. The value system is a binding element of the organization, promotes efficient teamwork and ensures effective transfer of knowledge”. K. Krzakiewicz (2011, p. 102) states that: “The authority to influence the behaviour of others is currently provided not by the power of the administrative machine, but by generally shared and perceived values” (...). The success of an enterprise is related to the combination of attention to results and interpersonal relations (Blanchard, 2007, p. 224). Their proper shaping requires taking into account various aspects of values, because “they are the driving force behind the behaviour of employees who contribute to achieving the goal and realizing the image of the future” (Blanchard, 2010, p. 105). Learning and understanding the personal values of organization members and the values emphasized in the workplace as well as matching them to each other, influences the development of organizational behaviour at its various levels (Arieli, Sagiv, Roccas, 2020).

It is worth discovering the opinions of employees working in the surveyed enterprises regarding the perception of organizational identity.

4. Methods

In addition to a review of the literature on organizational identity and values, the article also presents the results of own empirical research. To ensure the authenticity of the data, participants were informed that the study was anonymous and would be used only for scientific purposes. They were carried out using a survey questionnaire. Some of the surveys among respondents were conducted online and the rest in paper form. The received surveys were thoroughly verified to check whether the respondents answered the questions in order to obtain completeness of the results. The selection of the research sample was not of a probabilistic nature, but was guided by the fact that employees employed in various entities participated in the survey in terms of: the period of operation of the enterprise/organization on the market, the geographical scope of the enterprise/organization’s activity, type of activity, legal form, capital ownership or the size of the enterprise. Moreover, it was also important to differentiate employees based on: gender, length of service in the enterprise/organization, nature of work performed and type of job position.

The study uses empirical research conducted from April to September 2023 on a group of 200 people employed in the Lubuskie voivodeship. The characteristics of the study population have been shown in Table 1.

Table 1.
Characteristics of the studied population

Description		Number of indications	Number of indications as a percentage (in %)
Gender of respondents	women	112	44,0
	men	88	56,0
Work experience in the company/organization	Less than 1 year	36	18,0
	From 1 to 5 years	98	49,0
	From 6 to 10 years	33	16,5
	From 11 to 15 years	13	6,5
	From 16 to 20 years	8	4,0
	Over 20 years	12	6,0
Workplace type *	executive	147	73,5
	managerial	57	28,5
The nature of the work performed *	physical work	109	54,5
	mental work	131	65,5

Note: * Some respondents perform both physical and mental work. Moreover, in several cases, employees indicated that they were employed in executive and managerial positions.

Source: own study based on empirical research.

The surveyed respondents were dominated by people whose period of employment in a particular enterprise/organization was from 1 to 5 years (49.0% of respondents). Then, 18.0% were people with an employment period of less than 1 year, 16.5% of respondents had been working for 6 to 10 years and 6.5% for 11 to 15 years. In terms of job position, a larger number of indications concerned employees working in executive positions (73.5%) and 28.5% were people working in managerial positions. 65.5% of respondents perform mental work and 54.5% perform physical work. It should be added that some people perform both types of work.

Moreover, in order to present a more comprehensive picture of the respondents, a table was prepared showing the characteristics of the enterprises/organizations in which they are employed. They have been presented in Table 2.

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

Description		Number of indications (in %)
The period of operation of the enterprise/organization on the market	Up to 5 years	16,5
	From 6 to 10 years	18,0
	From 11 to 15 years	12,0
	From 16 to 20 years	11,5
	Over 20 years	42,0
The geographical scope of the enterprise/organization's activity	Local market	31,5
	Regional market	26,5
	Domestic market	41,5
	International market	40,0

Cont. table 2.

Type of the enterprise/organization's activity	Production	39,5
	Trade	46,5
	Services	46,0
	Others	9,5
Legal form	State-owned enterprise	16,5
	Private enterprise	74,0
	Other form	9,5
Capital ownership	Polish capital	72,0
	Foreign capital	13,0
	Mixed capital with a predominance of foreign	8,0
	Mixed capital with a predominance of Polish	4,0
	Equal share of Polish and foreign capital	3,0
Size of the enterprise/organization	Micro (less than 10 employees)	20,0
	Small (10 to 49 employees)	28,0
	Medium (from 50 to 249 employees)	18,5
	Large (more than 249 employees)	33,5

Source: own study based on empirical research.

The surveyed employees were employed in business entities whose period of operation on the market varied. The largest group were those that had existed for over 20 years – 42.0%. As for the geographical scope, it should be noted that some entities were active not only on one market. There were (41.5%) surveyed entities on the domestic market and 40.0% on the international market. The majority of enterprises were private – 74.0% of entities. In terms of capital ownership, Polish capital dominated (72.0% of entities). The research shows that the majority of respondents are employed in micro, small and medium-sized enterprises. They constitute a total of 66.5% of entities, 33.5% of which are large entities.

5. Results

The work environment, with all its diversity of internal and external conditions, requires building the foundations of company stability, which can significantly contribute to shaping organizational identity. Due to the fact that employed employees will decide about the future of the company, it is important to learn their opinions about the company – the workplace. It is worth agreeing with the opinion of C. Szmidt (2007, p. 6) that: “The way of managing human capital in small and medium-sized companies significantly affects the social atmosphere and interpersonal relations in the work environment”, which undoubtedly contributes to the creation of mechanisms that unite employees and build their intra-organizational bonds in an economic entity.

An important aspect of the issues discussed in the article was the presentation of respondents' opinions regarding how they perceive the features of organizational identity identified by J.M.T. Balmer (2017) in relation to their workplace. A scale of 0 to 5 points was adopted. Where 0 means “not important at all”, 1 point – “of slight importance”, 2 points –

“of little importance”, 3 points – “of average importance”, 4 points – “important”, 5 points – “very important”. The results obtained on the basis of the weighted average have been presented in Figure 1.

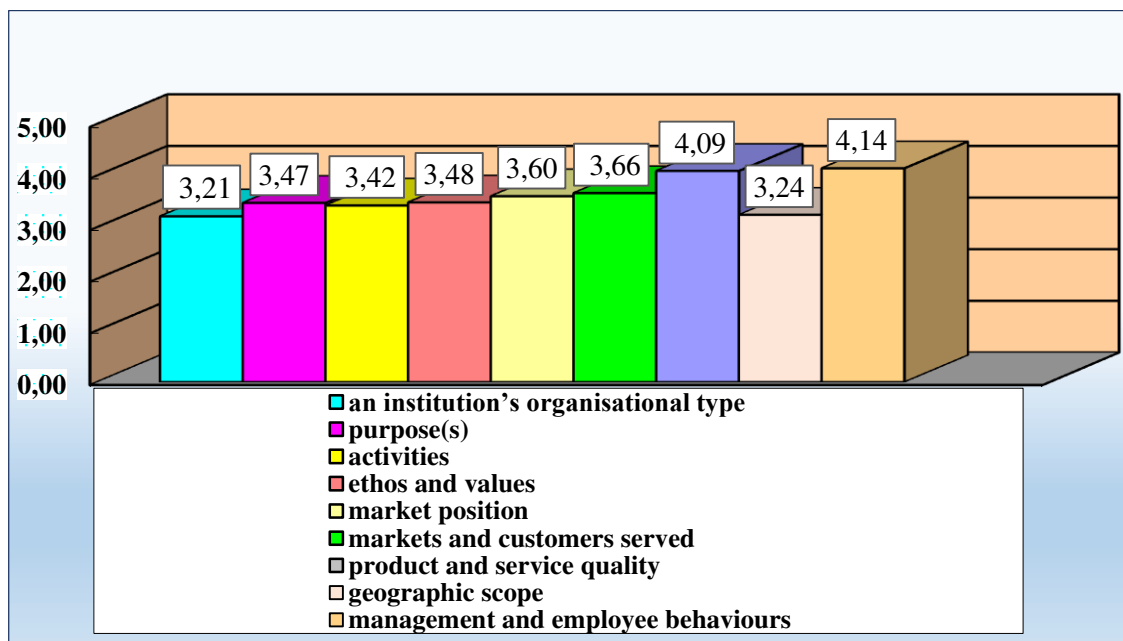


Figure 1. Respondents' opinions regarding areas/elements of the company's functioning that constitute the features of organizational identity.

Source: own study based on empirical research.

In the opinion of the surveyed respondents, the most important feature of organizational identity is the way of management and behaviour of employees – 4.14 points. Then, the quality of products and/or services was indicated – 4.09 points. Two features received a similar number of points, i.e. markets and customers served (3.66 points) and market position (3.60 points). Further positions are taken by: ethos and values (3.48 points), purpose(s) of the enterprise/organization (3.47 points), area of activity (3.42 points), geographical scope (3.24 points) and type of enterprise organization (3.21 points). According to the research conducted, all of the above-mentioned features of the organizational identity of the entities in which the respondents are employed were considered important. Their scores range between 3.21 and 4.14 points.

As a result of the conducted research, it was also determined how respondents evaluate areas illustrating values oriented to the sphere of operation of enterprises in their various aspects. It is worth emphasizing that an original approach to the value construct was used.

The company builds its potential based on the potential of its employees, which is shaped through the prism of the values they perceive. It is necessary to look at how representatives of the surveyed entities relate to areas that create a certain reference to the hierarchy of values. It is also important to look from the perspective of to what extent the particular values are shared by the management staff and whether there is convergence of views in this respect between management and lower-level employees?

The surveyed respondents commented on which of the given areas reflect the values that are important to them in the company/organization. A scale of 0 to 5 points was used, where 0 means “not important at all”, 1 point – “of slight importance”, 2 points – “of little importance”, 3 points – “of average importance”, 4 points – “important”, 5 points – “very important”. The obtained calculations have been presented in Figure 2.

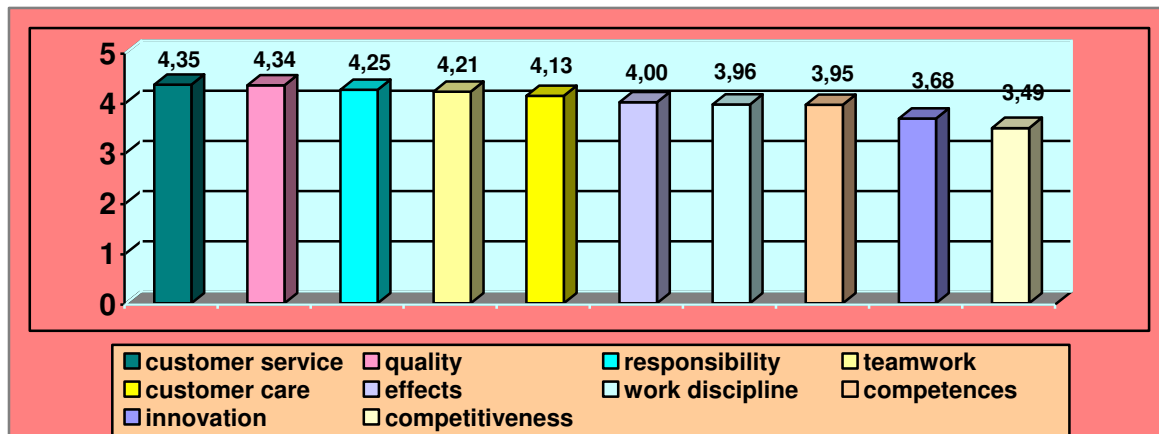


Figure 2. Perception of areas illustrating values important for employees of enterprises/organizations – original approach to the value construct.

Source: own study based on empirical research.

As a result of the research, it was found that all the given areas are important for the surveyed employees. What makes us optimistic is that the representatives of enterprises assigned points (using a weighted average), which eventually results ranging from 3.49 to 4.35. It was decided that the most important area illustrating important values is customer service. In second place is quality, which received a very similar number of points. The next positions are taken by: responsibility, teamwork. As a result of the research, it was found that competitiveness received the lowest number of points – 3.49 points.

Due to the fact that values act as integrating elements, in the sense that they are common to all or most members of the organization, it is worth taking a closer look at whether the values assessed by respondents are consistent with the expectations of the management staff? In response to this question, respondents expressed their opinions, which have been shown in Figure 3.

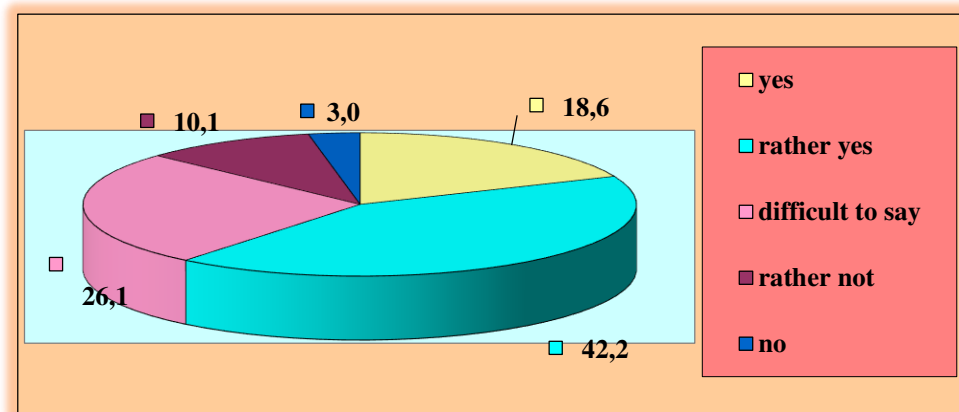


Figure 3. Convergence of the areas of significant values given by respondents with the expectations of the management staff.

Source: own study based on empirical research.

Based on the respondents' opinions, it was found that 60.8% of respondents perceived the convergence of their views on values with the expectations of the management staff, as the answer was yes (18.6%) or rather yes (42.2%). 26.1% of respondents have no opinion on this matter. 10.1% of respondents chose the answer rather not and only 3.0% chose the answer no.

It is worth remembering that the perception and creation of an authentic organizational identity requires participation in a continuous dialogue process of entities involved in shaping the actual image of the company (Theunissen, 2014), which means the participation of both management staff and lower-level employees as well as representatives of various age groups.

Due to the limited scope of presentation of the obtained results, no further in-depth analyzes were presented regarding the existing relationships between the assessment of identity features and the perceived values related to one's own construct.

6. Discussion

It is necessary to agree with the statement of B. Sadowska and A. Lulek (2020) that "(...) the attitude and behaviour of each manager seems crucial in the context of effectively influencing employee motivation". This is facilitated by the sharing of common values, which, as empirical research shows, has been achieved to a high degree. This is evidenced by the fact that 60.8% of respondents see the convergence of their views on values with the expectations of the management staff, as the answer was yes (18.6%) or rather yes (42.2%). Let the opinion of Piwowar-Sulej K. and Mroziewski R. (2020, p. 35) be the voice in the discussion on the role and importance of values in an enterprise: "Because of values, employees feel united, get more involved and, as a result, their potential, passions, and talents can be taken advantage of to the fullest". Undertaking research on organizational identity in the context of perceiving value in

an enterprise is part of the current and undertaking research topic of recent times. This is due to the fact that, according to J. Moczydłowska (2021, p. 3), key organizational competencies in conditions of permanent change include, among the others, “(...) the ability to manage relationships with employees by building their commitment and loyalty”. A.K. Koźmiński, D. Jemielniak, D. Latusek-Jurczak, A. Pikos (2023, p. 87) write about the importance of “(...) mutual acceptance or even emotional involvement between the organization (i.e., in practice, its management) and its participants”. In their opinion, the internal social balance achieved in this way is a specific exchange of intangible values. Organizational identity influences the perception of the brand by employees and its formation depends on basic values, organizational culture or organizational behaviour, visual presentation of the company as well as aspects related to the process of communicating outside and inside the company. It is worth adding that it also affects the level of job satisfaction (Gilani, 2019), which in the presented own research can be related to the degree of convergence of the perception of value by management staff and lower-level employees. The common challenge of values is certainly an important determinant that unites the “entire complex” organism of the enterprise. The awareness of a similar view of the company and areas illustrating values such as customer service and care, teamwork, quality or competences can create important foundations on which the pillars of the company can be based not only here and now but also in the future.

7. Summary

It is worth agreeing with the statement that: “Firms should develop human resource systems that help underpin and reinforce employees’ beliefs in their CI” (Pavez, Kendall, Laszlo, 2021, p. 23).

The article presents various approaches to organizational identity. Particular attention was paid to the J.M.T. Balmer approach (2017), who distinguished its key features. He included: the organizational type of a particular institution, its purpose(s) of operation, area of activity, ethos and values, market position, markets and customers served, quality of product and services, management methods and employee behavior, and the geographical scope of the business entity. Moreover, the author’s own construct of values was presented. This approach was considered interesting and important from the point of view of the topic discussed, among the others, due to the important role that values and their perception can play in shaping the pro-identity attitudes and behaviours of enterprise employees. According to the conducted research, all of the above-mentioned features of the organizational identity of the entities in which the respondents are employed were considered important. Their scores range from 3.21 to 4.14 points (the adopted scale is from 0 to 5 points).

In terms of perceiving areas illustrating important values crucial for employees of enterprises/organizations, reference was made to the author's approach to the value construct. It includes elements such as: quality, competence, teamwork. It was found that the obtained results range from 3.49 to 4.35 (a scale from 0 to 5 points was also used here). Moreover, based on the opinions of the surveyed respondents, it was found that 60.8% saw the convergence of their views on values with the expectations of the management staff. Therefore, it is worth agreeing with K. Rogoziński (2012, p. 194) that the direct bond and source of group identity are shared values.

There are, of course, some limitations to this study. Despite the fact that the participants represented various enterprises, organizations, and various industries in the Lubuskie voivodeship, the results cannot be generalized because the sample was not selected probabilistically. However, this work has already expanded knowledge of the perception of organizational identity by company employees, which is extremely important in times of turbulent changes in the environment. An important advantage of the article is also the presentation of own empirical research based on the author's value construct, which is oriented not only on aspects related to management in the enterprise, but can also be applied to relations with the environment, in relation to building relationships with consumers.

The results of empirical research are optimistic, which can indicate a high awareness of enterprise employees in terms of shaping organizational identity in the entities where they are employed. Further research will focus on the remaining features of organizational identity identified by J.M.T. Balmer, also in relation to the analysis of the approach of representatives of different age groups and industry specificity. Moreover, it is worth including the cultural context in future research and demonstrating, on the basis of a representative sample, how representatives of lower levels of management and the management staff of enterprises approach the aspects discussed in this article.

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THE CONCEPT OF GREEN HUMAN RESOURCE MANAGEMENT IN A SYSTEMATIC LITERATURE REVIEW

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Purpose: The purpose of this article is to classify scientific research on the concept of green HRM and to identify some emerging directions for future research.

Design/methodology/approach: A systematic literature review was conducted based on a bibliometric analysis of the Scopus database. The research process was carried out according to a methodology consisting of six stages. The research query included TITLE-ABS-KEY ("green HRM" OR "green HR" OR "green human resource management"). 340 publication records were qualified for the analysis.

Findings: Based on the bibliometric analysis, five research areas were identified: Sustainable HR and environmental management; Sustainable HRM practices and green leadership; Environmental values of green practices; Advancing green citizenship and innovation; Integration of environmental concerns in HRM for sustainable performance. New areas of research that appear in the literature concern the issues of green innovation, green economy, environmental values, pro-environmental behavior, business development, sustainable performance and leadership.

Research limitations/implications: Although this study contributes to the literature on the development of HRM concepts, it has some weaknesses that should be noted. These may result from the limitation to the Scopus database and the omission of e.g. gray literature. But also the need to limit the publication to a certain number of characters, so the authors gave up some analyzes (keyword maps or the most popular research methods).

Originality/value: This study of systematic literature review presents a comprehensive overview and evolution of the concept of green HRM. The dominant countries, influential authors, research units and journals were indicated. Identifying the most frequently cited articles and the thematic clusters can help researchers and practitioners design their future research and implementation plans.

Keywords: green HRM, Green Human Resource Management, sustainability, green leadership, green practices.

Category of the paper: Systematic literature review.

1. Introduction

The increasing importance of sustainable development and responsible management of natural resources to take into account the well-being of future generations emphasizes the importance of environmental aspects. The emergence of various environmental standards, directives and legal provisions in the field of environmental protection obliged enterprises to implement pro-ecological practices in individual areas of activity, including HR processes. The result is the emergence of the concept of green human resources management (green HRM, GHRM), which is based on principles and practices aimed at encouraging employees to engage in ecological behavior at work, which translates into the environmental effectiveness of an enterprise, as well as extending these practices to private life.

Sustainable environmental development and greening of organizations have become the agenda of the 21st century, and as a result, green HRM is emerging as a new direction of research (Das, Singh, 2016, pp. 227-236; Verma, 2015, pp. 39-44; Jackson et al., 2011).

2. Theoretical foundations of the concept of green HRM

The concept of green HRM focuses on the development of an organization taking into account aspects of its impact on the natural environment. The aim of green HRM is to disseminate among employees certain behaviors that increase the ecological effectiveness of an organization and translate into pro-ecological activities in private life (Muster, Schrader, 2011, pp. 140-156). Employees of the organization thus acquire ecological habits for the benefit of the individual, the society, the natural environment and business (Opatha, Arulrajah, 2014, pp. 101-112).

In the literature on the subject, Wehrmeyer is indicated as one of the creators of the concept of GHRM. This author claimed that green HRM is the use of HRM policy to promote environmental balance factors and sustainable use of resources in an organization (Urbaniak, 2017, p. 13). Ackerman defined GHRM as a human resource management practice which aims to promote behaviors among employees that translate into increased ecological efficiency of the enterprise as a whole (Ackermann, 2017, pp. 22-23).

The literature on the subject presents five components of the concept of green HR (Różańska-Bińczyk et al., 2020, pp. 80-82):

- green human resources planning: including environmental protection activities into job descriptions, introducing HRM procedures that take into account ecological aspects;
- green recruitment of employees: indicating green competences as one of the requirements for each position, paying special attention in the recruitment process and further selection of candidates to their sense of the importance of pro-ecological behavior and previous involvement in activities aimed at protecting the environment;
- green development of employees: educating employees in the field of environmental protection in order to increase the ecological efficiency of an organization thanks to a greater awareness of employees in this area;
- green motivation of employees: employees' actions to protect the natural environment are appreciated and rewarded by their supervisors using pay and non-pay motivators;
- green management of employee performance: periodic employee evaluation takes into account ecological criteria.

It is clear that green HRM is a complex process that accompanies personnel management through its individual stages, thus making it possible to achieve wide-ranging effects. The goals of green HRM include motivating and encouraging employees to implement green practices and activities for the sustainable development of an organization (Khurshid, Darzi, 2016, pp. 19-21). Green HRM is a component of sustainable HRM (Bombiak, Marciniuk-Kluska, 2019, pp. 1-28), which affects the sustainable development of an organization as a whole, aimed at maintaining economic, social and environmental balance (Peterson, 2022, pp. 259-293). The assumption of green economy is to have a positive impact on the level and quality of life of society and to limit the negative ecological effects resulting from human economic activity (Szyja, 2015, pp. 21-38), focusing on reducing the consumption of natural resources, minimizing the generated waste and greenhouse gases and counteracting social inequalities (Ryszawska, 2013, pp. 26-37), which is related to the premises guiding the practice of GHRM.

Green HRM is interpreted as global concern for the natural environment, related to the development of environmental standards that create the need for enterprises to adopt formal strategies and programs under which the ecological awareness of employees is strengthened (Kar, Praharaj, 2020, pp. 46-56). It can be concluded that the development of the concept of green HRM is related to the emergence of increasing challenges regarding the protection of the natural environment, and the sustainable development of organizations has become a strategic and ethical part of the obligations of enterprises (Zacher et al., 2023, pp. 465-494). Restrictions in the area of care for the natural environment, such as the emergence of international standards, directives and legal provisions, as well as social pressure resulting from the increasing awareness of people as to the importance of pro-ecological activities, have contributed to the development of green HRM (Szczepańska, Kosiorek, 2022, pp. 19-28).

3. Methodology

The article uses the process of a systematic literature review, which enables the identification of the current state and development trends in the researched scientific area. A systematic literature review is characterized by complexity and comprehensive identification, assessment and synthesis of scientific publications on a given topic (Lenart-Gansiniec, 2021, p. 11; Klimas et al., 2020, pp. 39-52; Bornmann, Haunschild, 2017, pp. 1857-1859; Booth, Sutton, Papaioannou, 2016, p. 2; Keathley-Herring, Van Aken, 2016, pp. 927-951). A systematic literature review aims to reduce bias and provide access to the author's procedures in their research by detailing the steps taken to obtain a sample of the reviewed literature (Rollnik-Sadowska, 2023, pp. 1-21; Williams et al., 2021, pp. 521-533; Mazur, Orłowska, 2018, pp. 235-251; Petticrew, Roberts, 2012, p. 146). Operating in accordance with strict standards contributes to obtaining reliable results and increases the transparency of research (Adams et al., 2017).

Systematic literature reviews are becoming an increasingly popular method of synthesizing results, being called the "gold standard" (Donthu, Kumar, Pattnaik, Lim, 2021, pp. 834-865; Boland, Cherry, Dickson, 2017, p. 7) or "new normality" (Hiebl, 2021, pp. 1-33) in research processes in the area of management.

Considering the above, the aim of the article was to classify scientific research on green HRM, as well as to identify emerging directions for future research.

In the context of a systematic literature review, two research questions were formulated:

Q1. What is the current state of research on the concept of green HRM?

Q2. What are the directions for future research on the concept of green HRM?

A systematic literature review can be carried out using various procedures, in particular in terms of the number of stages implemented (Lenart-Gansiniec, 2021). In this article, the research process was carried out according to a methodology consisting of six separate stages preceded by a justification of the need, a formulation of the research goal and research problems (Czakov, 2011, pp. 57-61). These stages included: (I) selection of a bibliographic database, (II) selection of keywords, (III) criteria for narrowing the search for publications, and (IV) analysis of selected publications. Then (V) research areas were identified and (VI) thematic clusters were defined (Szpilko, Naharro, Lăzăroiu, Nica, de la Torre Gallegos, 2023, pp. 54-75). Figure 1 presents the operationalization of the research process using the bibliometric analysis method used in this article.

1. Database selection	<ul style="list-style-type: none"> • Scopus database
2. Keywords selection	<ul style="list-style-type: none"> • "green HRM" OR "green HR" OR "green human resource management" in topic
3. Criteria selection	<ul style="list-style-type: none"> • Document types: articles, proceedings papers, conference papers, books, book chapters, editorial materials, reviews, early access • Language: English • Open Access
4. Quantitative analysis of the results	<ul style="list-style-type: none"> • Scope: number of publications per year, document types, the most productive authors, institutions, countries, journals
5. Identification of research areas	<ul style="list-style-type: none"> • Visualisation of the most frequent keywords
6. Creation of thematic clusters	<ul style="list-style-type: none"> • Visualisation of thematic clusters

Figure 1. Bibliometric analysis methodology.

Source: author's own study.

At the initial stage, a bibliographic database was selected. Scopus was selected as the world's largest database of abstracts and citations, providing access to articles published in approximately 22,000 journals, covering over 91 million records (Scopus). The database is characterized by a wide thematic scope covering various fields and high quality of the collected resources, including: articles, books and conference materials (Mathushan, Gamage, Wachissara, 2023, pp. 1-29; Ejdys, Szpilko, 2022, pp. 8-38; Baas et al., 2020, pp. 1-10; Barkun, Rollnik-Sadowska, Glińska, 2020, pp. 104-115; Schotten et al., 2017, pp. 31-58).

Then, the researchers selected the keywords: "green HRM" along with similar terms according to Boole's logic (Purssell, McCrae, 2020). In the first and second attempts, the search included publications containing these phrases throughout the document, while the third attempt included titles, abstracts and keywords.

Eligibility criteria were used to narrow the search. The search was limited to publications: a) with an open access; b) in English only; c) including: articles, conference materials, books, book chapters, reviews, editorials, early access publications; excluded were: withdrawn publications, conference reviews, short surveys, notes, errata and letters. The search results are detailed in Figure 2.

Stage	Scopus
First search	
Research query	All fields (green HRM OR green HRM)
Number of articles before inclusion criteria	476 687
Number of articles after inclusion criteria	214 780
↓	
Second search	
Research query	All fields ("green HRM" OR "green HR" OR "green human resource management")
Number of articles before inclusion criteria	6589
Number of articles after inclusion criteria	2836
↓	
Third search	
Research query	TITLE-ABS-KEY ("green HRM" OR "green HR" OR "green human resource management")
Number of articles before inclusion criteria	876
Number of articles after inclusion criteria	340

Figure 2. Search results.

Source: own study based on the Scopus database.

By limiting the search to publications containing a specific phrase in the title, abstract and keywords, 876 records were generated. After applying the limiting criteria, 340 publications were obtained. Based on the acquired data set, various studies were carried out. Additionally, a detailed analysis of recurring keywords was carried out, which led to the creation of a map showing the co-occurrence of keywords related to the green HRM concept. VOSviewer software (version 1.6.19) was used to create a keyword co-occurrence map.

4. Research results

340 publications were included in further analyzes (Fig. 3). The first one was published in 2010, which indicates a new, "emerging" area of research. In the years 2020-2015, these were single, sporadic studies, but the growing interest of researchers in the topic of green HRM was noticed after 2018.

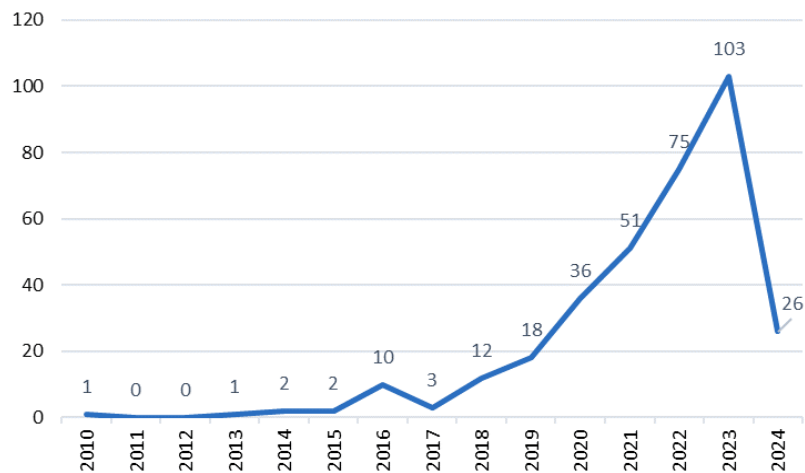


Figure 3. Number of publications containing the keywords "green HRM" OR "green HR" OR "green human resource management".

Source: author's own study based on the Scopus database (indexed until 24/03/2024).

Most of the publications in the Scopus database that contain the keywords "green HRM" and related expressions are assigned to the discipline of business, management and accounting (19%). The most popular thematic areas also included publications assigned to: environmental science (18.4%) and social sciences (17.2%). The presentation of publications according to thematic areas is presented in Figure 4.

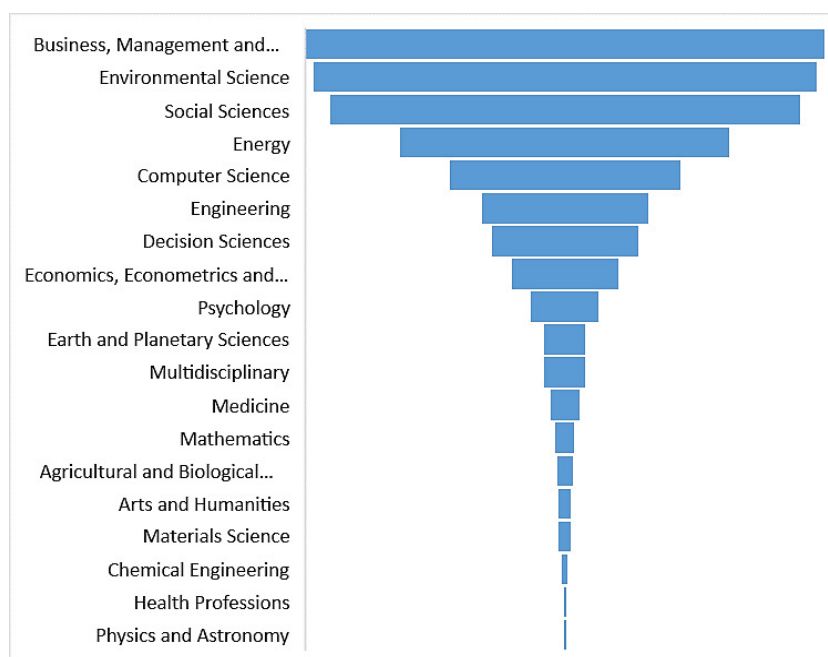


Figure 4. Number of publications containing the keywords "green HRM" OR "green HR" OR "green human resource management" by topic areas.

Source: author's own study based on the Scopus database (indexed until 24/03/2024).

The vast majority of publications were articles (87.9%). The remaining part consists of: reviews, conference papers, book chapters, as well as books and editorials. The distribution of publications by document type is shown in Figure 5.

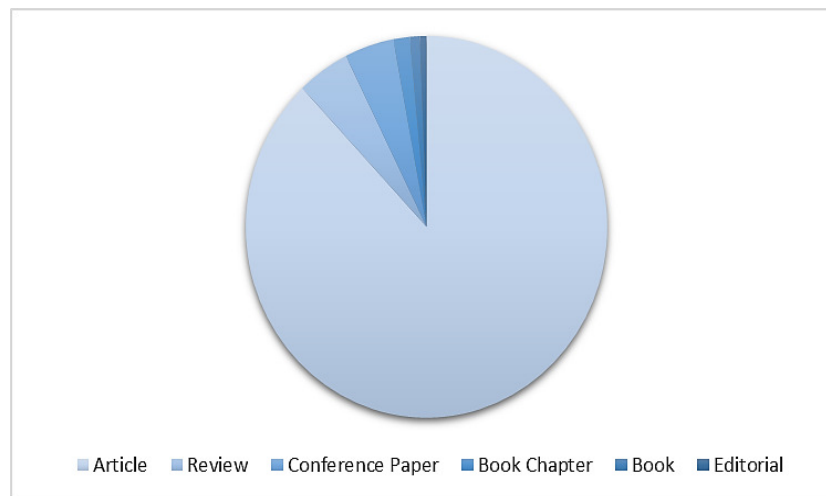


Figure 5. Type of publications containing the keywords "green HRM" OR "green HR" OR "green human resource management".

Source: author's own study based on the Scopus database (indexed until 24/03/2024).

Table 1 lists the most productive authors, countries, organizations, and journals. Most works were published by D.W.S. Renwick, while the highest h-index belongs to C.J.C. Jabbour. The dominant countries were China (72 publications), Pakistan (61) and Malaysia (50). France achieved the highest average number of citations (121.76). In the analyzed area, the Scopus database contains publications from 70 countries/territories plus unspecified ones. Taking into account the authors' affiliation, the largest number of publications was published by Nottingham Trent University (UK), King Faisal University (Republic of Chad) and Montpellier Business School (France). Sustainability Switzerland took first place in the ranking of the most productive journals (68 publications), while the Journal of Cleaner Production had the highest average number of citations (180.17).

Table 1.

Most productive authors, countries, organizations and journals

No.	Item	NP.	[%]	Average citation count in Scopus
Authors*				
1.	D.W.S. Renwick	9	2,65	15
2.	C.J. Chiappetta, Jabbour, C.J.C. Jabbour	6	1,76	71
3.	P. Paillé	5	1,47	29
4.	Z. Abbas	4	1,18	6
5.	M. Guerci	4	1,18	22
6.	N.U. Khan	4	1,18	9
7.	Q.A. Nisar	4	1,18	13
8.	M.Y. Yusliza	4	1,18	23
9.	R. Zámečník	4	1,18	5

Cont. table 1.

Countries				
1.	China	72	21,18	30,22
2.	Pakistan	61	17,94	20,43
3.	Malaysia	50	14,71	29,74
4.	United Kingdom	43	12,65	82,05
5.	Indonesia	33	9,71	11,67
6.	Saudi Arabia	31	9,12	34,58
7.	Australia	22	6,47	54,59
8.	France	21	6,18	121,76
9.	India	21	6,18	6,24
10.	Turkey	16	4,71	8,88
Organisations				
1.	Nottingham Trent University	8	2,36	27
2.	King Faisal University	8	2,36	15,13
3.	Montpellier Business School	8	2,36	135,88
4.	WU Vienna University of Economics and Business	7	2,06	63
5.	Universiti Sains Malaysia	7	2,06	96,14
6.	Univerzita Tomáše Bati ve Zlině	7	2,06	55
7.	The Superior University, Lahore	7	2,06	30,86
Journals				
1.	Sustainability Switzerland	68	20	23,62
2.	Frontiers in Psychology	14	4,12	7
3.	Journal of Cleaner Production	12	3,53	180,17
4.	Business Strategy and the Environment	11	3,24	79,18
5.	International Journal of Sustainable Development and Planning	11	3,24	3,27
6.	Cogent Business and Management	9	2,65	52,44
7.	Frontiers in Environmental Science	8	2,36	10,63
8.	Heliyon	8	2,36	1,63
9.	Uncertain Supply Chain Management	8	2,36	4,88

Note. NP — number of publications, [%] — percentage of the total number of publications (340), * — for authors the average citation count was calculated as an h-index.

Source: author's own study based on the Scopus database.

Table 2 presents an overview of the most frequently cited articles. The purpose of the research and the research methods used were taken into account.

Table 2.

Most productive authors, countries, organizations and journals

No	Authors	Publication title	Journal	No. of citations	The research objective/research method
1.	D.W. Renwick, T. Redman, S. Maguire (2013)	Green Human Resource Management: A Review and Research Agenda	Journal of Management Reviews	1010	RO: categorizing the existing literature based on the theory of abilities, motivation and opportunities (AMO), showing the role that green HRM processes play in the practice of people management; RM: a systematic review of literature on environmental management (EM) and human resource management (HRM).

Cont. table 2.

2.	S.K. Singh et al. (2020)	Green innovation and environmental performance: The role of green transformational leadership and green human resource management	Technological Forecasting and Social Change	833	RO: examining how green HRM influences the links between green transformational leadership, green innovation, and environmental performance; RM: survey among 309 small and medium-sized enterprises (SMEs) in the manufacturing sector.
3.	C.J.C. Jabbour, A.B.L. de Sousa Jabbour (2016)	Green Human Resource Management and Green Supply Chain Management: Linking two emerging agendas	Journal of Cleaner Production	458	RO: developing a synergistic and integrative framework for the relationship between green HRM and green supply chain management (GSCM) and proposing a research agenda on this integration; RM: The study is conceptual in nature.
4.	G. Tang et al. (2018)	Green human resource management practices: scale development and validity	Asia Pacific Journal of Human Resources	401	RO: proposal and validation of an instrument for measuring green HRM; RM: exploratory analysis (study 1) and confirmatory factor analysis (study 2).
5.	S. Roscoe et al. (2019)	Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development	Business Strategy and the Environment	392	RO: examining the relationship between green HRM practices, factors supporting green organizational culture, and the company's environmental performance; RM: survey among 204 employees of Chinese manufacturing companies.
6.	S. Ahmad (2015)	Green Human Resource Management: Policies and practices	Cogent Business and Management	296	RO: (1) providing readers with basic knowledge about green HRM; (2) presenting significant work on green HRM; (3) developing various green practices that can be applied in building a green workplace; (4) attempting to propose green initiatives for HR. RM: systematic review of the literature.
7.	S.U. Rehman et al. (2021)	Analyzing the relationship between green innovation and environmental performance in large manufacturing firms	Technological Forecasting and Social Change	290	RO: examining the relationship between green intellectual capital (GIC), green HRM, green innovation (GI) and the environmental performance of companies; RM: survey research; structural equation modeling analysis.
8.	J.Y. Yong et al. (2020)	Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management	Business Strategy and the Environment	286	RO: analysis of the impact of green HRM practices on the sustainable development of an organization; RM: survey research (N = 112).
9.	S.K. Singh, A.-N. El-Kassar (2019)	Role of big data analytics in developing sustainable capabilities	Journal of Cleaner Production	274	RO: Exploring the scope of sustainable opportunities arising from enterprise engagement arising from the integration of big data technologies, green supply chain management and green human resource management practices, and the extent to which these capabilities can enhance a broader business performance.

Keyword mapping shows that the concept of green HRM can carry specific attributes. As shown by the VOSviewer analysis (Tab. 3), 5 clusters can be created, the first cluster contains 21 items, the second and third – 18 items each, the fourth – 11 items, the fifth – 5 items. The keywords from the first cluster were included in 250 publications, the second cluster – 232 documents, the third – 85, the fourth – 88, the fifth – 40.

Table 3.

Most productive authors, countries, organizations and journals

Cluster no.	Cluster name	Key words	Research areas	Selected publications regarding keywords*
1 (red)	Sustainable HR and environmental management	business development, employee engagement, employee green behavior, employment, environmental knowledge, environmental management, environmental performance, environmental sustainability, ghrm, green hrm, green human resource management, green supply chain management, human resource management, job satisfaction, natural resources management, personnel training, pro-environmental behaviors, resource allocation, supply chain management, sustainable development, sustainable human resource management	Impact of Employee Engagement on Environmental Performance. Role of HR Policies in Promoting Pro-environmental Behaviors. Influence of Environmental Awareness on Job Satisfaction. Integration of Sustainable Practices in the Supply Chain.	S.E. Jackson, J. Seo (2010); C.J. Chiappetta Jabbour C.J. et al. (2019); A.A. Teixeira et al. (2016); M. Pinzone et al. (2016); L.D. Zibarras, P. Coan (2015); N.T. Pham et al. (2020)
2 (green)	Sustainable HRM practices and green leadership	business, corporate social responsibility, corporate sustainability, green human resource management, green human resource management practice, green management, green recruitment and selection, green training, green transformational leadership, human resource, management practice, manufacturing, organizational framework, resource management, small and medium-sized enterprise, stakeholder, sustainability, training	Assessing the effectiveness of green HRM practices in SMEs. Developing green transformational leaders. Stakeholder perspectives on green HRM.	S.E. Jackson, J. Seo (2010); C.J. Chiappetta Jabbour C.J. et al. (2019); A.A. Teixeira et al. (2016); M. Pinzone et al. (2016); D.W.S. Renwick et al. (2016); N.T. Pham et al. (2020)
3 (blue)	Environmental values of green practices	China, conservation of natural resources, environmental economics, environmental protection, environmental values, green creativity, hotel industry, human, human experiment, leadership, organization, perception, performance assessment, psychological green climate, psychology, structural equation modeling, workforce, workplace	Leadership and organizational culture for environmental sustainability. Psychology of green workplace behavior.	Y.M. Yusoff et al. (2020); J. Jia et al. (2018); M. Darvishmotevali, L. Altinay (2022); S.Y. Malik et al. (2020); O.M.A. Ababneh (2021)

4 (yellow)	Advancing green citizenship and innovation	citizenship, green economy, green hrm practices, green innovation, green organizational culture, Indonesia, innovation, organizational performance, Pakistan, pro-environmental behavior, spatiotemporal analysis	Exploring the role of citizenship behavior in green economy. Promoting green organizational culture.	J. Jia et al. (2018); A.K. Al-Swidi et al. (2021); A.M. Rawashdeh (2018); J. Aftab et al. (2023); S.Y. Malik et al. (2021); A.E.E. Sobaih et al. (2020)
5 (violet)	Integration of environmental concerns in HRM for sustainable performance	environment, green human resource, Malaysia, management, sustainable performance	Employee engagement and environmental performance. Case studies of sustainable HR practices.	D.W.S. Renwick et al. (2016); Y.M. Yusoff et al. (2020); Q.A. Nisar et al. (2021); S.Y. Malik et al. (2021); O. Fawehinmi et al. (2020); A.M. Ghouri et al. (2020)

Note. The cluster names were determined using generative artificial intelligence.

* The most frequently cited ones, but excluding the publications included in Table 2.

Source: author's own study based on Scopus.

All clusters have differences and similarities. The first cluster includes issues related to the development of ecological awareness among employees, an optimization of the use of resources and ensuring compliance with sustainable business goals. The second cluster is thematically focused on the relation between business activities and sustainable practices, covering the principles of CSR, sustainable development and green management. Additionally, it emphasizes the key role of green training and transformational leadership in shaping organizational culture and achieving sustainable results. The third cluster emphasizes the importance of integrating environmental economics, values and leadership principles into organizational practices, while emphasizing the role of psychological factors and structural equation modeling in assessing and supporting green climate in workplaces. The fourth cluster is oriented towards interdisciplinary research on sustainable development. It focuses on integrating green HRM practices and fostering a supportive organizational culture to drive pro-environmental behavior and improve organizational performance. The fifth cluster displays terms that collectively represent the intersection of environmental sustainability principles and HRM practices, with a focus on optimizing organizational performance.

Keyword co-occurrence mapping analysis taking into account the year of publication indicates future research directions (Fig. 7).

practices and companies' environmental performance, and take a closer look at the impact of green HRM on the sustainable development of an organization.

Based on the bibliometric analysis, five thematic clusters were identified: (1) Sustainable HR and environmental management; (2) Sustainable HRM practices and green leadership; (3) Environmental values of green practices; (4) Advancing green citizenship and innovation; (5) Integration of environmental concerns in HRM for sustainable performance. A thematic map and timeline view were presented. The latest publications indicate that the following issues will become more and more important: green innovation, green economy, environmental values, pro-environmental behavior, business development, sustainable performance and leadership.

Although this study contributes to the literature on the development of HRM concepts, it has some weaknesses that should be noted. These may result from the limitation to the Scopus database and the omission of e.g. gray literature. But also the need to limit the publication to a certain number of characters, so the authors gave up some analyzes (keyword maps or the most popular research methods).

6. Summary

Referring to the purpose of the article and the formulated research problems, it should be noted that in recent years there has been an increase in interest in the concept of green HRM in enterprises. It is clear that the concept of green HRM is not limited only to the workplace but is aimed at developing an ecological trend also in the private lives of employees.

Future research directions will focus on the issues of business development while maintaining environmental values, sustainable performance, green economy, and in the case of green enterprises, innovation and leadership promoting pro-environmental behavior.

To date, there is a lack of cross-sectoral and international comparative analyzes of green HRM implementation to analyze differences in the adoption and implementation of green HRM practices across industries and regions, identifying factors influencing successful integration and outcomes. This may therefore be a direction for further research.

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INNOVATIVE FAMILY-ORIENTED ACTIVITIES OF ENTERPRISES – RESULTS OF QUALITATIVE RESEARCH

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Purpose: Identify and classify innovative family-friendly activities implemented in enterprises.

Design/methodology/approach: The research was based on qualitative analysis, utilizing the MAXQDA software for coding and hierarchizing the collected data. The research sample included 140 medium and large enterprises. The analysis was preceded by a critical review of the literature to present the evolution of concepts related to family-friendly practices.

Findings: The study identifies seven main categories of family-friendly activities implemented by enterprises, including flexible work arrangements, medical benefits, salary security, childcare support, and non-wage benefits. These initiatives reflect a growing recognition of the importance of family values and employee well-being in the workplace. The findings suggest that while there is significant interest in family-friendly practices among medium and large enterprises, the process of implementing these initiatives is often chaotic and intuitive.

Research limitations/implications: Potential areas for further research should be oriented toward creating formal intervention strategies that promote family-friendly values in the workplace at the individual, group, and organizational levels. The study did not take into account the sectoral diversity of the survey sample analyzed, which may lead to the exclusion of important characteristics and needs specific to a particular industry.

Practical implications: The research provides valuable information on trends in the topic of family-friendly policies to HR practitioners and managers. Family-friendly working conditions contribute significantly to sustainable and successful economic development, while it is important to harmonize the wishes of employees with the operational requirements of the organization.

Social implications: Balancing work and family roles should be considered from the perspective of authentic leadership, emphasizing concern for employee well-being as an ethical issue and an element of employer brand value formation. It is possible to further apply the research results obtained as a starting point in the creation of transparent, formal, and tailored family-friendly policies in companies.

Originality/value: What is new in the paper? State the value of the paper and to whom it is addressed.

Keywords: enterprise family-friendly policy, pro-family policies, family-friendly workplace, person-work environment fit, work-family conflict.

Category of the paper: research paper.

1. Introduction

The increasing dynamics of changes occurring almost in all areas of life, as is the case nowadays, intensify the importance of the practical utility of conducted scientific research in the field of management. Constructing research questions relating to any kind of work-life relationship without rejecting classical paradigms can lead to inconsistent research results to the current needs of the business environment. Therefore, there should be an attempt at continuous identification of employee needs, with all their complexity and diversity.

Introducing an interdisciplinary approach allowed for a holistic view of the theoretical complexity of the issues addressed.

Issues related to balancing work and family roles are gaining more attention in the scientific environment and are a challenge for modern enterprises. The COVID-19 pandemic period has fostered increased interest in this topic, during which the option of remote work or flexible working hours frequently emerged as a pivotal factor in employer decision to change their workplace.

A decade ago, attention was drawn to the complexity and multi-level nature of the work and family relationship, as well as the potential impact of organizational family-friendly policies (FFPs) on employee behaviors at work (Kelly et al., 2008; Beauregard, Henry, 2009). Many studies at that time focused on the occupational situation of working single parents, dual-earner couples, and, fragmentarily, adults who are employed while also providing care for elderly or disabled family members (Neal, Hammer, 2007). Work-family conflict was indicated as a source of stress and even a strong factor influencing the labor market, employee health, and family functioning (Greenhouse, Allen, Spector, 2006; Grzywacz, Bass, 2003), including decisions related to parenthood (Gornick, Meyers, 2003; Stone, 2007). Since then, the nature of family life has undergone drastic changes, and enterprises are making efforts to adapt their strategies to meet the new expectations of employees related to family life. An increased demand for innovation in solutions stimulates the ongoing transformation of work methods and accelerates automation and digitization. Simultaneously, there is a high demand for skilled workers whose requirements regarding the work environment are increasing (Antal, Sodexo, 2023).

The aim of the theoretical and cognitive part is to systematize knowledge on family-friendly policies of enterprises, with particular emphasis on the potential benefits of their application. The aim of the empirical part of the article is to identify and classify innovative family-friendly activities implemented in enterprises. The research problem is formulated: What family-friendly activities have been implemented in enterprises in Poland? The formulated objectives formed the basis for the choice of research methods. Qualitative research, consisting of content analysis, was conducted on a group of 140 companies operating in Poland. The introduction of an interdisciplinary approach allowed for a holistic view of the theoretical complexity of the issues involved.

2. Organizational family-friendly policies

Organizational family-friendly policies (FFP) encompass a range of organizational practices and benefits designed to help employees harmonize their work responsibilities with family commitments. (Lee, Hong, 2011; Masterson et al., 2021). These policies most commonly include flexible forms and organization of work (Lewis, 1997; Beigi, Shirmohammadi, Stewart, 2018), projects supporting parents in childcare, offering social benefits, various forms of leave and days off, as well as other entitlements aimed at supporting employees in coping with the challenges of family life (Grag, Agrawal, 2020). Research suggests that implementing family-friendly policies in organizations can have a positive impact on broader productivity growth through:

- achieving a balance between work and private life (Ronda et al., 2016),
- preventing job burnout (Troger, 2019)
- increase creativity and productivity (Troger, 2019),
- employee attachment to the organization and reducing turnover (Garg, Agrawal, 2020),
- provide support to secure continuity and efficiency and possibly strengthen the human capital formation process (Michalski, 2022),
- increasing job satisfaction (Sanchez et al., 2018; Yadav, Sharma, 2021).

FFP are also analyzed in terms of their impact on organizational outcomes, engaging employees by minimizing the conflict between both roles (Hammer et al., 2005, p. 801). Nevertheless, these associations are confined to researchers' concerns, as definitive confirmation of these correlations has yet to be achieved. Moreover, the conceptualization of balance, defined as the absence of role conflict, has faced criticism due to the variable, individual levels of engagement in each role, which may not inherently lead to balance (Hirschi, Schockle, Zacher, 2018). Other studies indicate that potential role conflict is a significant concept in shaping family-oriented management concepts, but it is not applicable to those focused on achieving balance between these roles (Wayne et al., 2017).

FFP is also perceived to promote gender diversity and equality in the workplace (Łapniewska, 2014), contributing to the formation of an inclusive and supportive organizational culture (Bae, Skaggs, 2017). Offering a comprehensive FFP in the workplace can yield positive effects not only for the direct recipients but also for employees who are not their beneficiaries. This is attributed to the message conveyed to employees, which is interpreted as a sign of care for members of the organization (Grover, Crooker, 1995; Yadav, Sharma, 2021).

It is important to emphasize that the effective implementation of FFP necessitates aligning the organizational culture and revising the employer's value system. This shift entails challenging traditional work models and embracing a more supportive and favorable approach (Leung, Kam-wah, 2012). FFP is not a universal solution and may require many negotiations leading to agreements on defining boundaries between work and family life to effectively meet

the diverse needs of employees (Khol, Effendi, 2021). Furthermore, it is necessary to separate FFP from other workplace practices to better understand its specific impact on employee perceptions and experiences and to monitor the effectiveness of these programs.

The presented critical literature review points to the interdisciplinary approach and theoretical complexity of the organizational family-friendly policy construct. Moreover, it extends beyond legally regulated solutions outlined in the Labor Code, which may pose challenges for HR departments and entire organizations. However, the growing interest in this topic underscores the increasing need to systematize knowledge and discern potential practical implications.

A state-of-the-art literature review (SotA) enables the identification of a contemporary perspective on the analyzed phenomenon and provides directions for future research (Erin, Barry, 2022, p. 284). Drawing upon the SotA literature review, the author conducted an analysis of the evolution of interest in family-friendly practices by querying the Scopus database using the search strategy ("family friendly" OR "profamily" OR "work-family" OR "family-work"), restricting the search to English-language articles published within the last decade (2013-2023). The examination of scholarly publications within the Scopus database yielded 1722 relevant publications. Figure 1 illustrates key statistics pertaining to the evolution of interest in family-friendly practices in scholarly publications.

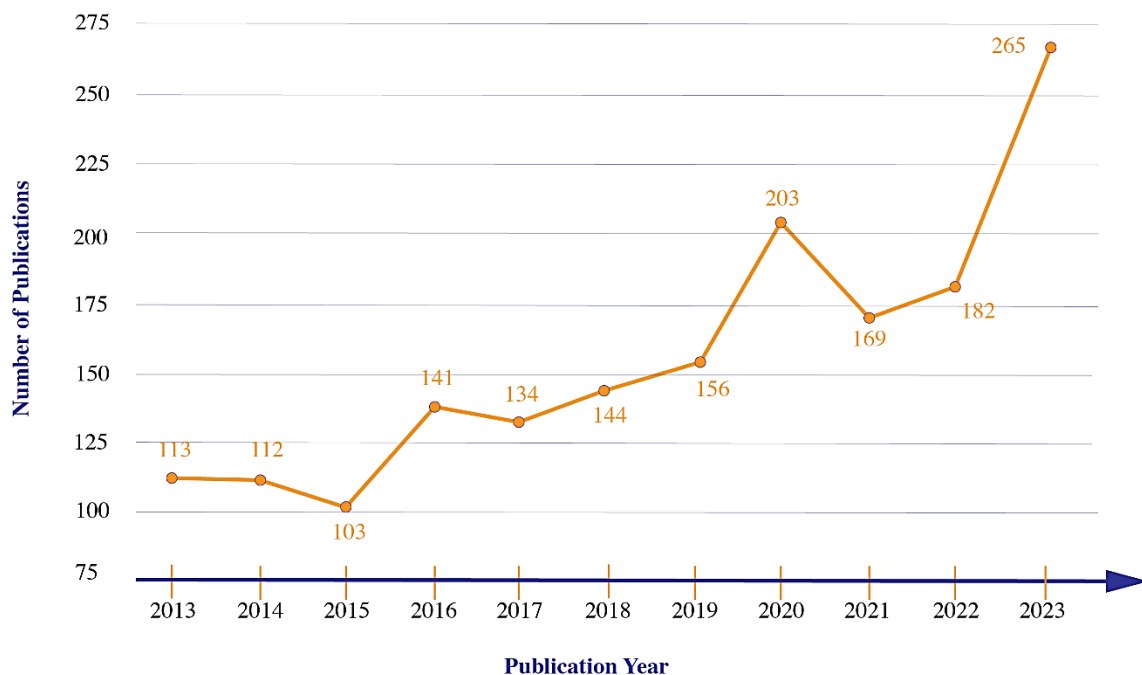


Figure 1. The number of scientific publications containing the keywords "family friendly", "profamily", and "work-family" in the Scopus database from 2013 to 2023.

Source: own compilation based on Scopus data (www.scopus.com, January 24, 2024).

Majority of the chosen publications are related to business, management and accounting (51.8%), with social sciences (19%), psychology (13.4%), economics (6.3%), and decision-making (3.4%) (www.scopus.com, January 24, 2024). The increasing interest highlights the

potential practical significance of the research and could help fill existing gaps in the literature of management science.

As the presentation and analysis of various approaches and definitions are not the primary focus of this study, Table 1 presents only a select few definitions that the author believes accurately capture the key elements of organizational FFPs.

Table 1.

Overview of Selected Definitions of Family-Friendly Organizational Policies

Author	Definition
C. Masterson, K. Sugiyama, J. Ladge (2021)	"A formal organizational policy that includes services, benefits, and perks designed to reduce work-family conflict for employees and/or support their family roles outside of the workplace"
S.J. Lambert, H. Gray (2002)	"A package of practices through which an organization promotes its caring and positive image and, as a result, can become more attractive to potential employees"
N.K. Frye, J.K. Breaugh (2004)	„Practices that support and integrate employees' work and family roles“

Source: own work based on literature review.

The cited definitions indicate a set of factors that constitute the conditions for comprehensive organizational solutions within FFP:

- Formal: provisions regarding family-friendly actions should be described in internal documents regulating the scope of services, benefits, and allowances, specifying their sources of funding, beneficiaries, and implementation procedures.
- Image-related: recognition of family values as part of a strategy focused on shaping the employer's brand image as a good place to work, communicated externally and internally within the organization.
- Integrative: family-friendly practices perceived as important tools for achieving equal opportunities and creating a supportive organizational culture, as well as promoting a non-discriminatory workplace for women and men.
- Systemic: should be the result of long-term decisions made at the strategic level of the organization.

3. Research methods

The premise for using qualitative research is the inadequately developed or lacking theory concerning the phenomenon under investigation. The aim is to capture the experiences of the researched subjects, categorize them, and interpret them (Graebner et al., 2012). Due to the flexible nature of qualitative research, it requires presenting the context of the analyzed phenomena for better understanding and analysis of the results.

The research questions were formulated according to the PO (population-outcome) model, the assumptions of which focus on descriptive estimative parameters (Lenart-Gansiniec, 2021). Such formulated research questions will direct the analysis towards examining the current shape of pro-family policy in Polish enterprises and identifying specific family-related actions undertaken by these organizations.

The study focuses on answering research questions through the application of qualitative methods, involving content analysis using the MAXQDA software. The first phase of the research process schema (Figure 3) involves a critical analysis of the subject literature, encompassing the essence of family-friendly organizational practices.

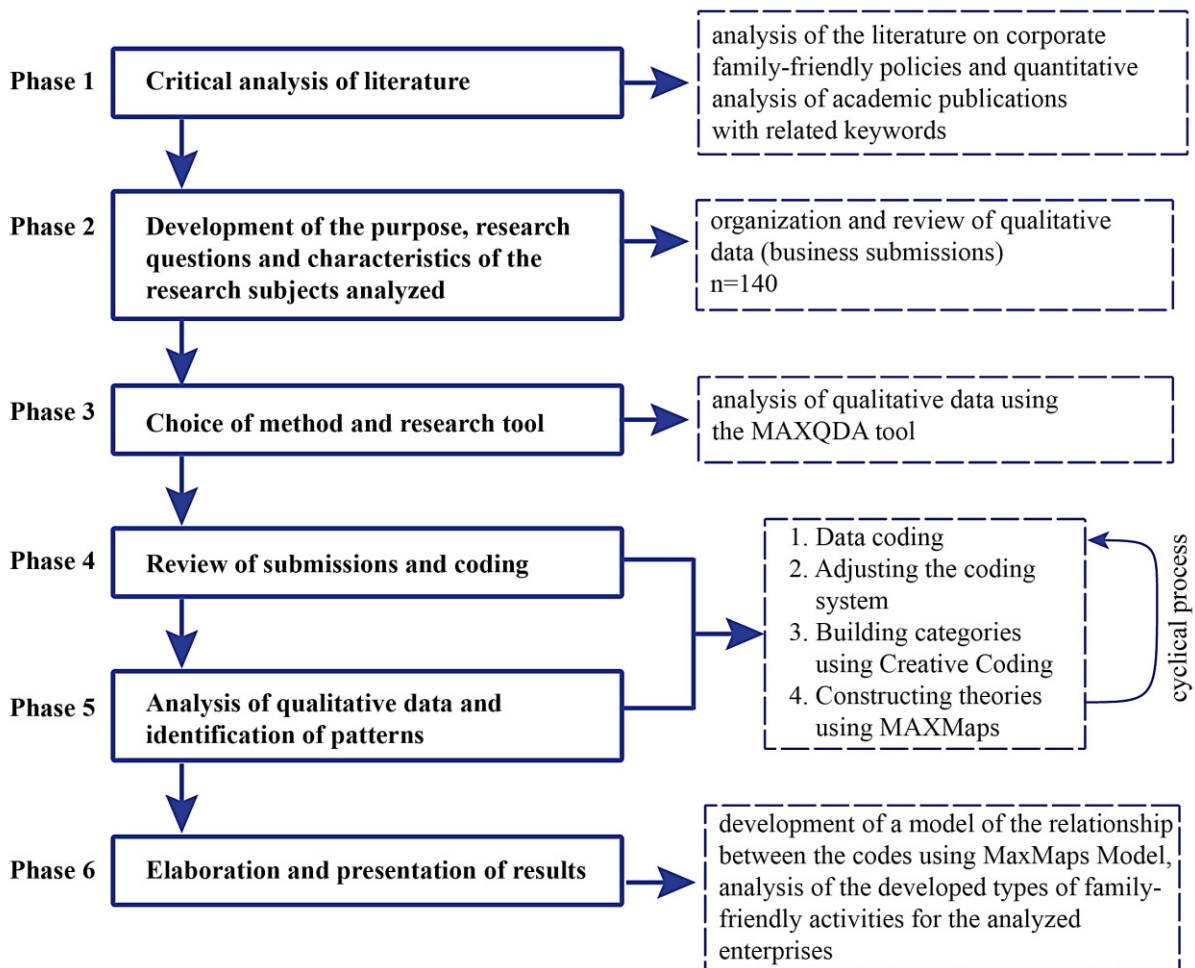


Figure 2. Research Process Schema.

Source: own elaboration.

In the next phase, the qualitative data (company submissions) were organized and reviewed, describing actions in five competition categories: implemented solutions regarding work mode and schedule, achievements in employment, new forms of communication with employees, solutions regarding remuneration, and implemented ESG (Environmental, Social, and Governance) solutions. To identify actions with a pro-family character or those clearly intended to support employees in reconciling their work and family roles, a qualitative analysis was

conducted using the MAXQDA tool. In an analysis based on grounded theory, the author examines the data by carefully reviewing the text, coding emerging themes using custom keywords or phrases, hierarchically grouping codes, and categorizing concepts by identifying relationships between them (phase 4 and 5). This process can be repeated multiple times until certainty is achieved regarding the completeness of the applied codes. The categories (codes and subcodes) created in this process, as well as the definition of existing connections between them, may form the basis for developing a new theory (maxqda.com, February 1, 2024).

The study covered 140 companies, all of which participated in the first edition of the "Pracodawca Rzeczpospolitej" competition organized by the newspaper "Rzeczpospolita" (rp.pl, January 31, 2024). The study was conducted from September to October 2023.

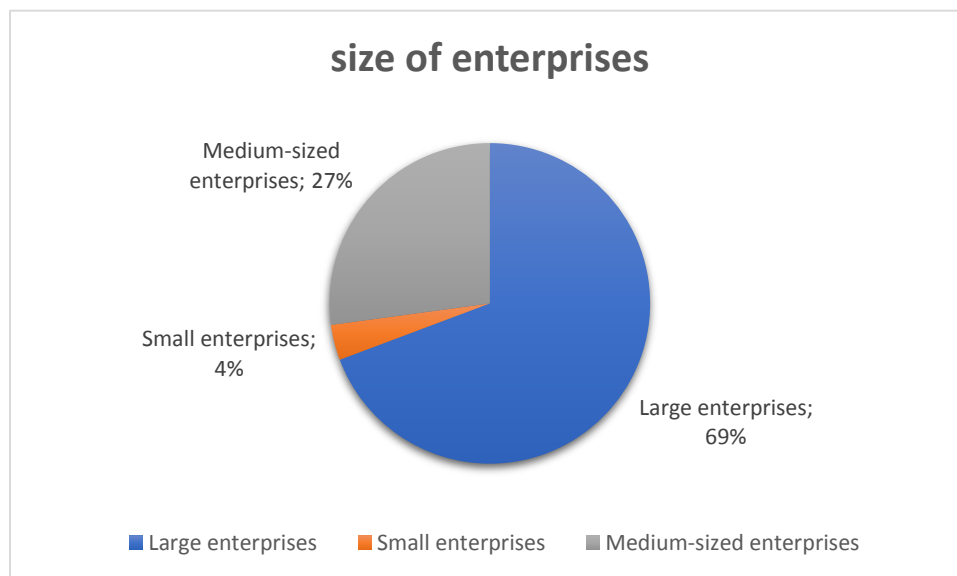


Figure 3. Structure of analyzed companies by employment size.

Source: Own elaboration.

The vast majority of entities were large (69%) and medium-sized (27%) enterprises (Fig. 3), which, given their characteristics (diversity of staff, high level of formalization, financial complexity, more frequent exposure to public opinion), provides an opportunity to comprehensively design an effective family-friendly programs.

4. Results

Qualitative research covers a wide range of research types. Supporting the process of qualitative data analysis with computer software is a relatively new area of method development. The author conducted a computer-assisted analysis of qualitative data, using the MAXQDA tool. The main functionality of the program is the ability to assign a code (category) to a selected part of the data. Thanks to coding, it is possible to further manage the data by,

among other things, carrying out quantitative text analysis, links between codes or visualization of results. The organization of the code system consists in their grouping and hierarchization (creation categories of groups or codes and sub-codes). It is also optional to assign weights to individual codes and to add comments both for an individual code and for the entire analyzed passage or source (Kuckartz, 2019). The program can also support the process of ongoing mixed methods research. However, this functionality requires a detailed definition of the source data by means of specifying different types of variables. In the process of analyzing qualitative data, 319 text fragments were marked, which were descriptions of individual family-friendly activities implemented by the group of analyzed enterprises. On average, there were 2.27 implemented family-friendly activities per enterprise. The phase involving analysis of the text, as suggested by the software's authors, was repeated twice, which gave the opportunity to modify the created codes and sub-codes, their names, and in the case of significant similarities - to combine several codes into one. This yielded 7 main categories of family-friendly activities implemented by companies, which are shown in Figure 4.

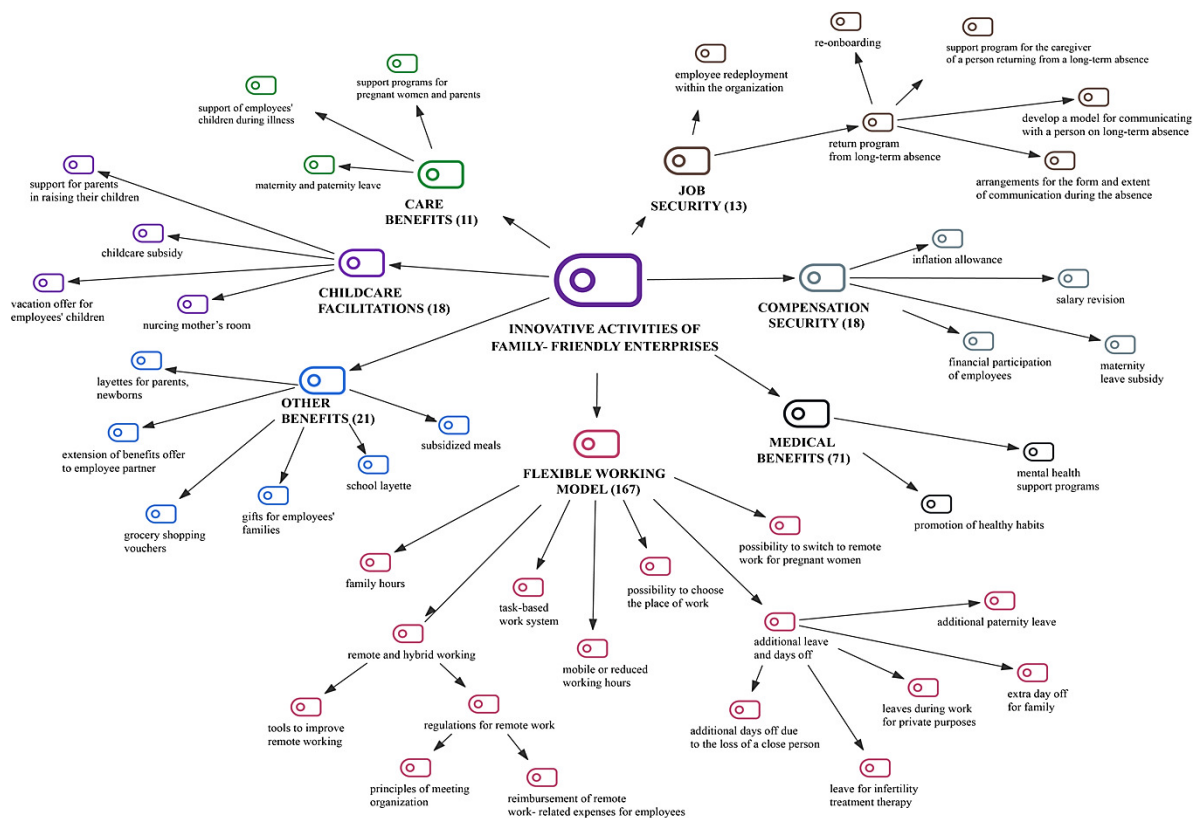


Figure 4: Model of relationships (MaxMaps Model) between codes indicating types of family-friendly activities in the analyzed enterprises.

Source: own development using MAXQDA program.

The largest group were practices oriented toward making the work model more flexible. Within this category, employers most often offered employees the possibility of remote or hybrid work, as well as flexible working hours. The availability of these solutions depended on

the nature of the tasks performed, while emphasizing that the introduction of such initiatives was aimed at facilitating harmonization between the various professional and personal commitments of employees.

Responding to the needs of employees, the bank decided to introduce the possibility of remote and hybrid work. Employees, as far as the specifics of the position allow, themselves choose in which mode they want to work - fully remote, hybrid or stationery.

Mobile working hours give parents more freedom to organize their work during the day. The company, on the other hand, gains more motivated employees who are satisfied with their work and perform their duties better.

The second most common was the group of medical benefits. A common feature of the solutions in this category was the coverage of medical benefits, including mental health support programs, not only for the company's employees, but also for their family members:

Every employee regardless of grade level is covered by a very broad medical package along with his or her entire family, no matter how large.

Employees are entitled to 2 days of additional paid leave if they lose a child through miscarriage. This leave is granted to both female employees who have lost a child in such a situation, and to employees whose spouse or partner has had a miscarriage.

Within the categories related to building a sense of stability and security, most companies have revitalized salaries and expanded programs to support the return of employees after long-term absences and those aimed at reducing employee turnover:

Any such person choosing to take parental leave is guaranteed 100 percent of base pay. Therefore, regardless of the decision of which parent takes such leave, he or she will receive full pay.

Defined the rules for onboarding employees again depending on the length of absence, consisting of, among other things: inviting the returning employee to lunch, presenting the changes in the team and the company, reviewing salaries and introducing the principle of "soft landing", i.e. the possibility of lowering KPIs, reducing FTEs, working remotely altogether, verifying competencies, completing subject knowledge, visiting IT to verify accesses and handing the necessary equipment for work, assigning Buddies up to 3 months.

Within the category of childcare benefits and childcare support programs, there were solutions to expand the scope of mandatory benefits under labor laws regarding the length of parental leave or days off for childcare. Innovative measures in this area were implemented by 9 companies, which decided to offer educational support offerings on raising children and training on building family ties. The specific nature, due to the high sensitivity of the aspects addressed, requires high qualifications of HR departments and organizational maturity:

Thematic webinars during Diversity Days on the rights of both parents and legal changes related to the WLB directive, as well as business competencies that fathers can develop while caring for and building a relationship with their children.

Within the framework of the Home Academy of the Future, mini-lectures were conducted for parents to inspire them to wisely support their child in developing self-esteem.

The launch of the Parents Academy webinar series with female experts in response to the needs, challenges faced by parents.

Summarizing the sets of innovative family-friendly activities of enterprises, it was also observed that:

- 30% of medium and large enterprises recognize family values and promote family-friendly solutions in the workplace, incorporating them into employer brand archetypes and elements of organizational culture;
- 1 in 6 medium- and large-sized companies extend the availability of benefits to employee family members;
- 1 in 3 organizations that offer remote or hybrid work have developed regulations for working away from the office, in which they set out, among other things, rules for arranging meetings and a system for reimbursing expenses resulting from remote work (most often in the form of a lump sum);
- 6% of large and medium-sized companies have joined the "two hours for the family" campaign popularized by the Humanites Foundation, under which an employee can limit work time in favor of spending it with family and friends (2godzinydlarodziny.pl., 5.02.2024).

5. Discussion and conclusions

The author presents a contemporary approach to family-friendly practices in companies, identifying potential theoretical and empirical values that are currently fragmented. The interdisciplinary perspective of the qualitative analyses allows the results to be interpreted at multiple levels and relating to different stakeholder groups. Qualitative research was conducted through content analysis using MAXQDA software. The categories of activities undertaken as part of the organization's family-friendly policy were developed in accordance with the methodology of grounded theory and based on the analysis of the literature. The results of the qualitative data analysis indicate that there is significant interest in family-friendly practices among medium and large enterprises. However, the process of implementing solutions aimed at supporting employees in balancing work and family challenges is chaotic and intuitive. Few companies indicated that surveys had been conducted prior to the implementation of support programs (7%), which may result in a low level of usefulness of these solutions and, in extreme cases, lead to a sense of injustice among employees who are not naturally the beneficiaries of these solutions. Similar research conclusions were obtained by Guedes et al. (2023), who, in a study devoted to the impact of FFPs on organizational performance, indicated

that such a possibility exists, while highlighting the research limitations in the form of the growing (but still small) number of companies offering family-friendly benefit packages and the low awareness of those companies that have introduced family-friendly solutions based on intuitive assumptions. Which proves that there is a research gap and, more importantly, a practical need to structure approaches to family-friendly practices in enterprises.

Family-friendly activities taken by companies focused mainly on 7 areas: flexible work arrangements, medical benefit offerings, salary security, childcare support, non-wage benefits and care benefits. The research provides valuable information on trends in the topic of family-friendly policies to HR practitioners, managers, and researchers. Potential areas for further research should be oriented toward creating formal intervention strategies that promote family-friendly values in the workplace at the individual, group, and organizational levels. Above all, balancing work and family roles should be considered from the perspective of authentic leadership, emphasizing concern for employee well-being as an ethical issue and an element of employer brand value formation. It is possible to further apply the research results obtained as a starting point in the creation of transparent, formal, and tailored family-friendly policies in companies.

Research indicates that the implementation of family-friendly policies in an organization can have beneficial practical implications. Family-friendly working conditions contribute significantly to sustainable and successful economic development, while it is important to harmonize the wishes of employees with the operational requirements of the organization (Kearney, 2010).

However, it is worth noting that the survey has some methodological limitations, such as the limited scope of sampling, which may affect the overall representativeness of the results obtained. Despite the diligence and reliability of the research process, there are aspects that should be paid attention to when implementing the research results in business practice, among others, the size of the enterprise or the employment structure.

The study also does not consider the sectoral differences of the research sample analyzed, which may lead to the omission of important specificities and needs related to the sector of activity. Theoretical limitations should also be considered, which, due to the ambiguity of the terminology used in the context of the issue under study, may not guarantee precision in the classification and interpretation of results.

Due to the qualitative nature of the research presented, the conclusions need to be confirmed by conducting quantitative research. Potential further directions for empirical research, inspired by the presented results, could include assessing the impact of family-friendly activities on organizational performance. It would also be valuable to conduct surveys on a group of employees to identify the impact of these activities on their organizational behaviors.

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COMPARATIVE ANALYSIS OF MOBILE APPLICATIONS FOR URBAN TRANSPORT

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Purpose: Striving for sustainable development of cities, the change of urban transport plays an important role. An important component of this development, apart from developing its network and means of transport, is the information that supports this transport. Current traveler expectations focus on providing information via mobile devices. Therefore, the article discusses the importance of information in urban transport and presents a comparative analysis of mobile information applications for public transport passengers. The aim of the article is to assess the usefulness of selected mobile applications used to support users of urban public transport.

Design/methodology/approach: The study used an assessment based on user interviews.

Findings: The first part of the research analyzed the expectations and needs of urban public transport customers in terms of obtaining up-to-date information on its operation. Although many needs can be considered commonly known, new possibilities, such as real-time vehicle location updates, increase the range of possible functionalities of these applications. When analyzing the expectations of urban public transport users, attempts were made to take into account the importance of individual criteria. Based on the results of the expectations analysis, their fulfillment was verified for selected mobile applications that are widespread in Poland. The research carried out gives a picture of user expectations and their fulfillment by individual applications.

Research limitations/implications: Conducting research and analyzes based on interviews results in a small research sample, so research should be continued to ensure greater representativeness of the results. Since most users based their answers on the use of mobile applications in the Poznan agglomeration, it is necessary to extend the research to other regions of Poland.

Practical/Social implications: Research results not only support software developers, but can also help users choose an application tailored to their needs and limitations related to age and disability.

Originality/value: Paper compares current mobile apps based on user expectations. The results obtained can support both users and developers of these applications.

Keywords: urban transport, mobile application, smart city.

Category of the paper: Case study.

1. Introduction

The pursuit of creating components of a smart city by using various types of electronic methods and sensors to collect specific data is to be the basis for the effective management of assets, resources and services throughout the city (Goldsmith, 2021). Among the important components of the entire system is the monitoring of traffic and transport systems (Fourtané, 2018). However, the introduction of elements of such a system requires gradual actions, and in particular the preparation of residents. Moreover, even introducing certain components of these systems can provide some benefits. An example here would be the introduction of location tracking of public transport vehicles and then making this information available to passengers.

The significant development of mobile applications and their growing capabilities in terms of data processing and communication stem not only from the hardware development of mobile devices, but also from the support of dedicated servers that ensure data updates in real time. The services provided by these servers are usually platform independent and also available on mobile platforms. Examples of such services include information services, weather services - including threat alerts, stock exchange services, websites tracking the status of the implementation of ordered services, services regarding means of transport - including air, rail, bus, city in the field of public transport, availability of city bikes, scooters, taxis and car sharing. Due to the fact that these systems are fed with data in a largely automated manner, their maintenance costs, especially if we take into account the cost per user, are not very high. Therefore, these services may be offered as part of a package of other services or even free of charge. Moreover, it can be said that mobile devices allow you to track current information almost anywhere. Due to the fact that they are usually equipped with a location system, the user's position can be used to provide information appropriate to the recipient's location. These functions are constantly improved, therefore previous research on the usability of applications supporting public transport users in the face of emerging new functionalities for mobile applications requires updating and development.

Initial interviews with users indicated some randomness in the choice of the application used. Most users do not base their choice on checking the functionality of many applications, but on the short description available on the application provider's website. Others download an app recommended by friends, but usually the recommender hasn't had the opportunity to compare many products. Therefore, verification of whether the available applications meet user expectations should provide clear support to end users, which application to choose.

The aim of the research was, in the first step, to verify users' needs in terms of the expected functionality of the application, and then to analyze selected applications in terms of meeting these expectations. The selection of applications was based on their popularity, including applications used by the surveyed users in the Poznan agglomeration.

2. City transport background

Transport problems in crowded cities make people strive to implement emerging concepts and technologies to improve their functioning. One of the concepts called smart cities refers to the use of information and communication technologies (ICT) powered by data from various types of sensors in the surroundings of urban areas (Barton, Manning, 2017). ICTs are integrated into the city's energy technology and organizational strategy (Park, Pobil, Kwon, 2018).

Emerging opportunities in the area of Big Data, Internet of Things (IoT), Artificial Intelligence and ICT are the basis of the revolution in urban designs (Andersen, Ashbrook, Karlborg, 2020). However, the introduction of new technologies in the operation and control of transport can help reduce expenses for the operation and maintenance of transport systems. Moreover, preventing collisions between means of transport is important for the reliable operation of transport systems, which can also be achieved by using IoT-based systems (Punyavathi Neeladri, Singh, 2022).

Luo, Zhang, Zhang, Yu and Li (2019) present the three-tier architecture of the system based on IoT. Mentioned levels are as follows: Perception layer, Network layer and Application layer. The perception layer is the source of IoT information and includes various sensors and devices that collect data for the system. The network layer is responsible for transmitting information from the perception layer to the application layer. This layer is based on wired and wireless networks. The Application layer, on the other hand, processes data received from the perception layer and makes applications available to passengers or employees of the transport system. Of course, this model is used differently in practice for different means of transport. In the case of public transport, the information function dominates, but in the case of taxis, where individual route planning is involved, journeys may be dynamically allocated depending on all the collected data.

Ramirez-Guerrero and Toro (2020) support the introduction of an Intelligent Transportation System (ITS) involving the use of ICT technologies related to, among others, sensors, information systems, management strategies to increase transport safety, efficiency and sustainability, without the need to increase network capacity. A smart city provides an intelligent way of managing transport, energy, health and environmental systems. The data generated in these components is measured primarily by a network of sensors. These networks are already available in both industrial and consumer applications (Gaur et al., 2015). In the case of transport services, there are many applications of ITS that affect all elements of a smart city, not just the mobility element. These are: communication, data processing, vehicle detection, speed detection, environmental sensors, information transmission, positioning and location using global navigation satellite system. Generally, data can come from various sources, in addition to the previously mentioned sensors, also from sensors in vehicles or even

video detectors. However, they must be easy to understand, concise, credible and up-to-date. Zhu, Yu, Wang, Ning and Tang (2019) also point out that they must be quickly captured, be useful to the user, and not allow for different interpretations.

The transport system in a smart city is a basic component subject to improvement. It cannot function efficiently without providing up-to-date information on its functioning to the people who use it. The previously mentioned development of ICT technologies and positioning possibilities allow public transport passengers to utilize real-time data. Modern smartphones provide many services supported by mobile applications, internal sensors and communication capabilities. Most smartphones are equipped with GNSS (Global Navigation Satellite System) receivers, accelerometers, a compass and the data provided by these sensors can be used to develop ITS applications (Mostefaoui, Tariq, 2019). A smartphone can be used to provide expected travel time by combining location and speed estimation.

The technological capabilities of smartphones are the basis for creating applications for mobile devices, but the human factor cannot be ignored, in the form of expectations, limitations or perceptual capabilities of users. It can therefore be concluded that analyzing the needs of people using the application is of fundamental importance. The methodology for analyzing customer needs may be varied. For example, Strenitzerova and Stalmachova (2021) use the CTQ (Critical to Quality) diagnostic method to identify customer needs and requirements for a mobile application used in urban public transport. This method requires the identification of quality needs, then the identification of factors influencing quality, and in the last step, the identification of quality requirements. According to the author, since the participation of the application user is required at every step, the method may prove to be too burdensome for the respondent. This was confirmed by the author's comparative study of two user interfaces, where participants assessed over 30 elementary criteria for each interface and, additionally, the weight of each of these features (Hankiewicz, Prussak, 2007). Respondent fatigue may therefore lead to imprecise results.

Górniak (2022) proposes an analysis of customer needs based on the phase of the journey. The information provided to travelers is to be divided into pre-trip information (for the planning phase), information available during the trip, important information at the end of the trip, on the way back. For example, way back options are to be available only after reaching the destination, which does not seem appropriate for people planning a round trip from the beginning. After reaching your destination, you may find that there is no return connection that day. Therefore, although this division has many advantages, it does not always meet the more complex needs of public transport travelers.

However, the use of mobile applications may be difficult for older people, but it is difficult to clearly determine what age this applies to. Kubiak (2019) refers to people over 60 as seniors in his research on the use of mobile applications, including those intended to support users of urban transport. It should be noted that when dividing users into age groups, we very often forget about individual differences and health factors that influence their perception of the

environment. Therefore, perceptual and manual capabilities should always be approached individually, taking them into account in the possible application settings.

3. Research methodology

Based on previous research (Hankiewicz, Lasota, Gajšek, 2023), it can be concluded that many users found it difficult to answer many detailed questions that make up the group criteria. This could lead to not entirely accurate results. In addition, the specifics of assessing applications for mobile devices are different from websites. Certain usability categories can also be used in the case of mobile applications, but it is easier for users to focus on the overall impression of using the application. For example, for the "easiness of use" criterion, questions in the form:

- is it easy to navigate?
- isn't the application too complex?
- is the application legible, taking into account character size, font style, etc.?
- does graphical diversity help in using the application?

can be considered assessable for most users. However, only the answers regarding ease of navigation and complexity of the application are obvious to users. The remaining ones require deeper consideration and more divergent assessments are possible.

Greater difficulties arise in the case of "error tolerance". This criterion is particularly important in systems whose error consequences are significant for the operator. One such example would be purchasing a ticket in mobile applications supporting public transport users. The remaining situations do not have this rank and users are not able to comment on the level of compliance with this criterion by the application.

This research also opted for user-based evaluation. However, the analysis of the needs of application users was based on interviews. Semi-structured interviews were used. This form of interviews is intended to ensure, on the one hand, the opportunity to ask specific questions and, on the other hand, the respondents' free expression, which could go beyond the question asked. Due to the variety of available applications with similar use case and similar functionality, the form of interviews used allowed collecting a lot of information. Thanks to this, it was possible to determine which applications are currently used, which were used in the past and why users abandoned them. At the same time, it was possible to identify people who use or have used multiple applications. Opinions of such users are especially valuable as they allows for a more objective comparative analysis of how user expectations are met across different applications. It can be said that thanks to their experience in operating many applications for similar applications, they become experts in this field.

In the first part of the research, it was decided to analyze the expectations and needs of urban public transport customers in terms of obtaining up-to-date information on the functioning of means of transport. User expectations and needs were collected in the form of mobile application evaluation criteria. When examining passengers' expectations, attempts were also made to take into account the importance of individual criteria. Based on the results of the expectations analysis, their fulfillment was verified for each individual mobile application.

Interviews were conducted only with people who use mobile applications providing information about public transport and were willing to participate in the interview. No other criteria were used. In total, 46 interviews were conducted.

4. Research results

During interviews, it turned out that some applications are more popular than others. However, also taking into account the less popular ones, 9 applications were selected for comparative analysis. They were:

As users expected, only free version apps were included. No comments were obtained for paid versions because it was not possible to find users of the application in such versions.

The application evaluation criteria are divided into three levels of importance. Respondents classified the following as very important criteria:

- ability to designate a route from stop to stop,
- ability to calculate a route based on the starting and ending location,
- information about the actual departure/arrival time of a given means of transport based on the vehicle positioning system,
- available map to verify the location and directions to the stop,
- information about facilities for people with physical disabilities,
- stop and line timetable,
- available carrier announcements.

The respondents classified the following as important criteria:

- using the same application in many cities,
- searching for alternative connections,
- information about the total travel time,
- possibility of purchasing a ticket,
- availability of timetable information without an Internet connection (offline access),
- availability of applications for various system platforms (Android and IOS),
- ability to define favorite stops and lines,
- no advertising or the use of advertising that does not obscure the presented content.

Respondents classified the following criteria as less important:

- availability of different language versions of the application,
- ability to find connections with the fewest number of transfers,
- ability to stop loading the map with slow internet connections.

The fulfillment of the needs of urban public transport users by selected mobile applications in terms of criteria considered very important by users is presented in Table 1. The table shows that the "Time4bus" application meets all the criteria from this most important group. It should be noted that although some applications dominate in terms of the number of fulfillment of evaluation criteria that are very important from the users' point of view, this does not mean that they are the most frequently chosen. An example would be the inability to calculate a route. In this case, we are talking about users who know the connection network or use fixed routes. These people usually expect information about the actual departure time and location of the vehicles. If they use transfers, they control it themselves. Examples of such applications are "Czynaczas", "Gdzie ta bimba", "Kiedy pojedę", which do not include the option of calculating a route. The inability to calculate a route also affects the fulfillment of other criteria for searching for alternative connections and information about the total travel time. Despite this, these applications are eagerly chosen, and the "Czynaczas" application is particularly praised for its interface and ease of use, as well as easy indication of stops and vehicles on the map. However, the highest-rated application in this group, "Time4bus", was assessed in interviews as less legible and with a map that was not very clear.

Table 1.

Verification of meeting the needs of urban public transport users by selected mobile applications in terms of criteria considered very important

Criterion	Jak pojedę	Google Maps	Czynaczas	Gdzie ta bimba	Kiedy pojedę	Mobile MPK	moovit	Transportoid	Time4bus
Calculating a route between stops	+	+	-	-	-	+	-	+	+
Calculating a route based on the entered location	+	+	-	-	-	+	+	+	+
Departure times and position based on GPS	+	+	+	/ ¹	+	/ ¹	/ ¹	-	+
Stop map	+	+	+	+	+	+	+	-	+
Information for people with physical disabilities	/ ²	-	+	-	+	/ ²	-	/ ²	+
Stop and line timetable	+	/ ³	+	-	-	+	+	+	+
Messages about transport disruptions	-	-	+	-	-	-	-	-	+

¹ – The vehicle's location is not indicated in the application

² – Only on a linear timetable

³ – Timetable for stops only

Source: own study.

It is worth noting that some applications, although they take into account the position of vehicles when estimating the departure time from a stop, the vehicle's location is not indicated on the map. This applies to three applications: "Gdzie ta bimba", "MobileMPK" and "moovit".

Information about facilities for people with mobility disabilities is available only in some of the applications. However, the "Jak dojadę", "MobileMPK" and "transportoid" applications provide this information only on a linear timetable, which makes it difficult to find it. Please note that the information regarding accessibility for people with mobility disabilities is only an example of the possible information provided by the application. For example, the "Czynaczas" application, after selecting a vehicle on the map, provides information whether it is a low-floor vehicle and whether it has a ramp, but also provides information about air conditioning, permitted bicycle transport, ticket machine on board, the possibility of purchasing a ticket from the driver and other vehicle data. The integration of the shared data with the city system is confirmed by the fact that the set of this information is different in different cities.

Table 2.

Verification of meeting the needs of urban public transport users by selected mobile applications in terms of criteria considered important

Criterion	Jak dojadę	Google Maps	Czynaczas	Gdzie ta bimba	Kiedy pojedę	Mobile MPK	moovit	Transportoid	Time4-bus
Multi-city service	+	+	+	-	+	+	+	+	+
Search for alternative connections	+	+	-	-	-	+	+	+	+
Travel time information	+	+	-	-	-	+	+	+	+
Possibility to purchase a ticket	+	-	-	-	-	-	-	-	-
Offline timetable	-	-	-	-	-	+	+	+	-
Multi-system (Android, iOS)	+	+	+	¹	+	²	+	²	²
Favorite stops and lines	³	³	+	+	+	+	+	+	+
No ads or no intrusive ads	+	+	+	+	+	-	-	-	+
¹ – iOS only									
² – Android only									
³ – Only favorite stops									

Source: own study.

Verification of the fulfillment of the "important" criteria is presented in Table 2. The search for alternative connections and information on the total travel time, as related to the inability to calculate a route with transfers, have been discussed earlier. Some information contained in the tables is clear and does not require comment, but in other cases the true/false answer is insufficient. This is the case when considering whether it is possible to use the same application in many cities. It needs to be underlined that the list of cities should be verified each time as it is subject to frequent changes. In most cases, such applications take into consideration largest Polish cities, but there are few examples that serve information about cities outside Poland. One example of an application that is not limited only to most popular cities is "mobileMPK" which is available in over 60 Polish municipalities. It needs to be noted however, that the

application offered real-time information for only 18 of them. Such information may be the basis for assessing the spread of real-time tracking service in Poland. The availability of the offline timetable also requires comment. Those applications that are marked as providing offline maps offer this option only for selected cities.

Table 3.

Verification of meeting the needs of urban public transport users by selected mobile applications in terms of criteria considered less important

Criterion	Jak dojadę	Google Maps	Czynaczas	Gdzie ta bimba	Kiedy pojedę	Mobile MPK	moovit	Transportoid	Time4-bus
Different language versions of the application	+	+	+	-	+	-	+	-	+
Minimizing the number of transfers	+	+	-	-	-	+	+	+	+
Functioning without a map	+	-	+	+	+	+	-	+	+

Source: own study.

Verification of whether the criteria from the "less important" group are met is presented in Table 3. It can be suspected that users have added functions to this group that they do not need themselves, but believe that someone else may need them. On the other hand, the fact that the creators included such functions in their applications proves a very broad analysis of the needs of potential users. It needs to be noted that the ability to not load a map on slow internet connections may be useful more often than users expect.

5. Conclusion

Carrying out research and analyzes based on interviews is an underestimated and disliked research method. On the one hand, this is due to the difficulty of conducting interviews, which determines the small research sample, and on the other hand, the lack of spectacular statistics that can be obtained using other methods. However, with this method it is easier to notice the nuances of the examined issue and take advantage of the knowledge and experience of the respondents.

Analysis of the features of mobile applications to support public transport users seems to be crucial to their improvement. This series of studies managed to collect user expectations regarding the functionality of mobile applications for urban transport. Additionally, the degree of importance of each of them was taken into account, dividing them into three groups. It should be noted that the needs of each person differ and depend on the context of use. Therefore, not only do they change over time, but they may also be different when we want to use the application in a city that we do not know as well as our place of residence. Verification of the fulfillment of selected criteria for 9 public transport applications that are popular in

Poland is crucial in the process of adapting the application to a specific context of use and allows users to make more informed decisions. The practical application of the results obtained therefore concerns both the possibility of using them in the process of improving mobile applications and when selecting an application appropriate for a given user, including an elderly and disabled person.

To sum up, it can be said that although it is difficult to compare all the features useful for public transport users, it is certainly possible to distinguish a set of key importance. The results obtained indicated the strengths and weaknesses of applications for mobile devices, which may be an indication for their further improvement.

It is expected that the number of mobile applications users will increase. There will also be an increasing number of older users and users with disabilities, for whom minor imperfections may be a significant barrier to using such applications. For these reasons, it is necessary to conduct further research taking into account people of different ages and with different dysfunctions.

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UNCONDITIONAL BASIC INCOME AS A SOURCE OF SOCIAL GROWTH – SELECTED ISSUES

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Purpose: The aim of this article is to analyze the proposal of unconditional basic income (UBI) in the context of social inequalities and to elucidate the fundamental aspects of this concept. The analysis of the UBI concept is conducted without reference to the sources of financing for this solution.

Design/methodology/approach: The primary research methods employed are a literature review and the observation of reality.

Findings: The implementation of unconditional basic income, as envisioned by Klaus Schwab, is projected to lead to a significant increase in social inequality.

Research limitations/implications: To avert the potential negative outcomes, it is essential to initiate a robust discourse and develop a comprehensive system with detailed solutions. It is recommended to engage not only economists, lawyers, and policymakers but also entrepreneurs and trade unions, ensuring that the resulting concept is as optimal as possible.

Practical implications: *(if applicable)* What outcomes and implications for practice, applications and consequences are identified? How will the research impact upon the business or enterprise? What changes to practice should be made as a result of this research? What is the commercial or economic impact? Not all papers will have practical implications.

Social implications: *(if applicable)* What will be the impact on society of this research? How will it influence public attitudes? How will it influence (corporate) social responsibility or environmental issues? How could it inform public or industry policy? How might it affect quality of life? Not all papers will have social implications.

Originality/value: This article contributes to the academic discourse by evaluating the concept of unconditional basic income in relation to social inequality.

Keywords: Economic development, unconditional basic income.

Category of the paper: Research paper.

1. Introduction

The rapid technological and economic changes observed historically have always influenced social transformations (Chwalba, 2008; Reese, 2016; Rifkin, 2012). In the long run, these changes have improved the quality of life for society (Freese, 2016). Although the most

recent transformation, known as the third industrial revolution, led to a permanent decline in industrial employment, it significantly increased employment in the service sector (Brynjolfsson, McAfee, 2016). Currently, we are at the beginning of the fourth revolution, referred to as Industry 4.0. Characterized by the rapid development of cybernetic and cyber-physical systems (Harari, Huxley, 2022). The creation and dissemination of quantum computers (the first computer with a quantum register was developed in 2007 – PARP <https://feng...>) and advancements in artificial intelligence (AI) and neuroscience may result in not only increased productivity but also a significant reduction in the demand for labor (McKinsey, 2017; Brynjolfsson, McAfee, 2016; Chui, Manyika, Miremadi, Ford, 2016; Horowitz, 2023). We are already witnessing the benefits of AI development, as indicated by data from a survey conducted by the strategic consulting firm McKinsey & Company. According to their 2021 data, the percentage of enterprises utilizing artificial intelligence is steadily increasing (from 50% of respondents in 2020 to 56% in 2021), and they are reaping financial benefits as a result (the proportion of companies achieving 5% or more EBIT from AI increased from 22% in 2020 to 27% in 2021) (McKinsey, 2021).

Despite the scientific advancements accompanying the fourth industrial revolution, the changes may negatively impact society. Many individuals could be permanently excluded from the labor market (Instytut Analiz Rynku Pracy, 2020; Bendkowski, 2017; Chui, Manyika, Miremadi). Consequently, there is an ongoing scientific discussion and practical experimentation on how to ensure a minimum standard of living for a significant portion of society under such circumstances. One proposed solution is the implementation of unconditional basic income (UBI), which is being considered by an increasing number of countries. This topic is also being addressed by numerous researchers (e.g., Lister, 2020; Somers, Muffels, Künn-Nelen, 2021; Gentilini, Grosh, Rigolini, Yemtsov, 2020; Hasdell, 2020). However, it is often overlooked that UBI is a key element of Klaus Schwab's "Great Reset" concept.

The aim of this article is to synthesize the proposal of unconditional basic income (UBI) as envisioned by Klaus Schwab in the context of social inequality and to elucidate the essence of this tool. The UBI concept is analyzed without reference to the sources of financing for this solution. The article first presents the concept of unconditional basic income, followed by an examination of Klaus Schwab's concept in relation to social inequalities, and concludes with the presentation of the analysis results.

2. The Essence of Unconditional Basic Income

Unconditional or universal basic income, basic or guaranteed income, salary or civic income, national or social dividend, and many other concepts can be found in the literature (Allas, Maksimainen, Manyika; Parijs, Vanderborght, 2019; Misztal, 2018; Parijs <https://www.boston...>; Caputo, 2012; Torry, 2013; Heydorn, 2016; Marangos, 2004; Standing, 2017; Zarzycki, 2017). At the level of pilot programs, various names also emerge, such as "Basic Income Guarantee" in the USA (Is Universal...), "Basic Income Grant" in Namibia (Basic...), "Garantirowannyj minimum" in Russia (Гарантированный...), "Social Credit" in Australia and New Zealand (Ford...), and "Grundeinkommen, Sozialdividende, Existenzgeld" or "Bürgergeld" in Germany and Austria (Wozu...). All these terms refer to the same concept—universal cash benefits granted to citizens. Generally, this means that the state systematically provides individuals with money without any conditions. In practice, it has often been reserved for those with low incomes. Many economists argue that the concept of unconditional basic income should only apply when such funds are provided to both adults and children, regardless of their financial status (Basic Income Earth...; Szlinder, 2018; Szarfenberg, 2018).

Synthesizing the various definitions, unconditional income can be characterized by the following features:

- Unconditionality: Payments are made without the need to meet any criteria.
- Universality: Everyone receives it regardless of age, gender, employment history, education, or labor market status.
- Equal amount: The amount is the same for everyone.
- Regularity: Payments are made systematically (monthly, weekly, etc.).
- Subjectivity: Payments are made to specific individuals.
- Monetary nature: Payments are made in cash or cash equivalents.
- State financing: Funds come from the central budget, although payments may be formally made at various administrative levels (e.g., county, municipality).
- Minimum subsistence level: The amount must guarantee the ability to meet basic needs.

The unconditional basic income projects implemented in practice have had various limitations, including time, territorial scope, or quotas. The aim of these initiatives was to support people in regions with difficult living conditions. For instance, residents of Alaska receive a dividend from the state government, and people in northern Norway receive subsidies (State of Alaska...). This is part of sharing the state's profits from natural resource exploitation. Similar programs have been implemented in Iran and Mongolia (O'Dell...). Another important reason for these programs is to test a concept that may be necessary in the near future. Such projects have been or are being implemented in Europe (Germany, Finland, the United Kingdom, France, Spain, Liechtenstein) (Koch...; Rebisz...; Gadzała, Kucharczyk, Pazura, Vääntinen...; Matthews...; Kangas, Kallioma-Puha...; Majchrzak...; Stech...; Basic Income in

France..., Departamento...; 1600 funtów...; Crace; Mróz...; Sterdyniak...; Crace...; Bezwarunkowy...), Iceland (Countries...), the USA (besides Alaska, in several cities or counties) (Moore...; Krueger...; Grunau...; Goodman-Bacon, Nunn, Palmer...; Breathe...; Niemeyer...; Brannen...), Canada (Quebec) (Programme...), Kenya, India, South Korea (Unconditional...; Baird, Ferreira, Özler, Woolcoc, 2013; Haushofer, Shapiro, 2016; Pega, Pabayo, Benny, Lee, Lhachimi, Liu...; Ministry...; South Korea...; Suzuki...; Venutolo-Mantovani, 2023; Kim), Iran (Rahbari) and Mongolia (Hurt).

In Poland, the UBI concept is also being developed and will be tested for a period of 2 years. The program will provide a monthly payment of PLN 1300 to a group of individuals living in nine communes of the Warmian-Masurian Voivodeship (Terlecki...). The only country in Europe that has clearly rejected the possibility of testing unconditional basic income at this stage is Switzerland. This was decided by the public in a 2016 nationwide referendum, where 77% of participants voted against it (Gesley...).

The programs implemented thus far were temporary and focused on selected groups (usually the poor). However, there is an ongoing political discussion about implementing a basic income without time limits. Due to the high costs, no country has yet dared to introduce UBI on a large scale (Clark, 2002). For example, estimates for Poland show that granting a benefit of PLN 1200 for adults and PLN 600 for children would cost approximately PLN 376 billion annually (Polski, 2020). In the USA, providing USD 1000 per person would amount to USD 4 trillion (The Washington...), and in France, with an amount of EUR 800, the cost would be between EUR 600-650 billion (Clerc, 2016).

It can be argued that it is only a matter of time before unconditional basic income is introduced worldwide (Polski Instytut Ekonomiczny, 2020). It is highly probable that such a project will be discussed at the World Economic Forum (WEF) in Davos. The WEF brings together leaders of the world's largest economies and organizations, owners and top managers of global corporations, religious leaders, and graduates of Klaus Schwab's programs (founder and president of the WEF), who form the global elite that sets development directions. Schwab is already promoting the concept of stakeholder capitalism, supported by the owners and managers of the largest enterprises (Stakeholder...; Tomorrow's..., 2022), an important element of which is unconditional basic income (Schwab, Vanham, 2022). This is intended as a response to environmental degradation, which harms people's health and significantly increases economic costs (Moll, 2004). It also aims to ensure a means of subsistence amidst a significant decline in labor demand, anticipated in the near future, and the increasing number of people with low pensions due to aging populations, long periods of unemployment, or flexible employment forms (Ford, 2016; Van Parijs). The UN has already proposed introducing such a benefit for the poorest people globally (UNDP...).

3. A Synthetic Approach to Klaus Schwab's Concept of Unconditional Income in the Context of Social Inequality

At this stage, it is challenging to determine the precise impact of an unconditional basic income (UBI) on the economy. Introducing this instrument without time limits and simultaneously across many countries may yield entirely different economic and social effects compared to isolated experiments. Notably, many economists and organizations predict that UBI will not supplement income but will become its primary, and often sole, source (Bowman, 2013). Klaus Schwab posits that UBI will target individuals with the lowest earnings, set at a level between the subsistence minimum and the social minimum (Djankov, Saliola, 2019). Financing is expected to come from enterprises, which in return will bear greater responsibility for the global socio-economic situation (Schwab, 2018). The new era based on stakeholder economy will involve real governance of countries by corporations coordinating their activities globally (Schwab, 2018; Schwab, Malleret, 2020; Schwab, 2008). Schwab refers to these changes as the "Great Reset" and is convinced that this is the only way to prevent poverty (Schwab, Vanham, 2022). Notably, the "Great Reset" is supported by figures such as US President Joe Biden.

However, this paradigm implies a significant reduction in living standards compared to current levels. Hence, the World Economic Forum (WEF) promotes slogans like "we will own nothing" and "we will be happy" (World...; Auken...). The limited resources obtained by a large segment of society, due to basic income, will result in decreased consumption capacity, thus reducing production and positively impacting the environment (Van Parijs, Vanderborght, 2019). As K. Schwab points out, people will not evaluate this negatively because many goods and services will be replaced with virtual substitutes (e-houses, e-furniture, e-clothing, e-tourism) and the concept of property will fade (sharing and carsharing will become more prevalent) (Wielomski...). Furthermore, individuals without jobs and with ample free time will be able to focus on personal development and community engagement, potentially increasing self-esteem through self-fulfillment on many levels (Schwab, Davis, 2018). This shift will replace the current pursuit of possessions (Is Universal Basic...). If individuals struggle to accept this state and lack life satisfaction, pharmacological agents or direct brain modifications via microchips may be used (Song, 2019). For example, the first successful implant surgery enabling such modifications was performed in early 2024 by Neuralink (Elon Musk...).

Another challenge with Schwab's concept of UBI is the lack of real changes in the benefit amount. This assumption is rational since the costs will be passed on to enterprises, which will not want to see a decline in profits. Recipients of basic income may not pressure for increases, mistaking nominal changes for real ones. For instance, in Poland, between 2015 and 2023, the average pension decreased by 9.2% in real terms (Pensions...), yet significant inflation masked this for much of the population. The initial period of the "Great Reset" may see inflation

rise due to the widespread introduction of basic income before labor demand declines sharply. Consequently, additional funds for a large part of society will boost demand. The real impact will also depend on the extent of other social benefits' elimination (e.g., unemployment, family, parental, and upbringing benefits).

Implementing Schwab's concept will likely increase social inequality in developed countries to unprecedented levels. Resources and substantial incomes will be reserved for a select few. Furthermore, society will lose its ability to participate in decision-making (democratic systems will transform into quasi-regime systems) and have limited individual decision-making opportunities (e.g., regarding childbearing, with many people potentially only able to have virtual children). A social trust system, modeled on China's Social Credit System, will be introduced, where citizens accumulate points for activities influencing their ability to purchase goods and services (e.g., obtaining loans, purchasing or renting real estate, education) (Stevenson, 2019; Bernard...; Kobie...).

If Schwab's development scenario is not implemented (e.g., due to slower-than-expected innovative development), the situation may differ. In such a case, receiving UBI could positively incentivize entrepreneurship (Mączyńska, 2018) or motivate individuals to retrain and seek better employment (Kukołowicz, Szarfenberg, Trzeciakowski, 2020). Financial security could also reduce stress, enhancing concentration and self-confidence, leading to better problem-solving abilities (Weeks, 2020) and increased willingness to work (Gentilini, 2022). However, in countries with low social capital (e.g., Poland), UBI might encourage reduced professional activity in favor of rest, fostering a passive attitude and a culture of learned helplessness, which could be detrimental to the economy (Łętocha, 2021; Gilroy, Heimann, Schopf, 2013). This may particularly affect women who might forgo professional careers for family (Pasma, 2010). In the first case, UBI would reduce social inequalities, while in the second, it would increase them.

Guaranteed income could also influence employer behavior. Employers seeking low-skill workers might offer lower wages, knowing that these workers have a regular income, negatively impacting this group and worsening their situation (Murray, 2008). Conversely, other employees might strengthen their negotiating position, searching longer for better pay or working conditions (Graeber, 2019).

Regardless of how the UBI concept is implemented, a fundamental problem will arise: the financial capacity of countries to implement it. Highly developed countries with innovative economies may afford it (Countries with...). The state's wealth (or rather the strength of its entrepreneurs) will also determine the benefit amount. Economically backward countries may be unable to implement it due to lack of funds, creating a strong incentive for greater emigration from poorer to richer regions. Thus, implementing such a program will require effective measures to prevent population movement and uncontrolled increases in benefit recipients in wealthy countries. Co-financing UBI in poorer countries may be a solution.

UBI proponents often do not address the issue of what will happen to other public benefits and services. If these are limited, specific social groups (including disabled people) with greater needs could face even greater exclusion.

4. Conclusion

Given the current budget structures in developed countries, where a substantial portion is allocated to fixed expenses, implementing Universal Basic Income (UBI) poses significant challenges. Additionally, the existing labor market, which is relatively balanced, does not necessitate revolutionary changes at present. These factors create formidable barriers to the immediate introduction of UBI. However, lively discussions and pilot projects are underway, primarily in areas with high poverty rates and for short-term durations. This activity is driven by the belief that UBI will become necessary to mitigate the adverse effects on the labor market anticipated with the advent of Industry 4.0.

Klaus Schwab's proposed concept, which is actively promoted, suggests that the implementation of UBI could lead to a significant increase in social inequality. To avoid this scenario, several critical issues must be addressed:

- **Eligibility Criteria:** Clear criteria must be established to determine who qualifies for the benefit (e.g., unemployed individuals, low-income earners).
- **Benefit Amount:** The amount of the benefit needs to be defined, including whether it will be based on the social or subsistence minimum, or other parameters.
- **Indexation and Adjustment:** The frequency and criteria for adjusting the benefit amount (e.g., average salary, inflation, cost of living) must be determined.
- **Continuation of Other Benefits:** The extent to which other social benefits will be maintained and the targeting criteria for these benefits must be clarified.
- **International Financing and Immigration Policy:** The participation of highly developed countries (primarily companies based there) in financing benefits in less developed countries must be considered. If not, policies regarding income immigration (as opposed to economic immigration for job acquisition) need to be developed.

Due to the complexity of these issues, encompassing legal, economic, social, and psychological dimensions, it is imperative to start discussions and develop a comprehensive system with detailed solutions today. This endeavor should involve not only economists, lawyers, and politicians but also entrepreneurs and trade unions, which currently view the concept of basic income skeptically due to its generality (Surdykowska, 2021). Governments should take the lead in initiating these discussions.

In such a scenario, the introduction of UBI could have positive impacts, including reducing social inequalities. Failure to address these issues could result in the realization of the scenario proposed by the World Economic Forum, potentially leading to a system resembling neo-colonialism.

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COACHING AS A CONSTRUCTIVE DIALOGUE IN HRM

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Purpose: The aim of the article is to indicate the direction of changes in the instruments of people management, which will correspond to greater interactivity, strengthening the creativity of thinking and flexibility of action of managers and employees by incorporating constructive dialogue into coaching practice.

Design/methodology/approach: The article is theoretical and based on literature studies on the subject.

Findings: Coaching is, next to mentoring, the most mature form of supporting human potential, bringing out the best in people. Constructive dialogue is at the heart of a coaching relationship, based on respect and trust, constructive communication, strong questions, feedback and self-reflection. The article presents the essence, models, conditions and benefits of using constructive dialogue in coaching and tips for the use of the DIALOG tool.

Practical and social implications: Analyses have shown that not every supervisor can and should be a coach. In order for a manager to use the key element of the coach's work – constructive dialogue, in his cooperation with subordinates, he should be a participant in the coaching process, learning and practicing this way of communicating and shaping a strong superior-subordinate relationship. It is a ground for changing old habits, readiness to take on challenges, acquiring new competences based on the potential and strengths of the manager and employee.

Originality/value: The article is aimed at managers to increase the effectiveness of people management by creating a safe, creative space for development, building relationships of partnership, trust, respect and openness.

Key words: coaching, dialogue, constructive dialogue in coaching, DIALOG tool.

Article category: Viewpoint.

1. Introduction

Management based on coaching and constructive dialogue provides the basis for improving collaboration, communication and developing team intelligence in the organization. It is a management style where goals and results are achieved through conversation, inquiry

and openness to new points of view. Such a management style can be described as dialogic human resources management.

Modern time is a world of changeability, uncertainty, complexity, and ambiguity – the world of VUCA. It is directly related to management and risk management, it describes the environment of companies characterized by rapid changes in a very short time. Hence, managers should consider and implement new patterns of thinking and acting in an environment of increasing randomness and diversity of employee teams. Autocratic management methods and hierarchical structures are no longer the best solution in most organizations. If we want to develop more ideas, have more teamwork, collective wisdom and flows of meaning, solve more complex problems, we need skillfully conducted conversation, exchange of ideas – we need dialogue. The use of constructive dialogue can broaden the perspective in any situation and help create new ideas.

The subject of considerations in the presented text are the theoretical and real premises and conditions for the application of constructive dialogue in the practice of people management, i.e. – dialogue management of human resources. The aim of the article is to indicate the direction of changes in the instruments of people management, which will correspond to greater interactivity, strengthening the creativity of thinking and flexibility of action of managers and employees by including constructive dialogue in the practice of coaching. The analysis will be carried out on the basis of a literature review of the subject.

2. Dialogue as a basic tool in coaching

In the literature on the subject, coaching is defined in many ways. Let's make a brief review of the definitions. Of course, this will be a subjective choice – using the author's privilege, I present only those definitions that refer to coaching as a dialogue. Coaching is "a conversation or series of conversations between one person and another (...) that is supposed to bring benefit in the form of progress" (Starr, 2005); coaching is "a conversation, a dialogue through which the parties interact in a dynamic exchange to achieve goals, improve action, and make progress" (Zeus, Skiffington, 2002); "The core of coaching is conversation. It is a dialogue that takes place between you and me, in the context of clearly defined goals. It is a conversation that allows you to look at the problem from different perspectives and consider different strategies of action at critical moments" (Clutterbuck 2009); coaching is "a process during which, thanks to a partner relationship, based on respect and trust, constructive communication, strong questions, feedback and self-reflection, the client transcends internal limitations and overcomes external barriers to achieve the selected goals and achieve the assumed results" (Czarkowska, 2021); Coaching conversation is practiced by people with different primary education: psychology, management, and others (Renton, 2009). In an attempt to somehow organize the

definitions presented (and many others), I would repeat after M. Sidor-Rządkowska (2022) that "the essence of coaching is conversation, and the axis of this conversation are insightful, properly asked questions", with the term "conversation" replaced with the term: "dialogue".

Dialogue is the heart of the coaching relationship, and at the same time a necessary condition for individual and social development in the work environment (Jeruszka, 2019). It is thanks to dialogue that we can talk about a real meeting of two people. Without such a meeting, without naming and expressing one's own thoughts, without empathetic opening and hearing the thoughts of another person, without an exchange of views leading to the co-creation of new solutions – it would be impossible to get to know oneself, create bonds, or individual or social progress. It can be said that establishing a dialogue is not only a natural, innate human need, but even constitutes our humanity.

Why do we talk about dialogue in the organization – about dialogue coaching and dialogue leadership?

The ability to talk together and think in a team can become a source of competitive advantage and organizational efficiency. A dialogue approach can foster better understanding between colleagues and generate better ideas, as well as tuning in to other people's "frequency". I. Kozieja-Grabowska (2016) claims that dialogue "has great potential for better understanding of people, cooperation, learning", dialogue is "a source of transformation and verification of one's own behaviour and beliefs." The quoted author (Kozieja-Grabowska 2013), based on the results of research, indicates the following benefits of dialogue in the organization: better understanding of our thinking methods, our own and other people's behavior; improving relations with employees; development of team intelligence, creativity and trust in the team; strengthening relationships between team members and perceiving a common goal; solving problems together, which in our time are more and more complex and complicated (not on one head); treating the organization as a holistic system (not us vs them); averting crises and conflicts and understanding how they occur. The list is not endless, and each of us can add new benefits to it from practicing dialogue.

In dialogue, we cultivate the "win-win" principle, because the other party is not the enemy, but a partner with whom we focus on the problem and choose a solution that will bring maximum satisfaction to each party and maintain a friendly atmosphere of cooperation. In dialogue, no one tries to defeat others, but everyone can expand the field of discussion and meaning. Nowadays, we need practices that support better communication and team solutions to various problems.

The theory and practice of dialogue in the organization was explored by William Isaacs (1999), according to whom dialogic leadership consistently, continuously discovers through dialogue the hidden creative potential in every situation, in every person. This process is supported by four main skills:

1. the ability to bring out people's true views, to express themselves in their own voice,
2. the ability to listen carefully, with empathy and understanding,

3. the ability to respect the right of others to their own opinion,
4. the ability to suspend preconceived notions and one's own certainties.

In other words, a dialogue leader practices dialogue and is also a good coach – asking questions, drilling, developing the potential of his team. It cultivates speaking with one's own voice, listening with understanding and patience, respecting the right of others to one's own opinion, suspending one's own views, and giving people the right to express their own opinions. He encourages his team to use dialogue.

A dialogue can concern two people or a group of people. "Coaching," writes D. Clutterbuck (2009), "is always an action undertaken with someone, not for someone. Therefore, the responsibility lies with both parties: the coach and the employee. Both parties must demonstrate mutual trust and openness, which are necessary for the right relationship between them. The employee and the coach must perceive the effects of their actions as their joint success".

3. The essence of constructive dialogue

According to the PWN Dictionary of the Polish Language (<https://sjp.pwn.pl>), constructive means: giving positive results, bringing something new, concrete, capable of developing something creative, new, valuable.

Dialogue can be constructive, i.e. leading to mutual understanding and cooperation despite differences. It must bring something meaningful and give concrete results. Constructive dialogue must be thoughtful and rational. It consists in limiting oneself to the topic that was its seed, without dragging out accusations from the past, pointing out negative character traits or questioning someone's value as such.

Such dialogue is a peaceful action and an active opposition to all forms of violence in employee relations. In a social working environment, there is always communication between people, which can contribute to both building understanding and conflicts. In the workplace, we more often want our communication to be constructive. Working with a team of people, it is impossible to avoid misunderstandings or conflicts.

The crisis of constructive dialogue is particularly noticeable today, in times of strong polarization, bipolar ways of acting and thinking, and the accompanying radical assessments and social attitudes. Such phenomena are a feature of the contemporary social condition in Poland and in the world. A low culture of dialogue and a lack of skills associated with it leads to many risks, the consequences of which usually last for many years.

O. Rzycka and W. Porosło (2018) highlight the usefulness of the tool of constructive dialogue with employees in managerial practice. According to the quoted authors, in the coaching style of management, the basic way of solving problems is dialogue based on

partner relations. The ability to communicate constructively, to build a culture of dialogue, a culture based on mutual respect, appreciation and trust, is the most important attribute of a modern manager. One of the models of coaching work is the GOLD model (Rzycka, Porosło, 2018). It is used by the manager in working with employees in a situation where the employee's actions have caused negative consequences or when the level of performance of the assigned task does not meet the manager's expectations and the manager wants to use this opportunity to support the employee in development. It is used during the coaching process to draw constructive conclusions from the mistakes made and to learn from one's experiences. In practice, the GOLD model is a conversation focused on goals, results, learning and conclusions. The structure of the GOLD model is based on four key questions:

1. G – *what was your goal?* – What was your goal? What did you intend to achieve? What was supposed to be the result of your action?
2. O – *what was the outcome?* – What is the result? What have you actually achieved? What went well?
3. L – *what did you learn?* – What have you learned? What are you smarter about? What is the lesson for you after this experience?
4. D – *next time what will you do differently?* – What will you do differently next time this type of situations? What other opportunities do you see now? What will you do more? What will you do less next time?

This model assumes that it is worth using the mistakes made to develop awareness of the consequences of one's decisions and actions, readaptation, and actively and constructively draw conclusions. This creates good conditions for the learning process and personal involvement in the search for better and better solutions for the future (Czarkowska 2021). The use of coaching as a constructive dialogue is possible in a learning organization when the employee's right to make mistakes is recognized and conditions are created for correcting and improving work (Jeruszka, 2019).

Regardless of whether we are talking to a dissatisfied customer, or we have a different opinion than a co-worker, or we go to ask our boss for a raise, it is worth using a constructive dialogue. Be honest, substantive and specific. A constructive exchange with a client can protect the company from a negative opinion, a constructive exchange with a colleague can lead to a common position on the matter, a constructive exchange with a supervisor can result in a better salary or bonus. Constructive dialogue is the key to success and successful communication.

4. Conditions for Conducting a Constructive Dialogue in Coaching

Without efficient, effective and ethical communication, management cannot exist at all. Competencies related to the process of constructive communication are complex and much-needed competences, although still too often ignored (Jeruszka 2020). This type of communication is intended for supervisors and employees who value the individual responsibility of each person more than top-down management of people.

"Communication is not limited to sending, receiving and exchanging information. Messages, often issued in the form of commands, not only inform, but also shape and change reality, activate, block or eliminate specific actions. Communication can consist in the transmission and exchange of explicit content. However, it can also encourage reflection, independent search and investigation. It can inspire, destroy stereotypes and routines. Knowledge and understanding, which are achieved on one's own, are valued the most" (Oleksyn, 2006). Therefore, the importance of more sophisticated forms of communication and various forms of indirect influence, which, however, require higher competences than those needed in the process of transferring and exchanging information, is growing. The importance of constructive dialogue is increasing. As A. Szewczyk (2016) writes: "conducting a constructive dialogue in coaching is an art that should be explored and applied, using tools appropriately selected for the situation, the person undergoing the coaching process and the context [...] Dialogue in coaching is an art, because you need tools and a properly trained and prepared person who knows the workshop – various techniques and knows what tools they can use".

How should we have a constructive dialogue?

First, think about what we want to achieve with it, i.e. what is the purpose of dialogue. And then we try to direct the conversation in a way that will enable the coachee to achieve the intended result. Just setting the purpose of the conversation will allow us to stay calm – we will not get distracted and resort to "small conversations", i.e. short, casual chats on an unimportant topic.

Secondly, adjust the intonation of the voice, the pace of speaking, the language and the style of messages to the interlocutor and the circumstances of the conversation, remembering that among all the information that reaches us during a conversation, 7% is derived from words, 38% from tone of voice, and 55% from body language. Thanks to this, it will be much easier for us to catch the thread of understanding, and thus support the coachee in achieving the goals he or she sets for himself.

Thirdly, involve the other party - the coached person in the conversation. A monologue is not an appropriate form of communication. You should show the other party that you are interested in what they say. We ask strong, deepening questions, paraphrase, nod, maintain eye contact. We show a genuine commitment to helping the coachee learn (Silsbee, 2004).

Finally, remember to describe everything we talk about in detail. Nobody likes vague information. If we are able, let's use data and numbers, give specific examples and be sure to remain objective. Let's not forget that everyone perceives reality in a slightly different way. Our beliefs are influenced by the environment, culture, values – and we must respect this. Therefore, in every conversation, it is worth issuing messages that will be unambiguous, clear, precise and, of course, devoid of any stereotypes or prejudices.

In order for our dialogue to run smoothly and actually be constructive, it is worth remembering a few rules:

- substantive – communicate in a way that sounds professional and to the point. Present facts, use specific data. This will make your argument clear and logical;
- intention – always be prepared for the conversation, determine the purpose of the conversation, what you want to gain from it. Think about whether you will have to negotiate or convince the other party to your point, whether the techniques of exerting influence will be useful, etc.;
- attitude – always try to be positive – both to the conversation and to the interlocutor, even if the dialogue is about a conflict or dispute. Such situations are natural and will happen – you don't have to adopt a hostile tone because of it;
- argumentation – only specific arguments used throughout the conversation will help you achieve your goal. The specific word is key here – if you are not able to meet the expectations of your interlocutor at the moment, explain to him why the situation is like this. Don't give evasive answers – be precise.

These principles can be applied in the workplace to make our communication constructive.

5. The use of the DIALOG tool in coaching processes

The DIALOG tool can be used as a base – a ground for conducting a constructive dialogue during a coaching session, it can also complement the coach's workshop. The DIALOG tool helps you climb higher in your development and achieve your goal when the conditions expressed by the acronym DIALOG are met. The individual letters mean: D – the client's (mentee's) decision-making, I – interactivity in the coaching process, A – client's (mentee's) self-reflection, L – a mirror that allows you to see the image on the other side, O – options for action (possibilities), G – readiness to change (Szewczyk, 2016).

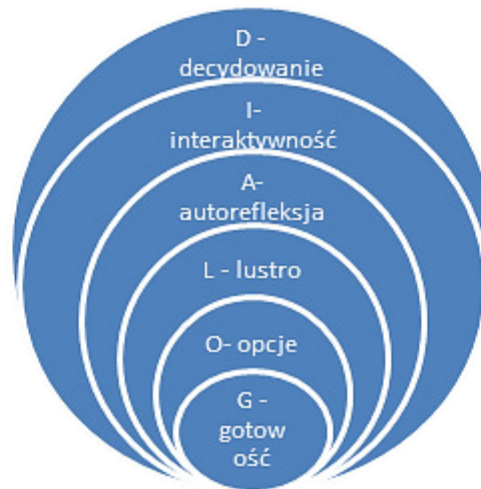


Figure 1. DIALOG tool.

Source: Szewczyk, 2016, p. 87.

The individual stages of the DIALOG tool indicate important issues that are part of the dialogue process that takes place during the coaching session. This tool also shows which areas should be paid attention to in order for the dialogue in the coaching process to be called constructive.

How should I use the DIALOG tool?

Each of the listed stages can be used one after the other, according to the order of the acronym DIALOG, or it can be appropriately moderated by the coach depending on the needs of the situation, context, and purpose of the coaching process. A. Szewczyk (2016) claims that "In a hypothetical situation during the session, when the energy drops and the client does not see a way out of the situation and loops on the problem, then it may be a good practice to use stage I – interactivity with stage A – self-reflection together, and adapt stage L – mirror to it, which will show different perspectives. In other cases, the aspect of the client's readiness for change may be important and this stage may be discussed several times in a given coaching session".

The stage – deciding – indicates that the client is the decision-maker, but the coach should effectively support him in making a decision. The next stage of the DIALOG tool is its interactivity. The coaching process is an interaction: each deliberate action of the coach causes a reaction from the client. From the first meeting, the customer is inspired to act. The coach's task is to encourage the client to interact and act through properly formulated questions, coaching techniques and feedback. It is important that these questions are simple, accurate, encouraging the client to think, analyze their own thoughts and see new aspects of different situations. It is also important that the coach, when giving feedback, does not succumb to the temptation to advise or instruct; it should contain only possible observed facts, without associations or interpretations of the coach; It should be delivered in constructive language that is full of benefits for the customer. The next stage of the DIALOG tool is self-reflection. Coaching is a process whose main goal is to strengthen the client and support them in making

a change on their own based on their own discoveries, conclusions and resources. The essence of coaching is learning, self-discovery, and development, thanks to which the client approaches specific results described by indicators at the beginning of the process. Self-reflection is needed by the client to constantly monitor whether he is going in the right direction. The next stage of the DIALOG tool is the mirror. The metaphorical meaning of the mirror in the tool is intended to show the coaching process as a mirror in which the client looks at himself and reflects, putting him in a state of curiosity: Oh, when I make a change, my life will look like this.... The mirror as a metaphor allows the client to broaden their perspective: the client can see their image – here and now – how it is now?, me and my reality; But the client also wants to see himself after the change, he wants to see his future – what does my future look like in ten years?, me in the future. The magic of the mirror allows the client to see what they need to grow and achieve their goals. The options stage aims to generate new opportunities, various options of action that will lead the customer to the assumed goal. The coach's task is to create a new space that will foster creative thinking, searching for solutions, and generating ideas. The last stage of the DIALOG tool is readiness. This stage is designed to direct the customer's attention that they are responsible for the change and that the right time for it is right now. Coaching is an opportunity for those who feel ready for change and are motivated to make this change.

6. Summary

There are many ways to understand coaching. They oscillate from a very narrow understanding of this concept as a set of techniques and tools aimed at interaction, to theories in which coaching becomes a philosophical concept, understood as a comprehensive vision of thinking and acting. We have paid attention to the definitions of coaching that emphasize the use of dialogue to strengthen interactivity, creativity of thinking and flexibility of action.

Constructive dialogue supports the development of modern management, the art of conversation, teamwork and joint thinking, an atmosphere of confidentiality and trust in order to be able to use the development potential of the individual and the team to the fullest. A dialogue leader who has specific coaching competencies is the manager of our times, times when problems cannot be solved by one person. Here we need dialogue, team wisdom, cooperation.

Coaching has become a part of the development practice of individuals and organizations. However, the results of research, especially quantitative ones, the effectiveness of coaching interactions, the use of coaching tools by managers towards their subordinates are far too rarely presented. We know little about the effectiveness of coaching in the work environment, how it works and what its effects are. The results of research on the effectiveness of coaching in organizations – if they are given – are not supported by any description of the procedures for

their collection and analysis. This is the direction of further research, especially quantitative research, on coaching as a constructive dialogue in people management.

It should also be noted that new technologies are changing the way we communicate. Electronic communication has become common: by phone, e-mail or instant messaging. Dialogue and direct conversation become a challenge. Nothing can replace face-to-face contact and a real face-to-face conversation. Electronic communication has its weaknesses: it is difficult to build trust, dialogue space using long-distance communication; it is easier to hide real intentions when there is no direct contact; it is easier to be disengaged, to remain "out of the conversation"; misunderstandings, misunderstandings and misunderstandings are more common; it is more difficult for people to be honest, it is easier to pretend to be someone or even change their identity.

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SUCCESSION MANAGEMENT IN FAMILY BUSINESS – FORMAL AND INFORMAL CONDITIONS FOR LONGEVITY

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Purpose: The aim of the paper is to identify the methods of succession management in family companies, and to determine what models of succession have developed in Poland in the thirty years since the 1989 breakthrough.

Design/methodology/approach: This article is based on qualitative research. Since 2017, in-depth qualitative interviews with entrepreneurs working in the profession for at least twenty years and representing the micro-enterprise sector as well as small and medium-sized businesses have been continuously conducted across the country. The interviews are recorded, transcribed, and numbered. The conversation is usually conducted at the entrepreneur's business premises. The surveyed persons answer the open-ended questions, allowing for lengthy, free-form responses.

Findings: Succession is an important stage in the development of a company. It should be noted that it depends on the conditions found on the side of informal and formal institutions. Taking this into consideration, the analysis of changes in legal regulations significantly influences the explanation of their causal power in terms of stimulating and protecting entrepreneurship and ensuring the safe continuity of the company in the long timeframe. On the other hand, custom and tradition, which are individual characteristics of the managing family, are enormously important for the longevity of these firms.

Originality/value: Entrepreneurs who started their businesses in the nineties have, over time, matured into a generational change. Succession is an important stage in the development of a company. It is accompanied by emotions both on the part of the senior and the junior, the future successor. The choice of a company's succession path depends on the mission and values adopted in the organization, the culture of the organization, the strength of family ties, and therefore on intangible and symbolic elements. Discovering the emotions of an entrepreneur who decides on succession allows for new cognitive paths in economics.

Keywords: family business, succession in family business, right to own and dispose of property, entrepreneur.

Category of the paper: Case study.

1. Introduction

Sometimes referred to as "business marathon runners", the family companies are organizations of longevity. They build, based on the experience of the past, an individual system of business values rooted in the tradition of evolving generations and the so-called founder's values. On this foundation, they define their own mission and shape their cooperation with the external environment and relationships within the organization based on it.

Family enterprises operating in contemporary Poland do not have a long tradition. Compared to those in Western Europe, they are relatively young. Besides, due to Poland's complex political history, there are fewer such enterprises here than in Western countries. The aim of the paper is to highlight the approach to managing succession in a family business and to determine what models of succession have developed in Poland in the thirty years since the 1989 breakthrough. Entrepreneurs who started their businesses in the nineties have, over time, matured into a generational change. Succession is an important stage in the development of a company. It should be noted that it depends on the conditions found on the side of informal and formal institutions. Taking this into consideration, the analysis of changes in legal regulations significantly influences the explanation of their causal power in terms of stimulating and protecting entrepreneurship and ensuring the safe continuity of the company in the long timeframe. On the other hand, custom and tradition, which are individual characteristics of the managing family, are enormously important for the longevity of these firms.

Given the stated research objective, the question arises about the principles of creating an internal structure of a company that is resilient, antifragile, and at the same time flexible, thus nimbly adapting to the changing conditions of the external environment, as well as the internal dynamics of the specific company.

This article is based on qualitative research. Since 2017, in-depth qualitative interviews with entrepreneurs working in the profession for at least twenty years and representing the micro-enterprise sector as well as small and medium-sized businesses have been continuously conducted across the country. The interviews are recorded, transcribed, and numbered. The conversation is usually conducted at the entrepreneur's business premises. The surveyed persons answer the open-ended questions, allowing for lengthy, free-form responses. For the purposes of this paper, the research was expanded to include an analysis of the current legal acts in Poland that condition the operation of business activities.

2. Formal and informal institutions

Anna Ząbkowicz, explaining institutional attempts to capture the phenomenon of capitalism, noted that the crucial point of institutional analysis is human cooperation (Ząbkowicz, 2023, p. 80)¹. This fact implies that institutions are the rules of the game in society. They are devised by people and constitute certain constraints that shape their mutual interactions. They influence the behavior of both individuals and organizations operating in society and the state (Ząbkowicz, 2023, p. 80). A person living in society is dependent on the prevailing rules. Therefore, all institutional and cultural conditions of the environment influence the individual (Gruszewska, 2013, p. 95). Ewa Gruszewska emphasized that "Institutions are strongly connected with the previous conditions in which human actions took place, serving as a link between the past and the future. The past is the source of creating institutions and forms the basis for their continuity" (p. 104). Institutions shape mental patterns of human behavior. They are also encompassed in norms and rules of conduct, the violation of which triggers legal sanctions enforced by the state. The efficiency of enforcing adopted norms in the form of legal regulations affects public trust in the law and the state, including the government, the judicial system, social and professional organizations (Bugdol, 2010). Institutions, by taking on the task of creating proper procedures, rules of conduct, and behavior for individuals or groups cooperating within economic activities, increase the predictability of market participants' behaviors. They build an institutional framework that influences economic organizations operating in the market.

The institutional framework existing at a given moment can create potential conditions for the development and functioning of family businesses, in which informal dependencies arise between people because of family ties, cultural conditions transmitted through tradition, including religion, and formal (legal) regulations. These institutions continuously organize the ever-changing reality (Grabska, 2014, pp.135-142; Gruszewska, 2018, pp. 197-215).

3. Family businesses and influence of informal institutions on their operation

The historical experience of Poles has had a tremendous impact on their perception of a fundamental human right: the right to own and dispose of private property. The concept was aptly captured in 1946 by Stanisław Cyłkowski, president of the Chamber of Industry and

¹ Due to the limited length of this article, the discussion on institutions, which takes place among eminent scholars such as D.C. North, O.E. Williamson, M. Aoki, as well as Polish researchers of this trend: J. Godłów-Legiędź, Jerzy Wilkin, Maciej Miszeszko, E. Gruszewska, S. Czech, and many other researchers, has been omitted in this part.

Commerce in Bydgoszcz. In a discussion at the Chamber's forum, he stated: "To the conditions that must be observed belong, among others, the sense of private ownership strongly rooted in the Polish psychics (together with the primal attachment to the land of the peasant element, constituting nearly 80% of population)" [State Archive in Bydgoszcz]. He further argued: "Doctrinal theorists should avoid detaching their programs from the reality and the foundation on which all social and economic reforms can be implemented" [State Archive in Bydgoszcz]. The significance of this statement is universal and helps understand the culturally rooted psyche of Poles and their ardent desire to safeguard the right to own and dispose of private property. This statement serves as a warning that can be used as one of the arguments justifying the bankruptcy of the Polish People's Republic. The legal regulations enacted in the Polish People's Republic were detached from the cultural foundations dear to Polish society. Their basic pillar is the "primal attachment to property." Considering this mental characteristic of Polish society, the restoration in Poland after 1988 of the inviolability of the human right to own and dispose of property was in line with the cultural code of Poles. As a result of this regulation, a phenomenon was observed among Poles that could be described as the flowering or explosion of entrepreneurial attitudes.

The concept of a family business does not have a single definition. The first issue to note is the distinction between a family business and a business based on the principles of family management. In both cases, the family engages in the business. An economic organization showing characteristics of family management does not weave succession into its development strategy. A business with features of family management engages the entrepreneurial energy of the entire family, aiming to achieve specific business benefits in the current time, without the perspective of the organization's long-term existence into the next generation. The family does not see succession as a value. Usually, after achieving the planned economic goals, the business ceases to exist or is sold. It is important to note that a business exhibiting characteristics of the family management has tremendous potential to transform into a family business. In many cases such transformation does occur.

A family business is established when three essential conditions are met. Peter May and Adrianna Lewandowska (2019, p. 34), authors of the definition of a family business, constructed it as a sum of three outcomes. These are: the dominant ownership of the family, holding 51% of the property; the family's direct involvement in the management of the company; and a significant condition - the desire to maintain the business through generations. This means that in the development strategy of this business, the guiding principle is the succession of the company, preserving the brand, and continuing operations by the next generation. The family's intention for the business to become a family jewel, passed down from generation to generation, gives it the right to the honorable title of a family company.

Economic history provides ample evidence that the genesis of many contemporary companies, often with global reach, can be traced back to family businesses. The family, as the primary social group, is usually the source of entrepreneurial impulse. The goal of parents,

expressed in their ambition to provide their children with tools for a so-called good life, stems not only from their defensive mechanism, which is based on the natural needs of the family. It is often conditioned by the desire to accumulate knowledge, experience, and capital in successive generations. The transfer of intangible values and behavioral patterns in entrepreneurial families and the formation of specific norms and life principles impact the assessment of current reality, the optimism of family members, or their passive attitude towards it. A family business builds its own genealogical tree, allowing for the creation of the so-called founding myth (Lewandowska, 2020, pp. 7-96). These two elements are considered a strategic asset of the company, giving it a competitive advantage in the market. Family businesses are treated with exceptional esteem in the market. They inspire trust, and their references are expressed in the form of an intangible value, which is their longevity.

Another informal and thus immeasurable characteristic of a family business is the subjective bond that unites family members. It is based on three pillars, considered as the foundation of good management, such as: mutual trust among family members, loyalty, and solidarity. These values make these economic entities perceived by external observers as tight-knit organizations, from which no undesirable information leaks. This characteristic allows them to maintain the value of the brand, and above all, the intangible asset of a positive image of the family business brand. Stability, predictability, and longevity are the strengths of this business.

Referring to the informal factors influencing the formation of family businesses, it is worth considering Thorstein Veblen's observation: "The current way of life of an individual is imposed on them by the habits of life carried over from yesterday and the conditions left as a mechanical residue of past life" (Dzionic-Kozłowska, 2018, p. 123). Pierre Bourdieu proposed the concept of habitus. Habitus builds the economic, social, and cultural capital that an individual acquired in youth. Symbolic capital includes the realm of behaviors, gestures, and habits that allow a person to utilize the two other capitals, economic and cultural. Frank Lettke believed that habitus should be viewed as two habits imprinted in an individual's consciousness: a primary habit, which is exceedingly difficult to change, and a secondary habit, which can be subject to change (Kühn, Schwarz, Steinkamp, 2020). Jarina Kühn, Anna Schwarz, and Anna M. Steinkamp assert (2020) that habitus is to a certain extent deterministic for an individual, but at the same time does not predetermine every detail of life. It creates a so-called corridor of possible and particularly probable actions, attitudes, and preferences of people. Perhaps, considering these observations, habitus is one of the informal factors that strengthen the entrepreneurial attitudes of an individual who observes their family in youth. The following statement by an entrepreneur running a family business confirms these observations: "If you grow up in it, if you walk around the workshop from childhood, go to the store where bread is produced, you know what it's about. To me, it's normal, like eating bread and butter to someone else. For me, a normal activity was the production of bread, the production of dough, even without paying much attention to it. People from the outside

might see that someone is an expert, knows how to do it, and so on, but for us, it's the natural order of things, as it is passed down from generation to generation" (Interview 01).

According to findings by the bank BNP Paribas in 2016, entrepreneurs worldwide who have achieved success can boast a history of entrepreneurship in their family in as many as 61.6% of cases (Milenijne pokolenie przedsiębiorców, 2016, p. 5). This information confirms the fact that imprinting entrepreneurial attitudes in individuals can be a consequence of observing the work of their parents and their immediate environment.

According to researchers, it's important to consider the human genome, which may also determine entrepreneurial intentions. Tomasz Bernat (2022, p. 26), in his research on this topic, raised the question of whether a single entrepreneurship gene can be identified. He emphasizes that there are 30,000 genes in the human body and questions how many of them are responsible for entrepreneurial attitudes. "The impact of a single gene's activity can vary from the difference between two variants of that gene. It may significantly determine a certain personality trait, such as a propensity for risk-taking" (Bernat, 2022, p. 28). He concludes that "Some of our decisions and behaviors, though at first glance seem to be the result of environmental influence, are in fact genetically conditioned" (Bernat, 2022, p. 30). Perhaps because of expanded research on genes as a determinant of entrepreneurial intentions, the approach of researchers to the factor of the cultural environment in which a person was shaped and received an "imprint" of certain behaviors will soon radically change.

A family business, becoming a collective dream of the family, is supported by the intangible value of the successor's sense of responsibility for its continued existence. It becomes, as an entrepreneur stated, "a patrimony, something you don't abandon or sell". It also evokes other emotions. The successors of the family business Foto Garzyński in Cracow aptly identified this issue: "To us, not only the family name is a burden, but also the awareness that it should continue to exist in the photography industry. So how can one shut the business down?" (Zasiadczyk, Krasicki, 2016, p. 9).

The potential disruption to the longevity of family businesses is expressed in the concept of the Buddenbrook effect. The saying, which sounds like a curse and is remembered in family businesses, goes: what the father builds, the son maintains, the grandson ruins. Studies confirm that 30% of family businesses last into the second generation, and only 13% into the third and subsequent generations. One reason for this self-fulfilling prophecy is the capital barrier, which requires a family business to maintain control over assets by having at least 51% of shares in the hands of the family. The changing business environment and tough competition from global corporations mean that family businesses are not always ready to meet this requirement. The capital barrier on one hand limits their investment opportunities, and on the other, it allows for the preservation of management methods and cooperation conditions that have remained unchanged for decades. This factor, combined with the greater inclination of these businesses' owners to implement well-established business practices, including paternalistic management embodying the principle of "I know best", limits Schumpeter's theory of creative destruction.

The positive brand image of a family business, combined with its good reputation, proves insufficient in the face of strong external competition. This problem affects, among others, family businesses in the bakery and confectionery industry. Due to technological advancements in bread freezing, family businesses associated with this production sector are disappearing from the market.

4. Succession in a family business

Succession in a family business has three distinct meanings. The first, intangible, is associated with the succession of symbolic values embodied by the family tree. The second component of succession is the transfer of property rights to the successor or successors. Addressing this issue requires resolving several problems within the family. These require answers to whether the successor is buying out the founder's establishment or its equipment, or whether they are receiving it as a notarial deed in the form of a donation. Similar decisions are required for the transfer of the company's assets (e.g., it is widespread practice to lease premises from the founder, transfer them as a donation, or buy them from the founder). These problems arise from the need for fair resolution of access to the family's assets for all family members, primarily siblings. The siblings' claims against the successor or parents are resolved by transferring to them other properties or ownership rights, including shares in the company. It is a customary practice, which can significantly burden the budget of this economic entity, for the family business successor to pay off their siblings. Another pattern has also been observed. The family patriarch, in building the family business, prepared a part of the company for each child (a separate establishment that forms an integral whole, cooperating with the other companies). Thus, the company is divided into smaller parts, which still cooperate very closely, often remaining under the banner of a single brand. The siblings decide on defining the co-ownership of the company, usually in equal parts².

The third component of succession involves management within the company. This is tied to the necessity of defining the scope of managerial competencies for the successor or multiple successors. The division of competencies in managing the family business often depends on the predispositions and skills of the siblings. In some family businesses, the concept of introducing professional management by hiring external managers is considered. The owner of a family

² The European Parliament resolution project, https://www.europarl.europa.eu/doceo/document/A-8-2015-0223_PL.html, accessed on January 9, 2022. In 2015, the European Parliament, while examining succession in family businesses and aiming to extend its scope, emphasized that 87% of entrepreneurs running family businesses are convinced that one of the keys to their success in business is maintaining control of the enterprise by the next generation. At the same time, these same entrepreneurs, who desire to conduct effective succession in their companies, point out that the greatest challenge for family businesses is the transfer of ownership of the company along with the transfer of managerial functions from one generation to the next.

business decides on this step only when the manager shares the values embraced in the family business.

Crucial for the continuity of family businesses that are owned by an individual, a form in which as many as 81% of family businesses operate in Poland, is the law adopted on July 5, 2018, on the Succession Management of an Individual's Enterprise (Journal of Laws 2021, item 170). The importance and significance of this legal act are underscored by the fact that in the years preceding the adoption of the said law, in the event of the sudden death of a business owner, the legal heirs of the deceased entrepreneur were unable to manage the organization. Legal procedures related to inheritance often extended, which consequently led to the liquidation of the business. Usually, by the time the inheritance proceedings were completed, the company no longer existed. This way, a significant economic potential was irretrievably lost. The specified law resolves the issue of business continuity in the event of the sudden death of its owner. A succession manager, who can be a family member, such as a spouse or child, or a manager, by law conducts the inheritance procedures for a maximum of two years. During this time, the organization operates, and importantly, previously concluded contracts remain valid.

Conducting succession in a business owned by an individual, the family patriarch, may involve transforming it into a partnership or corporation. Some entrepreneurs opt for this step, initially creating a limited liability company, and then, as a final resolution, a limited partnership. This legal form allows for the preservation of the company's past successes. The history of the company is not interrupted, which is fundamental for the organization's image. Importantly, transforming a limited liability company into a limited partnership creates the opportunity to transfer, in the form of a donation, a portion of the company's ownership to the successor or successors selected by the family patriarch.

Another formal solution that allows for the continuity of a family business and offers a potential guarantee against the 'Buddenbrook syndrome' is the family foundation, introduced into the Polish legal order. The Act of January 23, 2023, on the family foundation (Journal of Laws 2023, item 326), states that it is a legal entity created for the purpose of accumulating assets, managing them in the interest of beneficiaries, and providing benefits to beneficiaries. The founder specifies in the statute the specific purpose of the family foundation. Beneficiaries are considered individuals, non-governmental organizations, and the founder themselves. The founder of a family foundation can only be an individual with full legal capacity, who has made a declaration of establishing a family foundation in a founding document or a will. It can be established by more than one founder.

This legislative act, having been in place for just one year since its adoption by parliament, has not yet developed what is known as 'best practices'. As a result, some lawyers believe that the family foundation might be used by entrepreneurs for cost or tax optimization (Firmy rodzinne w oku transformacji, 2023, p. 142), a goal contrary to the spirit of this law. The long-term purpose intended for the creation of family foundations is currently less recognized,

due to the aforementioned lapse of time. The crisis of trust in Poland, resulting from the lack of consistency in legal regulations over a prolonged period, is leading a significant group of entrepreneurs to establish family foundations outside the country. They reach for legal solutions adopted in European Union countries with more stable legal systems. In this context, an entrepreneur noted, "I might pay a bit more for this structure in Malta, but my assets will be safer" (Firmy rodzinne w oku transformacji, 2023, p. 138).

5. Succession according to entrepreneurs. Results of qualitative research

A company that has survived in the market for at least twenty years holds immense intangible value for many entrepreneurs. Due to this fact, it is perceived as a family gem, not subject to sale (Kamosiński, 2019, p. 86 and following). The dissolution or sale of this organization to a third party due to the reluctance of potential successors to take over is not considered by many entrepreneurs. Therefore, the primary goal set in the strategy of family businesses, according to Tadeusz Baczko and Artur Chaberski (2015, p. 271), who referred to the findings of C.E. Arnoff and J.L. Ward, is to maximize the well-being of many generations of the family involved in creating the family business.

The lack of a company successor can evoke extreme emotions in the patriarch. In the statements of several entrepreneurs, a radical declaration appeared: "I would rather burn it all than hand it over to strangers. I will definitely not sell it, as I don't want to watch a stranger rejoice in my defeat, being forced to sell the business I worked on for years. When I can no longer work, I want to... burn it. I won't give it to anyone, and that's all." (Interview 15).

Succession in a family business can take a specific, individual form, unique to it. An entrepreneur said: "My dad had his own business. I had mine. Dad has suspended his own business, wound it up. That allowed me to also take over the name of his company. (...) In this way, I adopted my business, expanded it. I took over dad's fields of activities, acquaintances, and contacts in institutions. We worked together; mobile phones came into play, so dad redirected contacts to me" (Interview 04). The succession mechanism developed in this example, as shown by economic life practice, is effective. It helps to avoid conflict in the family and questions about the timing of succession. It gives the successor a chance to build their own network and a good personal brand image. After taking over the patriarch's contacts, the successor becomes recognizable in the environment.

Qualitative interviews reveal another path to company succession. Alongside the aforementioned model, the entrepreneurs practice involving children in managing the company. They assign them, for example, to lead one of the teams or to manage a particular transport column in the company. This opens the way to complete succession. Family management initiates construction of a family business.

Ensuring the continuity of a business that evolves from a form of family management into a family company requires transforming a sole proprietorship into a corporation. Qualitative research shows that many entrepreneurs consider it their moral duty towards their children to create a company in which their children are shareholders. They treat this as a form of prevention in case of their death, the onset of an incurable illness, or other unforeseen random events. The entrepreneur said, "...in the meantime, from this simple sole proprietorship, we also established a corporation, the kids are already in the corporation, precisely so that everything can smoothly transition, and the organizational structure of the company is such that the kids are involved in everything, and even if we're gone, the company won't die. (...) Yes, the children are co-owners, they are shareholders, and they function in the corporation" (Interview 24).

The question always remains open as to when the family patriarch should decide to initiate succession. He added: "I have a friend who is forty-three years old and is still waiting for his father to transfer the company to him. He keeps on waiting, has already been an alcoholic, then stopped being one, and he is still waiting. (...) He kept waiting and expecting, and later he became so frustrated that he started to slander his father in the company, blaming him for wrong decisions. I say, 'this is your father's work, he can give the company to anyone, donate it to charity, don't expect anything, he owes you nothing'" (Interview 14). Conflict is inherent in the functioning of every company, including family businesses. The dispute over succession is an example of the most difficult moment in which this specific economic organization can find itself. Many of these businesses do not survive this test successfully. They fail.

Another issue requiring resolution, related to succession, is that the business, in the entrepreneur's opinion, should open better business prospects for their children. An entrepreneur discussed this specific succession: "(...) I think about gradually phasing out my business in its current form over some 10-15 years, or maybe just sell off the industry (...), but for my children, I would rather set up a business that involves more tranquil investing, for instance in real estate, or maybe a development formula, but not necessarily residential, perhaps more towards industrial construction (...)" (Interview 03). The above statement reveals another significant research perspective. It raises the question of family altruism. It is intriguing to note the entrepreneur's desire to have the business he runs, upon its liquidation, to become the seed for a new (in his opinion, easier) economic activity.

The model of exemplary succession, the fourth in the family, is a major success in the history of the family business. The family patriarch sees the genesis of this success in the fact that the potential successor was always close to the business: "We didn't know he would want to take over the business in time, but from a young age, he grew up in it, helped whether arranging cookies, packing rusks, or loading the truck (...). You can't force succession, because it can backfire. It must be the successor's independent decision to want to run the business; if it is forced, it will go the other way" (Interview 01).

Table 1.*Formal and informal institutions conditioning succession in firms*

Institution		
Formal		Informal
Universal Declaration of Human Rights of December 10, 1948 Article 17 1. Everyone has the right to own property alone as well as in association with others. 2. No one shall be arbitrarily deprived of his property.	Fundamental human rights	Family ties: trust, loyalty and solidarity
The Constitution of the Republic of Poland, adopted on April 2, 1997 Art. 64. 1. Everyone shall have the right to ownership, other property rights and the right of succession. 2. Everyone, on an equal basis, shall receive legal protection regarding ownership, other property rights and the right of succession. 3. The right of ownership may only be limited by means of a statute and only to the extent that it does not violate the substance of such right.		Habitus, or a corridor of possible and particularly probable actions, attitudes, and preferences of people
The Act of 23 April 1964 - Civil Code.	The regulations for establishing, operating, and liquidating a business, as well as inheritance laws, are comprehensive and multifaceted	The tradition of family-run businesses-soaking in the company's atmosphere
The Act of 15 September 2000 - Commercial Companies Code		The company as a family's collective dream
The Act of 6 March 2018 - Entrepreneurs' Law		The company as a family gem.
The Act of 5 July 2018 on Succession Management of a Natural Person's Enterprise		The company family tree and its founding myth as responsibility of future generations
The Act of 23 January 2023 on Family Foundation		Founder's values as the foundation of the family business
	Family altruism for securing a better future to the offsprings	
	Entrepreneurial 'Gene' exists?	

Source: own study.

The practice of succession in family businesses, as illustrated by entrepreneurs' candid statements in the given qualitative interviews, often takes a unique form, tailored to the cultural foundations of the family. Entrepreneurs, emotionally attached to their companies, view them as family gems, giving it a great intangible value. They struggle with how to appraise the emotions and life dedicated to the business.

3. Summary

Zbigniew Sosnowski, the founder of the family business Kross, highlights the unique opportunity in Poland to build family businesses, a chance not afforded to previous generations.

"We have in Poland an incredible situation - we are allowed to create family companies. We may reach something that was impossible for our fathers and grandfathers. I repeat to my sons: my and your generations should not spend the earned money. We are in the shortage of capital. When I look at the great international companies, created for many years, I know they are great, because they all have got money for the development"(Kostrzewski, Międzyński, 2012, p. 59).

The above statement is a perfect conclusion. It highlights the permeation between formal and informal norms that influence the longevity of family businesses. Beyond any doubt, it remains a fact that family businesses will emerge when entrepreneurs are institutionally guaranteed the right to own and dispose of property. This is a prerequisite. The question about inheriting entrepreneurial attitudes, and the role of genes as a natural endowment of the organism with certain predispositions, might not be given a full answer. One must remember, however, not to overlook the informal conditions, proper and specific to each family running a family business, its customs, manners, and traditions, encapsulated in the concise concept of the company's genealogical tree and the myth of its founding.

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SILVER LEISURE INDUSTRIES IN AGING SOCIETIES OF THE EUROPEAN UNION

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Purpose: The aim of the article is to assess selected conditions for the development of silver leisure industries in European Union countries.

Design/methodology/approach: The TOPSIS method is used in the research. The analysis covers the years 2014 and 2020, and the data source is the Eurostat database. The adopted method allowed the authors to prepare a ranking of countries in accordance with their predispositions (expressed in a synthetic measure) to the development of the economic sector under analysis.

Findings: The highest values of the measure were obtained in Sweden, Denmark, the Netherlands, Finland, Belgium and France. These countries are characterised by the highest or high values of indicators reflecting the financial situation and quality of life of seniors. At the other extreme of the ranking are Romania, Bulgaria, Latvia and Lithuania, where the prospects for the development of silver leisure industries are very poor (the lowest values of the synthetic measure and partial indicators).

Research limitations/implications: An important limitation of the analysis was the availability of data for the European Union countries. The volume limitation of the work also determined the possibility of presenting another research approach - the determination of a synthetic measure based on the weights of individual indicators, in addition to the equivalent treatment of features.

Practical implications: The research undertaken has a practical dimension in two aspects: first, the monitoring of the characteristics of the senior population - it concerns the institutions that collect data, and second, the functioning of the entities of the silver economy.

Social implications: The research involves a growing population of older people and can definitely contribute to improving their quality of life - providing an opportunity to better reconcile the demand and supply sides of the silver economy.

Originality/value: The added value of the study conducted is the assessment of the demand side of the silver industry market, taking into account seniors as beneficiaries of leisure time. This is a look at the elderly from a different point of view than the classic one - focusing on their active rather than passive side.

Keywords: silver industries, free time, aging society.

Category of the paper: Research paper.

1. Introduction

Population aging processes are global. According to numerous forecasts, the share of the elderly in the global population will increase dramatically in the coming years. As indicated by the World Social Report (2023), in 2021 1 in 10 people was 65+, whereas in 2050 it will be 1 in 6 people. In this context, it is difficult to disagree with Walker (2010, p. 589) that *aging in good health should constitute the basis for using the potential and competences of seniors, and their presence in social life should be treated as a gain, not a loss*. Active aging slows down the unfavourable processes of weakening physical and intellectual functions and, consequently, brings benefits to both the individual and the entire society. It maintains the independence of seniors, which significantly reduces health care expenses, and – more importantly – promotes continued professional activity, having a positive impact on the state budget. The higher level of financial resources of older people, in turn, reduces social care expenses and influences the creation of demand for specific products and services.

The issue of solving the problems of aging societies has been of such importance that the World Health Organization announced the years 2020-2030 as the *Decade of Healthy Aging*. Public activities must take into account the growing number of older people to a wide extent, thus it seems crucial to look into the sphere of free time as an important research field. Recognising it gives rise to effective action in the following two aspects:

- using seniors' free time to stimulate the labour market and the production of leisure time industries,
- meeting the needs of older people and maintaining their physical and social activity.

The aim of the article is to assess selected conditions for the development of silver leisure industries in European Union countries.

2. Literature review

According to the adopted definitions, the silver economy is a combination of all types of economic activities (production, consumption, trade, services) which meet the needs of people aged 50 and over, both professionally active or retired, having various needs, possibilities and expectations (Enste, Naegele, Leve, 2008; Urbaniak, 2016; Zsarnoczky, 2018 and others).

Every segment of the economy has the possibility to adapt production and services to the needs of older people, including their free time. The potential of the dynamically growing and diversifying segment of older consumers is significant. Estimates indicate that the value of the European silver economy will increase to PLN 6.4 trillion in 2025 (compared to 4.2 in 2015), and the number of jobs to 88 million (77 in 2015) (Baszczak et al., 2021).

In the literature on the subject, free time is currently considered an attribute of modern societies, which is an “object” and a good having the same significance as other goods (Baudrillard, 2006). It determines the social status and identity of individuals, and at the same time, the way of managing free time determines the cultural capital of the individual and their social group (Coleman, Iso-Ahola, 1993). Free time resources stimulate the need for their consumptive or non-consumptive use, which has a real influence on the economy in financial and social terms. To explain this social phenomenon, the category of “leisure industry” is used, covering branches of the economy related to entertainment, recreation, tourism and lifestyle. This concept has become crucial for describing the new “economy of emotions and impressions” (Pine, Gilmore, 1999; Andersson, 2007).

Free time is an interdisciplinary and multi-layered concept that encompasses a number of dimensions of the life of an individual and social groups (Bombol, Dąbrowska, 2003; Cunningham, 2016). It is part of the economy constantly growing in importance, referred to as the leisure time industry, which consists of products and services related to recreation, entertainment, sports and tourism (REST) (Kijak, Szarota, 2013).

The silver economy is an issue that is quite widely described in the literature, yet there is still a research gap in many areas. The available research results include, for example, general conditions for the development of the silver economy (European Union, 2015; Klimczuk, 2016; European Union, 2018), segmentation of the senior market (Nagusi Intelligence Center, 2018), the use of digital technologies by seniors (Nagusi Intelligence Center, 2021; Butt, Pappel, Draheim, 2023), service design within the silver economy (Erlenheim, Pappel, 2022), or active aging trends and policies (European Union, 2015; Tkalec, 2018; Maritati, Leonardini, 2020). Various approaches to the subject matter may be found in the literature, e.g. analyses conducted through the prism of different sectors of the silver economy, countries and regions, as well as through the prism of the specialties of the authors of given research. Nonetheless, research covering all EU countries, focused on the conditions for the development of silver leisure industries, undoubtedly complements existing analyses in the field of the silver economy.

3. Research method

The TOPSIS method (*Technique for Order Preference using Similar to Ideal Solution*), proposed by Hwang and Yoon in 1981, was used by the authors in order to analyse the research problem. Being one of the basic methods of linear ordering of patterns, it is based on the distances of the assessed objects from the model object and enables ranking the units from the best to the worst based on a synthetic measure (Dudek, Jefmański, 2015).

The TOPSIS procedure used in this work required several stages of action (Czerwińska-Kayzer, Florek, Stanisławska, 2013). The first stage was the selection of diagnostic features and the determination of their impact on the phenomenon under analysis. The Eurostat database was used, with the time range covering the years 2014 and 2020. Taking into account the substantive premises as well as the availability and completeness of data, eleven indicators were selected for analysis.

In the next stage, the variables were standardised – normalised using the zeroed unitarisation method, in accordance with the following formulas:

a) in the case of stimulants:

$$z_{ij} = \frac{x_{ij} - \min x_{ij}}{\max x_{ij} - \min x_{ij}} \quad (1)$$

b) in the case of destimulants:

$$z_{ij} = \frac{\max x_{ij} - x_{ij}}{\max x_{ij} - \min x_{ij}} \quad (2)$$

where:

z_{ij} – normalised value of the j -th variable in the i -th country,

x_{ij} – value of the j -th variable in the i -th country.

Further action included assessing the suitability of the considered potential variables using the Pearson correlation coefficient and the coefficient of variation, based on which three variables were eliminated from further analysis. The set of indicators selected for the study and their nature are presented in Table 1.

The research procedure also included determining the coordinates of the pattern and anti-pattern as well as calculating the (Euclidean) distance of objects from the reference values, based on the following formulas:

$$d_i^+ = \sqrt{\sum_{k=1}^m (z_{ik} - z_k^+)^2} \quad (3)$$

$$d_i^- = \sqrt{\sum_{k=1}^m (z_{ik} - z_k^-)^2} \quad (4)$$

The final stage of the study was to determine the value of the synthetic indicator for the i -th object, using the following formula:

$$q_i = \frac{d_i^-}{(d_i^+ + d_i^-)} \quad (5)$$

Table 1.*Set and nature of variables included in the study*

Indicator	Variable name	Variable type
POP 65+	Population of people aged 65+ (% of total population)	STIMULANT
NDOCH	Income inequality among older people (total income received by the 20% of the population with the highest income compared to the income received by the 20% of the population with the lowest income)	DESTIMULANT
DEPR	Material deprivation rate for people aged 65+ (% of population 65+ with forced inability to meet at least three out of nine basic needs)	DESTIMULANT
KOMP –	People aged 65+ who cannot afford a computer (% of households with 1 adult aged 65+)	DESTIMULANT
LZZ	Years of healthy life at the age of 65+ (number of remaining years that a person aged 65+ is expected to live in good health)	STIMULANT
WAS	Active aging index (index values in the range of 0-100; reflects the degree of utilisation of the potential of older people)	STYMULANTA
ZUWS	Indicator of risk of poverty or social exclusion for people aged 65+ (% of population 65+)	DESTIMULANT
INT –	People aged 65+ who cannot afford an Internet connection for personal use at home (% of population 65+)	DESTIMULANT

Note: Basic needs: paying for a 7-day holiday of all household members once a year; eating meat, fish (or vegetarian equivalent) every two days; heating the place of residence according to needs; covering an unexpected expense; timely payment of housing fees, repayment of instalments and loans; having a colour TV; owning a car; having a washing machine; having a telephone (Szamrej-Baran, 2016, p. 171).

Source: own elaboration.

The synthetic measure allowed the authors to develop a ranking of European Union countries ranging from the one with the best conditions for the development of the silver leisure industry to the country with the worst conditions for this development. Linear ordering and classification were made using the arithmetic mean and standard deviation of the values of the synthetic measure. The following four groups of countries have been distinguished:

1. Group I (very good conditions): $q_i \geq \bar{q} + S_q$
2. Group II (good conditions): $\bar{q} \leq q_i < \bar{q} + S_q$
3. Group III (poor conditions): $\bar{q} - S_q \leq q_i < \bar{q}$
4. Group IV (very poor conditions): $q_i < \bar{q} - S_q$

The study assumed that all features taken into account while calculating the synthetic measure and creating the country ranking are equivalent. The synthetic measure is intended to reflect the conditions for the development of silver leisure industries in various EU countries in the most sustainable way possible – such an assumption was made, for example, in the case of the Index of Economic Freedom established by The Heritage Foundation (Kim, 2023). This approach is a starting point for further research related to the assessment of the most important determinants of the development of this economic sector.

4. Research results

When assessing the development opportunities of silver leisure industries, the authors took into account financial, demographic and health conditions. The analysis covered 27 European Union countries in 2014 and 2020. The indicators adopted for the analysis (Table 1) determine the development of the silver leisure industry for the following reasons:

- they depict the demand side of the products and services market of this industry (POP 65+, DEPR, LZŻ, ZUWS, INT-),
- they determine the possibilities of financing various forms of activity (NDOCH, KOMP-, ZUWS, INT-)
- they facilitate the preparation of an offer of goods – quantity and quality (KOMP-, WAS, LZŻ, INT-),
- they make it possible to determine the development prospects of the examined economic sector (DEPR, KOMP-, WAS, ZUWS, INT-).

Initial information about the situation of EU countries in the area under analysis is provided by basic statistics:

1. the percentage of people aged 65 and over increased in 25 out of 27 countries; the value of this indicator in 2020 ranged from 13.1% in Luxembourg to 23.3% in Italy (the average for the analysed countries amounted to 19.3%);
2. the active aging index increased in 24 out of the 27 countries under analysis; the highest level of utilisation of the potential of older people was recorded in 2014 in Sweden, Denmark and the Netherlands (index value above 40); in 2018, Finland joined the above-mentioned countries; this indicator was not very diverse in the analysed countries – the average index in 2018 was 35.5, with higher values obtained in 12 countries and lower values in 15 countries;
3. in as many as 9 countries, the indicator showing the number of remaining years of healthy life for people aged 65+ decreased – the average value for EU countries was 8.6 in 2014 and 9 in 2020; in the case of this variable, there was strong variation within the examined population – in 2020, in countries such as Latvia, Slovakia and Croatia, the number of years of healthy life for seniors was less than 5, while in Sweden it was almost 16 years;
4. the indicator of risk of poverty or social exclusion for people aged 65+ increased in as many as 18 out of 27 countries, e.g. in Spain – from 12.9 to 20.5%, and in the Netherlands – from 6.9 to 12.2%; the average value of this indicator for all surveyed countries remained at the level of 21-22% in the analysed period; in both years under analysis, there was a strong variation in this variable – from 6-7% in Luxembourg to 35 and 42.5% in Estonia (Eurostat, 2023).

For all the examined variables, the greatest differences between the countries occurred in the case of the material deprivation rate (in 2020, 2.2% in Sweden and 48.3% in Bulgaria), the percentage of people aged 65+ who cannot afford a computer (in 2020 0.2% in Cyprus and 0.7% in Luxembourg compared to approximately 12.5% in Lithuania or Bulgaria) as well as the percentage of people aged 65+ who cannot afford an Internet connection (in 2020, 0.7% in Sweden and Cyprus compared to 39.2 % in Romania).

As shown in Tables 2 and 3, the average value of the synthetic measure increased in 2020 compared to 2014, yet this increase was insignificant. In both years, the group of countries with very good conditions for the development of the economic sector under analysis included five countries, i.e. Sweden, Denmark, the Netherlands and Finland both in 2014 and 2020, as well as Belgium in 2014 and France in 2020.

Table 2.

Distances of objects from patterns and anti-patterns and the synthetic measure of the conditions for the development of the silver leisure economy

Country	2014			2020		
	d ⁺	d ⁻	q	d ⁺	d ⁻	q
Belgium	0.9357	2.0334	0.6849	1.0218	1.9551	0.6568
Bulgaria	2.1954	1.0156	0.3163	2.2477	1.1270	0.3340
Czechia	1.1008	1.9621	0.6406	1.0864	2.0432	0.6529
Denmark	0.7930	2.2892	0.7427	0.6206	2.3357	0.7901
Germany	1.4669	1.6811	0.5340	1.0885	1.8583	0.6306
Estonia	1.6067	1.4547	0.4752	1.5665	1.5822	0.5025
Ireland	1.4231	1.8709	0.5680	1.2568	1.8957	0.6013
Greece	1.6522	1.5754	0.4881	1.5422	1.7080	0.5255
Spain	1.3563	1.8166	0.5725	1.3796	1.7662	0.5614
France	1.1828	1.9668	0.6245	0.8597	2.0901	0.7086
Croatia	1.7517	1.4864	0.4590	1.7799	1.4885	0.4554
Italy	1.3960	1.8685	0.5724	1.3748	1.9632	0.5881
Cyprus	1.7557	1.6579	0.4857	1.4833	1.8284	0.5521
Latvia	2.0774	1.0937	0.3449	2.0577	1.2740	0.3824
Lithuania	1.6924	1.3365	0.4412	1.9898	1.1921	0.3747
Luxembourg	1.1859	2.1955	0.6493	1.3734	2.0729	0.6015
Hungary	1.6956	1.4120	0.4544	1.7227	1.4215	0.4521
Malta	1.0668	1.8920	0.6394	1.1188	1.8715	0.6259
the Netherlands	0.8841	2.1873	0.7121	0.7678	2.2578	0.7462
Austria	1.2130	1.9329	0.6144	1.2349	1.9254	0.6092
Poland	1.5489	1.5212	0.4955	1.2962	1.8459	0.5875
Portugal	1.6379	1.5887	0.4924	1.7734	1.4869	0.4561
Romania	2.2398	0.7806	0.2584	2.1484	0.8795	0.2905
Slovenia	1.4777	1.5464	0.5114	1.3273	1.7380	0.5670
Slovakia	1.7588	1.6208	0.4796	1.5073	1.7878	0.5426
Finland	0.9611	2.0183	0.6774	0.8381	2.1582	0.7203
Sweden	0.5878	2.5109	0.8103	0.5310	2.5031	0.8250

Source: own calculations.

Furthermore, Sweden is a country with very high quality of life for seniors. In relation to people aged 65+, this country is characterised by the following: 1) the highest healthy life years among EU countries (15.9 in 2020, compared to the average of 9 for the EU), 2) a very low material deprivation rate (2.2%, i.e. the second lowest in the EU in 2020, after Luxembourg)

resulting from, among other things, relatively high professional activity in early old age, and 3) much lower indicator of risk of poverty or social exclusion than the EU average (15.5% in 2020 compared to 22.4% for the EU). In other countries with very good conditions for the development of silver leisure industries, in 2020, the years of healthy life of people aged 65+ also exceeded the EU average, the material deprivation rate was in the range of up to 7% (the EU average was 13.3%), and the indicator of risk of poverty or social exclusion was much lower than the EU average (10-15.5%).

Table 3.

Classification and ranking of EU countries according to the value of the synthetic measure of conditions for the development of silver leisure industries (descending order)

Group of countries	Synthetic measure in 2014			Synthetic measure in 2020		
	Value range	Ranking		Value range	Ranking	
		Country	q		Country	q
I (very good conditions)	≥ 0.6737	Sweden Denmark Netherlands Belgium Finland	0.8103 0.7427 0.7121 0.6849 0.6774	≥ 0.6996	Sweden Denmark Netherlands Finland France	0.8250 0.7901 0.7462 0.7203 0.7086
II (good conditions)	0.5461-0.6737	Luxembourg Czechia Malta France Austria Spain Italy Ireland	0.6493 0.6406 0.6394 0.6245 0.6144 0.5725 0.5724 0.5680	0.5682-0.6996	Belgium Czechia Germany Malta Austria Luxembourg Ireland Italy Poland	0.6568 0.6529 0.6306 0.6259 0.6092 0.6015 0.6013 0.5881 0.5875
III (poor conditions)	0.4185-0.5461	Germany Slovenia Poland Portugal Greece Cyprus Slovakia Estonia Croatia Hungary Lithuania	0.5340 0.5114 0.4955 0.4924 0.4881 0.4857 0.4796 0.4752 0.4590 0.4544 0.4412	0.4368-0.5682	Slovenia Spain Cyprus Slovakia Greece Estonia Portugal Croatia Hungary	0.5670 0.5614 0.5521 0.5426 0.5255 0.5025 0.4561 0.4554 0.4521
IV (very poor conditions)	< 0.4185	Latvia Bulgaria Romania	0.3449 0.3163 0.2584	< 0.4368	Latvia Lithuania Bulgaria Romania	0.3824 0.3747 0.3340 0.2905
Average measure value q		0.5461			0.5682	

Source: own calculations.

In the countries belonging to the first group, there are very good conditions for the development of silver leisure industries due to: the favourable financial situation of seniors, their senior policy (e.g. in Sweden, the availability of various benefits and services is independent of the senior's status), the expected years of healthy life, high professional activity and free time activity. According to research conducted by Bąk (2020), in 2017, the share of

the population aged 65+ in tourist trips in the age group under analysis was: 67.7% in Sweden, 62.4 % in Denmark, 74.8% in the Netherlands (the highest value), 73.4% in Finland and 64.4% in France. For comparison, in countries with very poor conditions for the development of silver leisure industries, this indicator amounted to: 12.3% in Romania, 14.4% in Bulgaria, 23.6% in Lithuania and 26.8% in Latvia. These results confirm the relationship between the examined indicators and active spending of free time by seniors.

Romania, Bulgaria, Lithuania and Latvia belong to the group of countries with very poor conditions for the development of silver leisure industries. The material deprivation rate for people aged 65+ in all these countries decreased during the period under analysis, yet was still very high in 2020: in Bulgaria – 48.3%, in Romania – 30.6%, in Lithuania – 26.3%, and in Latvia – 20.10 (compared to 2.0% in Sweden). Indicators such as years of healthy life at the age of 65+ or the risk of poverty or social exclusion for people in this age group differed significantly in 2020 from the EU averages. Another problem in these countries was the high percentage of seniors aged 65+ who could not afford a computer (10-13%) or an Internet connection (39% in Romania in 2020 compared to 0.7% in Sweden and Luxembourg; 16.5% in Bulgaria). The above-presented characteristics of the countries from the fourth group indicate serious limitations to the development of silver leisure industries. Many products and services of this economic sector require not only adequate financial support but also the use of new technologies, the availability of which is very limited. According to research by Abramowska-Kmon et al. (2020), conducted for 11 countries in Central and Eastern Europe, the need to work in order to ensure adequate income concerned almost 91% of people aged 50-69 who retired in Romania; in the subjective assessment of the financial situation of people aged 65+, seniors from Romania (40%), Bulgaria (38%) and Latvia (29.1%) most often indicated great difficulties in “making ends meet”; the highest percentage of older people feeling that they cannot do many things due to lack of money was in Lithuania (43.6%); the percentage of people over 65 years of age participating in sports and/or cultural events was 12.2% in Romania, and only 5% for people aged 75+ in Romania and Bulgaria; the percentage of people aged 65+ active in tourism was the lowest in Romania and Bulgaria, amounting to less than 15%; the highest percentage of people aged 55-74 who did not use a computer was noted, among others, in Romania and Bulgaria; the use of Internet services among people aged 55-74 in these countries concerned only 2% of the population.

5. Conclusions

Changes in the features (indicators) characterising the community of people aged 65 and over constitute a major challenge for the silver economy, including the leisure industries. Based on the research results, it is not possible to conclude about a decisive positive trend in

changing the development conditions of the silver leisure industries in the EU countries, yet the authors have managed to make several observations.

1. Determining the directions of development of the analysed economic sector must take into account the growing market of potential buyers, paying particular attention to changes in the health of the elderly as well as their changing and diversified preferences for spending free time; the cultural paradigm of aging in Europe is changing. However, it should be noted that changes in seniors' consumption trends are quite difficult to estimate.
2. The development of silver leisure industries may be an opportunity for many European and global companies, but their offer must take into account the heterogeneity of the group of older people and the diversity of the silver economy among countries. The conditions for functioning in this sector depend on the specificity of the market in a given country, the level of seniors' quality of life, the functioning of the health care system as well as social policy. For example, by 2025, the Romanian silver economy is expected to grow the fastest among EU countries as its public sector is growing faster than its private sector (European Union, 2018). In countries with worse conditions for the development of silver leisure industries (e.g. Romania and Bulgaria), public consumption will play a greater role, while in countries with good or very good conditions (e.g. Scandinavian countries), private consumption will be crucial. Public sector subsidies equalise the opportunities of citizens of EU countries for active aging.
3. Effective development of the market for products and services related to seniors' free time requires, first of all, the inclusion of older people in their design, taking into account the safety of this group of consumers, and the creation of innovative, functional and non-stigmatising goods. It is worth paying more attention to social innovations, not just technological ones.
4. In countries with very good conditions for the development of silver leisure industries, seniors are expected to be interested in such market areas as: cognitive training games (improving memory), personalised medicine, robotics, silver tourism, universities of the third age, training and courses in digital technologies, or devices facilitating mobility (leisure in the surroundings of nature). In countries with very poor conditions, first of all, seniors should be provided with products and services that facilitate mobility (e.g. transport) and communication (computer devices, telephones, the Internet). In the case of such countries, the market for goods related to free time requires providing financial, health and social security of seniors in the first place.
5. The study indicates that a higher level of development of a given country has a positive impact on the development of silver leisure industries, while countries with a lower level of development have fewer opportunities in this area.

In view of the above, there is a need for further research, primarily related to:

- adaptation of silver industry products and services to different age categories of seniors, due to their different health conditions and preferences,
- the directions of senior policies and their effectiveness,
- determinants of the development of silver leisure industries, taking into account a broader set of indicators explaining the socio-economic situation of seniors.

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Appendix

Table 1.
Set and nature of variables included in the study

Indicator	Variable name	Variable type
POP 65+	Population of people aged 65+ (% of total population)	STIMULANT
NDOCH	Income inequality among older people (total income received by the 20% of the population with the highest income compared to the income received by the 20% of the population with the lowest income)	DESTIMULANT
DEPR	Material deprivation rate for people aged 65+ (% of population 65+ with forced inability to meet at least three out of nine basic needs)	DESTIMULANT
KOMP –	People aged 65+ who cannot afford a computer (% of households with 1 adult aged 65+)	DESTIMULANT
LZZ	Years of healthy life at the age of 65+ (number of remaining years that a person aged 65+ is expected to live in good health)	STIMULANT
WAS	Active aging index (index values in the range of 0-100; reflects the degree of utilisation of the potential of older people)	STYMULANTA
ZUWS	Indicator of risk of poverty or social exclusion for people aged 65+ (% of population 65+)	DESTIMULANT
INT –	People aged 65+ who cannot afford an Internet connection for personal use at home (% of population 65+)	DESTIMULANT

Note: Basic needs: paying for a 7-day holiday of all household members once a year; eating meat, fish (or vegetarian equivalent) every two days; heating the place of residence according to needs; covering an unexpected expense; timely payment of housing fees, repayment of instalments and loans; having a colour TV; owning a car; having a washing machine; having a telephone (Szamrej-Baran, 2016, p. 171).

Source: own elaboration.

Table 2.
Distances of objects from patterns and anti-patterns and the synthetic measure of the conditions for the development of the silver leisure economy

Country	2014			2020		
	d ⁺	d ⁻	q	d ⁺	d ⁻	q
Belgium	0.9357	2.0334	0.6849	1.0218	1.9551	0.6568
Bulgaria	2.1954	1.0156	0.3163	2.2477	1.1270	0.3340
Czechia	1.1008	1.9621	0.6406	1.0864	2.0432	0.6529
Denmark	0.7930	2.2892	0.7427	0.6206	2.3357	0.7901
Germany	1.4669	1.6811	0.5340	1.0885	1.8583	0.6306
Estonia	1.6067	1.4547	0.4752	1.5665	1.5822	0.5025
Ireland	1.4231	1.8709	0.5680	1.2568	1.8957	0.6013
Greece	1.6522	1.5754	0.4881	1.5422	1.7080	0.5255
Spain	1.3563	1.8166	0.5725	1.3796	1.7662	0.5614
France	1.1828	1.9668	0.6245	0.8597	2.0901	0.7086
Croatia	1.7517	1.4864	0.4590	1.7799	1.4885	0.4554
Italy	1.3960	1.8685	0.5724	1.3748	1.9632	0.5881
Cyprus	1.7557	1.6579	0.4857	1.4833	1.8284	0.5521
Latvia	2.0774	1.0937	0.3449	2.0577	1.2740	0.3824
Lithuania	1.6924	1.3365	0.4412	1.9898	1.1921	0.3747
Luxembourg	1.1859	2.1955	0.6493	1.3734	2.0729	0.6015
Hungary	1.6956	1.4120	0.4544	1.7227	1.4215	0.4521
Malta	1.0668	1.8920	0.6394	1.1188	1.8715	0.6259

the Netherlands	0.8841	2.1873	0.7121	0.7678	2.2578	0.7462
Austria	1.2130	1.9329	0.6144	1.2349	1.9254	0.6092
Poland	1.5489	1.5212	0.4955	1.2962	1.8459	0.5875
Portugal	1.6379	1.5887	0.4924	1.7734	1.4869	0.4561
Romania	2.2398	0.7806	0.2584	2.1484	0.8795	0.2905
Slovenia	1.4777	1.5464	0.5114	1.3273	1.7380	0.5670
Slovakia	1.7588	1.6208	0.4796	1.5073	1.7878	0.5426
Finland	0.9611	2.0183	0.6774	0.8381	2.1582	0.7203
Sweden	0.5878	2.5109	0.8103	0.5310	2.5031	0.8250

Source: own calculations.

Table 3.

Classification and ranking of EU countries according to the value of the synthetic measure of conditions for the development of silver leisure industries (descending order)

Group of countries	Synthetic measure in 2014			Synthetic measure in 2020		
	Value range	Ranking		Value range	Ranking	
		Country	q		Country	q
I (very good conditions)	≥ 0.6737	Sweden Denmark Netherlands Belgium Finland	0.8103 0.7427 0.7121 0.6849 0.6774	≥ 0.6996	Sweden Denmark Netherlands Finland France	0.8250 0.7901 0.7462 0.7203 0.7086
II (good conditions)	0.5461-0.6737	Luxembourg Czechia Malta France Austria Spain Italy Ireland	0.6493 0.6406 0.6394 0.6245 0.6144 0.5725 0.5724 0.5680	0.5682-0.6996	Belgium Czechia Germany Malta Austria Luxembourg Ireland Italy Poland	0.6568 0.6529 0.6306 0.6259 0.6092 0.6015 0.6013 0.5881 0.5875
III (poor conditions)	0.4185-0.5461	Germany Slovenia Poland Portugal Greece Cyprus Slovakia Estonia Croatia Hungary Lithuania	0.5340 0.5114 0.4955 0.4924 0.4881 0.4857 0.4796 0.4752 0.4590 0.4544 0.4412	0.4368-0.5682	Slovenia Spain Cyprus Slovakia Greece Estonia Portugal Croatia Hungary	0.5670 0.5614 0.5521 0.5426 0.5255 0.5025 0.4561 0.4554 0.4521
IV (very poor conditions)	< 0.4185	Latvia Bulgaria Romania	0.3449 0.3163 0.2584	< 0.4368	Latvia Lithuania Bulgaria Romania	0.3824 0.3747 0.3340 0.2905
Average measure value q		0.5461			0.5682	

Source: own calculations.

A PROCESS ASSESSMENT OF IMPROVING WORK SAFETY IN THE ASPECT OF PROACTIVE APPROACH IMPLEMENTATION

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Purpose: The aim of this paper is to conduct a discussion on the relationship between the proactive approach of employees and the elements of the system for improving occupational safety.

Design/methodology/approach: In this article, the author presents the importance and impact of an employee's proactive attitude in improving workplace safety.

Findings: The paper describes the impact of standardization and process approaches on occupational safety management, as well as the importance of a proactive attitude in improving occupational safety. Based on the results of the study and its analysis, the following conclusions can be made: efficiently functioning work safety management system positively influences over general work safety and hygiene status of a company; employee involvement treated as a proactive approach in a safety system creation from the level of being familiarised with own relation in the context of the entire organization is a roadmap to creating mutual responsibility for overall safety; a proactive strategy should be the foundation of modern work safety management in the organization.

Originality/value: The author of this publication analyzes the scientific literature and current research of his own in evaluating the process of improving occupational safety in terms of the implementation of a proactive attitude, focusing on the key areas of the subject of research, which consist of a proactive attitude, elements of the system of improving occupational safety, and the impact of standardization and process approach on occupational safety management.

Keywords: work safety development, processing approach, proactive approach.

Category of the paper: Research paper.

1. Introduction

Companies are constantly struggling with finding exact solutions whose aim will be improvement of functioning particular fields. The goal they have is to increase their effectiveness and reduce own expenses. Modern companies apply a systemic attitude to improving processes, work safety and hygiene management included (Gajdzik, 2010).

One of organization's feature as a system is a capability to develop itself. Such a company's approach to management lets increase its performance, organizational extent and technological, organizational and social innovation implementation. In turn, to ensure an efficient management in the scope of work safety and employee health, improving actions are crucial. (Zieja, Gołda, 2014; Yazdi et al., 2020). To make the company be managed in a proper and efficient manner in the safety area, it is essential to have a regular control and assessment of widely perceived hazards (Alli, 2017). Employee safety management efficiency assessment requires not only monitoring implemented and conducted actions realization, but their assessment in terms of accepted goals concerning safety in the organization (Couto da Silva, Amaral, 2019). When analyzing and evaluating the safety management area, it is important to consider the HSE management system measures taken, their results, and the occupational risk assessment (Zio, 2018; Fatih et al., 2022).

Systemic approach to safety management and hygienic work establishes one of steps of a developmental attitude to the problem of work safety. According to the authors of the literature (Ben Eli, 2018; Liu, 2019), the management of this area should be characterized by a systems approach in its management and proactive measures. The goal of a safety management system should be to help an organization control and minimize health hazards to workers in their environment (Li, Guldenmund, 2018). Moreover, a safe workplace management in a company is based on the foundation that risk-free employee behavior and work conditions are not created intrinsically, but those are their result of an earlier compiled and implemented agenda. Hence it is taken into consideration that a proactive approach plays an important role (individually and as the whole company) in an efficient safety management in the organization.

The reason why this article has appeared is to conduct a discussion on the relationship between the proactive approach of employees and the elements of the system for improving occupational safety. To accomplish the aim, the author applied an individual in-depth interview method which was conducted on a group of 78 Occupational Health and Safety (OHS) service employees in different production companies in Poland. Obtained results were analysed and findings were used to further research on a proactive approach.

2. Subject literature overview

Providing employees with safe work conditions is an elementary responsibility for an employer and one of the most important elements in a modern management of a company (Lis, Małysa, 2021). Moreover, work safety has an impact on companies' outcomes (Odzimek, 2019), and at the same time it is a legislative and social duty. Changes which happen in companies are dynamic, and simultaneously, they tend to be potentially more hazardous.

Work safety in the literature is defined as an activity which intends to secure an employee in case of accidents, eventually hazards, at work (Hansen et al., 1998) and diseases, especially profession-related diseases (Hanke, Szeszenia-Dąbrowska, Szymczak, 2002). The activity that relates to work safety is realized by applying various organizational and technical means, and, as well, shaping safe human behaviors at workplace (Górny, 2017). Each of above-mentioned activities should specify a type and intensification of potential hazards that may happen.

The primary goal of occupational safety management is to improve working conditions and human health in the workplace, as well as to prevent the emergence and presence of in the work environment of factors that may cause danger (Battaglia, Passetti, Frey, 2015). L.F. Korzeniowski (2012) deems that safety management is understood as minimization or elimination of danger through deliberate, regulative human actions. According to few approaches it is emphasized that safety management refers to life-related dangers and individual or group hazards including risk management. However, M.B. Weinstein (1997) indicates another approach to the management of work safety and employee health in the organization. In one of his publications, one differentiates four levels of safety and work hygiene management (Table 1) in terms of individual organization's attitude to work safety and employee's health protection.

Table 1.

Levels of safety and work hygiene management in a company

Level	"To do" motivation	Types of actions	Achieved results in the OHS field
I	Anxiety	Passive	Not full compatibility, results worse than average
II	Punishment	Reactive	According to the law, no improvement, average result
III	Prize	Active (understanding and trust)	Correct behaviour, results better than average
IV	Intrinsic motivation	Proactive (passion and involvement)	Constant improvement, leadership, brilliant results

Source: own compilation based on: Weinstein, 1997.

Work safety management related to first (I) and second (II) level refers to a traditional or reactive approach, but an approach related to III and IV level is treated as a systemic and proactive. Two last levels are related with implementing a particular system of resource management, actions and processes directed to a constant improvement of work safety and employee health protection.

Currently, in forming an approach to work safety management there are two basic types (Chomałowska, 2011; Pawłowska, Pęciłło, 2018):

- traditional approach – up to the mid-1990s 20th century, it was mainly based on taking up necessary actions to fulfill legislative requirements concerning work safety and hygiene, correlated with reactive actions,

- systemic approach to work safety and hygiene - since the mid-1990, 20th century; actions are based on building a work safety and employee's health management system which is integrated with a general management system of a company; supported with proactive actions.

Many standards (documents) concerning various aspects of management in the scope of quality, environment, work safety in a company commonly function (Ejdys, Kobylińska, Lulewicz-Sas, 2012; Łańcucki, 2016). It is spread that those ones are defined as standardized management systems (Borys, Rogala, 2012; Łańcucki, 2019). Standardized management systems are one of tools which may be used in the management process in the organization, including safety and employee health. According to research, adjustment of work safety management systems to requirements based on norms concerning those systems influences on improving processes of safety and work hygiene management and obtained results in that field (Pawłowska, 2009; Podgórski, 2010).

Standardization is one of elementary rules of Lean manufacturing¹. Thanks to it, there is an easier observation of processes that can be measured, show divergence and reveal problems. Standardization used as a work organization method enabling to implement developmental changes, is a dynamic process. Standardization makes sense only on a balance of constant development and as a tool for building stability (Wang, 2011). It is based on implementing unitary work standards which constitute a reference point for all processes in a company. Standards implementation is a part of dynamic process of positive changes. Deficiency of standardization means fluctuations in terms of efficiency level, but also other crucial fields for a company. Such a situation may change itself depending on a workday, changes in a work organization or an individual employee.

A long-anticipated standard, and the first normalized, is an implemented ISO 45001:2018 norm from March 2018. This standard was compiled with the support of International Work Organization and domestic requirements. It contains guidelines how to apply it, which enables the organization to improve results in the scope of work safety. ISO 45001:2018 can be used in every organization irrespectively how big, which type and characteristics it is. The norm has a similar structure with earlier published norms concerning, among others, quality management system and environment management system. Integration between a safety and work hygiene management system and an organization management system becomes easier. The basic rule how ISO 45001:2018 works is a PDCA cycle. The norm aim is supporting and promoting good practical solutions and standards in the field of work safety keeping a balance with economical needs.

¹ Lean manufacturing, lean production is a concept of production process management which developed based on rules and tools of Toyota production system (TPS) (Liker, 2005; Marchwiński, Shook, Schroeder, 2010).

3. Processing approach in work safety management

To improve functioning modern companies, it is essential to conduct it based on rules and business processes management culture (Lis, Ptak, 2022). As J. Górna and others (Górna, Kaźmierczak, Zapłata, 2021), emphasize that the management in the organization, independently from a business profile, is integrated with a process. A processing management, on one hand, is based on classical solutions and authorized methods, and, on the other hand, it applies new tools and solutions. (Bitkowska, 2021). Consequently, it leads to higher possibilities of how a company functioning is improved through information transfer enhancement, increasing performed actions quality and a work safety level.

S. Stabryła (2010) in one of publications emphasizes that processing approach is not anything new, and its genesis connects with a classical approach of systemic and empirical management school. However, A. Bitkowska (2019) deems that further steps of development based on its understanding and process organizing. Then, processing approach, processing management through dynamic processing management, leading to integrated processing system (Figure 1).



Figure 1. Phases of processing management development.

Source: own compilation based on: Bitkowska, 2019.

In the processing management evolution, there was a foundation that an organization structure is created by many, closely related processes that are interpreted as basic dynamic subsystems of the organization (Bitkowska, Weiss, 2015). It is indicated that complex quality management (TQM), which is the core of orientation towards processes. Specification and guidelines of the above orientation were mentioned in international 9001 ISO. Requirements for the quality management system based on processing approach were mentioned there. Apart from TQM, there are other ways of quality management which refer to processing approach - six sigma and lean management. Their common goal is to develop the organization directly by enhancing operational processes aimed at product quality and waste curbing (Rogala, Bartniczak, 2018).

In the field of safety management, a process in the sense of ISO 45001:2018, is an organizational process or a management process. This process can encompass, by its range, every sequence of actions which are performed in the company. It includes both actions with material products processing (production processes) and not directly correlated ones with making products or services - non-production processes (Pawłowska, Pećiło, 2018). Authors (Bugdol, Szczepańska, 2016; Jelonek, 2022; Lis, Ptak, 2022) consistently emphasize that processing approach implementation is multi-phase like developmental processes in the

organization and it is continuous. Benefits coming from actions directed to achieving higher and higher levels of processing maturity are spotted both from internal stakeholders' perspective and external ones (Jelonek, 2022).

Delving into the organization through the lens of conducted processes and mutual connections and interactions, and not from the perspective of organization structure, establishes the core of processing management. Processing approach implementation in the field of OHS management should result in (Pęciłło-Pacek, Galwas-Grześkiewicz, 2022):

- better understanding among all employees and individuals who cooperate with the organization how work safety and hygiene management system functions,
- decreasing functional and hierarchical barriers, including communication and cooperation improvement in the scope of work safety and hygiene,
- employee involvement increases to correct safety and health at work.

In a management of processes, it is very fundamental to establish responsibility for particular processes conduct and carrying out featured phases of processing management. This is a guaranty how to achieve established goals of the organization. Moreover, exact recognition and understanding particular processes lets them improve and constantly develop in the organization. Efficiency of a functioning company and a customer satisfaction get increased.

4. Proactive approach in work safety development

Modern attitude to work safety and employee health management should characterize a systemic approach in its management and proactive actions (Kubasiński, 2022). A crucial role in promoting and implementing work safety management systems plays ISO 45001:2018, which includes requirements, guidelines concerning how it is applied to make the organization proactive improvement of results in terms of OHS. Involvement and a role of individuals not having executive positions, according to ISO 45001:2018, are considered to be an elementary condition of effective work safety management system in a company functioning. In view of this, employee engagement is something that management should constantly work on and take care of (Sonnentag, 2003; Devi, 2009).

A proactive approach results from the accepted safety strategy in the organization. Proactive organization is the organization which puts emphasis on long-term strategic planning. Organizations whose aim is to be proactive gain vast benefits, both business ones and in terms of coping with potential problems in the field of work safety. A strategic attitude to work safety management is not only correlated with a company adjustment to requirements that are set by legislative regulations and normative acts. According to the researchers (Woźny, Dobosz, Saja,

2018), such an approach is a kind of management philosophy on the basis of directed actions are conducted to achieve accurately thoughtful goals based on safety.

Proactivity may be considered on an individual, team and organizational level (Parker, Williams, Turner, 2006). In a proactive approach, on a par with a proactive strategy of an organization, a special role plays an employee. A. Adamik and M. Matejun (2012, p. 48) pay attention to „(...) in every approach to the organization, the most important factor is a human factor, without people organizations would not exist at all people create them”.

A. Bańka (2015) deems that proactivity is a conscious beginning of the action without particular intention achieving potential goal at given moment. Proactive approach may be understood as both open sharing with your ideas, engaging in a position development, and implementation of innovative changes in the field of the whole venture (Ślebarska, 2017). According to M. Crant and S. Bateman (2000), what characterizes people with a high level of proactive attitude is their ability to see and seize opportunities that come their way, as well as to take initiative and strive to change the environment in which they find themselves. Proactive approach is characterized by specific involvement in particular actions which every individual is responsible for and striving for implementing positive changes which every individual is responsible for as well (Paliwal, 2018; Peñafior, Juevesa, 2021).

Modern companies need involved, proactive employees for its development who will identify themselves with it and treat it as their own (Anitha, 2014; Sasin, 2018). Individuals with proactive attributes are valuable resource for the organization. They initiate changes in a company, predict some events in the environment they function every day and even offer solutions. Therefore, an important element in shaping the proactive attitude of employees in an organization is their motivation. According to R.W. Griffin (2005), motivation is a set of forces that cause people to behave in a certain way. In turn, J. Sadowska-Wrzesińska and Ź. Nejman (2016) state that motivation significantly influences attitudes and behavior among employees through the use of specific, correctly identified and selected incentives.

5. Methodology

The interview was addressed to the OHS service employees of production companies (various branches) in Poland. To carry out the survey an in-depth interview (IDI²) method was used. Research was carried out among 78 individuals from June 2020 to March 2023. If a company employed more than one OHS specialist, the interview was carried out with only one specialist. In such a case, a person was selected in a randomized way. The basic goal for

² IDI - Individual In-depth Interview, in comparison with focus interviews (FGI - Focus Group Interview), are reduced to a direct conversation between an interviewer and an interviewee. In such an interview there are no third party.

the interview was gaining necessary information to assess efficiency of actions that improve work safety and identify proactive indicators. The structure of interviewees was presented in Table 2.

Table 2.
Respondent's features in the interview

Characteristics		Company			
		Distribution		Total	
		N	%	N	%
Company size	Small	21	27	21	27
	Medium	45	58	45	58
	Large	12	15	12	15
Characteristics of a company	Processing	56	72	56	72
	Machining	12	15	12	15
	Assembly	7	9	7	9
	Others	3	4	3	4
Interviewee's response	Operational level	12	16	12	16
	Tactical level	59	75	59	75
	Strategic level	7	9	7	9

Source: own compilation.

Significant majority gained results come from processing companies and it was 72% of all companies in the research (Figure 2).

Characteristics of a company

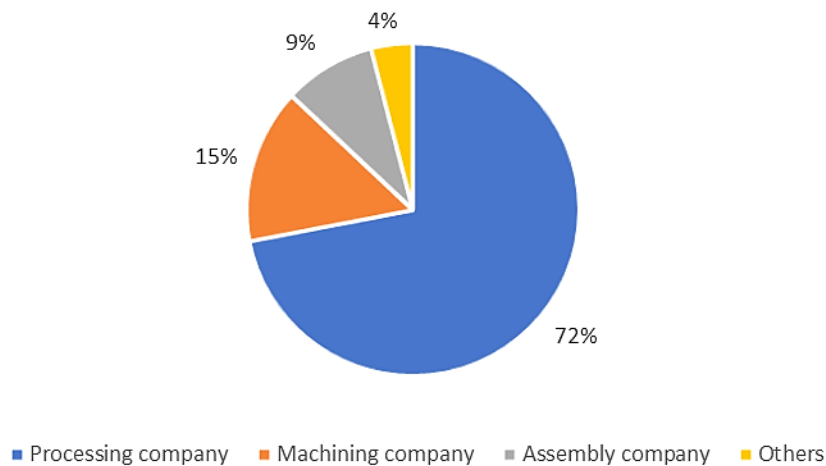


Figure 2. Percentage distribution of companies participating in the research by nature of activity.

Source: own compilation.

An interview questionnaire was designed by an author and consisted of 7 fundamental questions (deliberately selected and set in a specific order). Interviewees (OHS service employees) were answering the following questions:

1. Which extent of planned effort into investment as part of actions improving work safety was realized?
2. Which extent of participation in realization of implemented improving actions did employees have?
3. What are the dynamics of employee reporting concerning improving actions?
4. What is the number of reported improving actions in terms of particular periods?
5. Was feedback about conducted improving actions provided to employees?
6. Are implemented improving actions modified with an active participation of a notifier?
7. Have conducted improving actions brought expected results?

Moreover, in a questionnaire there were two questions which are short respondent's particulars. Questions were about the characteristics of a company, an interviewee's work position and the identification which level of a company hierarchy an employee represents. Question content and obtained results were presented in Table 3, chapter: Results and discussion.

6. Results and discussion

In a Table 3 there is a specific characteristic of findings (answers to the questions) in terms of conducted research.

Table 3.
Characteristics of findings (answers to the questions)

Question	Response distribution		
	Answers	N	%
1. Which extent of planned effort into investment as part of actions improving work safety was realized?	Little	20	25,6
	Medium	31	39,7
	Huge	27	34,6
2. Which extent of participation in realization of implemented improving actions did employees have?	Little	14	17,9
	Medium	33	42,3
	Huge	31	39,7
3. What is the dynamics of employee reporting concerning improving actions?	Decreasing	8	10,3
	Constant	44	56,4
	Increasing	26	33,3
4. What is the number of reported improving actions in terms of particular periods?	Decreasing	12	15,4
	Constant	35	44,9
	Increasing	27	34,6
5. Was a feedback about conducted improving actions provided to employees?	Yes	71	92,2
	No	7	7,8
6. Are implemented improving actions modified with an active participation of a notifier?	Yes	44	56,4
	No	34	43,6
7. Have conducted improving actions brought expected results?	No gains	5	6,4
	Little gain	23	29,5
	Noticeable gains	50	64,1

Source: own compilation.

Question 1: *Which extent of planned effort into investment as part of actions improving work safety was realized?*

The first question was about the realization extent of efforts which were accepted in a company in terms of improving actions. 40% of interviewees answered that effort realization is on a medium level, and 35% of interviewees said that it is on a high level. On the basis of these responses, it is confirmed that management in particular companies have a proper attitude to shaping work safety conditions. Doubtlessly, such a situation leads to a higher interest in safety from employees and their personal involvement, for example, notifying improving actions proposals.

Question 2: *Which extent of participation in realization of implemented improving actions did employees have?*

A question was about the employee participation extent in conducted improving actions in a company. According to obtained answers, it is confirmed that participation extent is medium or huge and it is 42,3% and 39,7%. Only in 17 cases the participation level was little. It is emphasized that low-level employee participation in a realization of implemented improving actions is one of the motivational factors to personal involvement in safety conditions improvement. It is put emphasis on that if employee participation in improving action realization is high or medium, it results in action effectiveness. In turn, if the employed participation is low, safety management is on a low lever as well, for example, it encompasses only reactive actions.

Question 3: *What is the dynamics of employee reporting concerning improving actions?*

A question was about dynamics of employee reporting in the field of improving actions, which were accepted in a company. 56,4% of interviewees said that in their company's employee reporting is constant, and in every third - increasing. This result depicts many contributing factors, but the reason why it happens is correlated with internal employee programs "active employee" integrated with a rewarding system. It should be emphasized that with exact work safety management, reporting dynamics should be increasing.

Question 4: *What is the number of reported improving actions in terms of particular periods?*

Next question in a questionnaire was about shaping the number of improving actions in terms of particular periods. In this question, periods were not specified. Every company has its own reporting system. It is important that every company has reliable information-decision system which supports making decisions. 44,9% interviewees confirmed that the number of notified improving actions is constant, and 34,6% said - increasing. Obtained results are correlated with answers in a previous question (reporting dynamics) which may suggest that in particular companies a well-developed and obeyed motivational system and tools enhancing engagement result in the number and dynamics of notifications.

Question 5: *Was a feedback about conducted improving actions provided to employees?*

A question was about providing employees with feedback concerning conducted improving actions by a company. The possible answers were "yes" or "no". 90% interviewees said that feedback is provided. The result means that feedback is a key element in a work safety management, and the issue of employee safety is important for a company.

Question 6: *Are implemented improving actions modified with an active participation of a notifier?*

The sixth question was about active employee participation reporting non-compliances as part implemented actions in a company. 56,4% interviewees said "yes", and 43,6% interviewees said "no". It is emphasised that making an employee participate in particular phases of conducted improving actions realization is a motivational factor to personal involvement in improving safety conditions. It is noticeable when there is increased frequency of signaled non-compliances being at work or willing to share ideas in terms of problem solutions.

Question 7: *Have conducted improving actions brought expected results?*

The last question was about expected results in the scope of conducted improving actions. Over 60% interviewees indicated that conducted actions brought expected results. About 10% interviewees said that they did not bring any. In every third company 29,5% conducted actions brought expected results to a minor extent. These answers may be caused by many factors. Interviewees answering this question paid attention to the economic situation, incurring costs for accepted solutions and transferring funds concerning safety into current investment realization.

7. Results and discussion

The purpose of the article was to discuss the relationship between the proactive attitude of employees and the elements of the occupational safety improvement system. To achieve the goal, an author applied individual in-depth interview method, which was carried out on a group of 78 OHS service employees. The aim of a conducted interview was obtaining necessary information to assess efficiency of improving actions in the aspect of proactive approach implementation. On the basis of obtained results, the following conclusion can be reached:

1. Work safety management system is a part of general company management system. Its task is to assist the organization control and minimize dangers for health employee and others as well.
2. Efficiently functioning work safety management system positively influences over general work safety and hygiene status of a company. Challenges and requirements which result from foundations included in 45001 ISO and let the organization comply

with not only legislative regulations achieving safety goals, but mostly enable and facilitate constant results improvement in the scope of work safety and employee health.

3. Employee involvement treated as a proactive approach in a safety system creation from the level of being familiarized with own relation in the context of the entire organization is a roadmap to creating mutual responsibility for overall safety.
4. A proactive strategy should be the foundation of modern work safety management in the organization (The essence is a constant development).

Moreover, obtained data and information in research constitute significant knowledge-related resource and may be used for further research in the field of efficiency assessment of proactive actions in a systemic work safety management, in particular on:

- the area on employee involvement and motivation, that is, further exploration of the area on the study of the drivers of an employee's proactive attitude and the relationship between taking action of proactive attitude and the evaluation of the effectiveness of the improvement measures taken in companies in various industries,
- analysis of the area of communication and information flow and an attempt to answer the question: Does the system of communication and information flow adopted in the company constitute one of the key factors in the work environment, building conditions for the formation of a proactive attitude of the employee?

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SOCIAL PRACTICES WITHIN THE FRAMEWORK OF SUSTAINABLE DEVELOPMENT IN 4.0 ORGANIZATIONS

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Purpose: The purpose of the research described in this article was to identify the types of GRI (Global Reporting Initiative) indicators applied in the social area by companies declaring the implementation of the concept of Industry 4.0 with relation to companies listed on the WIG ESG index.

Design/methodology/approach: For the purpose of analysing the reports on the companies chosen for research, the content analysis method was applied.

Findings: All the companies analysed file reports in accordance with the GRI indicators, while their identification and level of detail are differentiated. The implementation of the Industry 4.0 concept by enterprises is based on strategies and leadership, as well as culture and organizational structure, digital integration, security, management, labour force, as well as products and services.

Research limitations/implications: only WIG ESG index companies, only Poland company, only public reports and website. Future research: the relation between Industry 5.0 and the GRI indicators.

Originality/value: Until now, there has been such detailed analysis conducted on companies listed on the WIG ESG index that indicates the element of reporting of social GRI on the part of companies declaring the implementation of the concept of Industry 4.0.

Keywords: ESG, GRI, Industry 4.0, Industry 5.0.

Category of the paper: Research paper.

1. Introduction

Industry 4.0 is the first industrial revolution that was predicted before it actually materialized in practice. It was created by the expectations of corporate entities and decision-makers on the basis of actual technological innovations (Vereycken et al., 2021). Research conducted by Da Silva et al. indicates that the concept of Industry 4.0 opens up wealth and novel activities that may be implemented in contemporary enterprises (Da Silva et al., 2019).

The unpredictability of the intricate socioeconomic system forces enterprises to embrace the great variability of the processes of management, which, in certain cases, causes the loss of social trust - the effect of a transition to the digital phase may undermine social trust, while simultaneously discouraging people from political stability. Hence, management should encompass the mission of integration in the interests of all entities in the economy and be based on temporariness, repetitiveness, while also constant evaluation and reflection combined with dialogue. This shall also serve as a gradient for the integration of economies (Kovacs, 2022). Elements of social trust should constitute an important point of interest for enterprises, while the broad range of activities aimed at its creation should be visible and transparent. The tools for this purpose currently constitute elements of nonfinancial reporting, which encompasses the principles of sustainable development, while also the realization of the concept of the principles of CSR.

The purpose of the research described in this paper was to identify the types of GRI indicators applied in a social area by companies declaring the implementation of the concept of Industry 4.0. With regard to the listing on the ESG index, it was acknowledged that the appropriate area of research would be companies listed on the Warsaw Stock Exchange, as both the normative acts in Poland and the regulations of the stock exchange itself require them to act in the area of sustainable development

2. Industry 4.0 and the social dimension of sustainable development

The transformation of the concept of Industry 4.0 into Industry 5.0 constitutes a combination of the advantages of the cyberphysical system of smart machines and common sense, which in turn may mean the focus on productivity and sustainable development (Nahavandi, 2019). The basis for the definition by the World Commission on Environment and Development of the UN, namely, the notion of sustainable development, which was defined as a long-term ecological strategy aimed at integrating economic and ecological goals with social goals in the context of fair opportunities in terms of the division of resources for the current and future generations, has become that of environmental problems (WCED, 1987). The concept was based on three fundamental dimensions as follows: social, economic, and environmental. The environmental dimension encompasses the preservation of natural resources, environmental quality, biological variety, as well as economic resources aimed at ensuring long-term economic growth based on technologies, properties or trust funds, etc., whereas the aim in the social dimension is to lead to the improvement of the standard of living (health) and the development of individual achievements, while also personal fulfilment, reduction of social inequality, while also the use of the cultural and historical specifics of various social groups (Chichilnisky, 1997; Elkington, 1999; Seuring, Müller, 2008; WCED, 1987; Vidrascu, 2015).

The social dimension of sustainable development is concentrated on ensuring equality and safety among its employees, stakeholders, and communities in which the enterprises operate (le Blanc, 2015; Sangwan, Bhatia, 2020).

The factors that stimulate the processes of sustainable development are activities aimed at the following (Hull, 2008):

- reduction of social inequality both on a global scale and in particular countries, while also the elimination of poverty, famine, illiteracy, social injustice, and exploitation,
- restricting demographic growth and stabilizing the population of the world on an ecologically justified level,
- implementation of all spheres of social life, as well as economic and political thinking, while also action based on the principles of equal rights, ecological responsibilities, and mutual benefits, as well as changes in the concept of aid for third-world countries,
- shaping and strengthening civil society,
- significant changes in educational systems and programs through the expansion and development of the ecological problems within the framework of the ecological problems.

The role of slowing down, or sometimes blocking, of sustainable development is played by the ways of thinking which propose particularistic and ethnocentric thinking in terms of socioeconomic issues, leading to local conflicts and the failure to perceive common goals, as well as mutual threats, while also those that advocate the slogan of the constant growth and the principle of the primacy of the economy (market) over social policy and values, thus reducing the role of the spontaneity of development and effectiveness of the market mechanisms in all spheres of social life (also in education, culture, entertainment, etc.) (Hull, 2008).

The main discussion associated with sustainable development and Industry 4.0 is the result of the generation of workplaces, as the serious changes that emerge as a consequence of the implementation of Industry 4.0 have a visible effect on the labour market (Korhonen et al., 2018; Romero et al., 2020). Due to technological progress, there is a chance/risk of replacing the labour force with technology. By 2030, approximately 8.5% of the world's workforce in the manufacturing sector alone will be replaced by Industry 4.0 technologies (Oxford Economics, 2019). This, in turn, leads to another problem which arises from the social dimension of sustainable development – the issue of lack of the appropriate education. Organizations must support the shaping of employees, as well as the local community in the direction of competencies that are essential for using the use of new technologies (Kirchherr et al., 2017), but also for the comprehensive evaluation of smart technologies. This is to facilitate cooperation between a human being and smart machines, while also constituting a stimulator for future innovations within the framework of the fourth industrial revolution (Zezulka et al., 2016). It is worth drawing attention to the important social factors that have an impact on the evaluation of smart technologies, namely, as follows (Ejsmont, 2018):

- psychological, namely, the human features that are essential in terms of the cooperation with smart technologies, e.g. the level of trust, resilience, openness to change,
- educational, such as those who have education, qualifications, courses,
- sociological, namely, the scope of cooperation with smart technologies and their nature.

These factors constitute the determinant of the level of social capital, which, in many cases, plays an important role in the effectiveness of innovations, also including smart technologies (Putnam, 2001).

3. Methodology

By applying the literary review for the identification and confirmation of the chosen research topic (Van Duren et al., 2015), attempts were made to define the ties between the concept of Industry 4.0 and the social aspect of sustainable development. In the literary review, full-text publications were availed of, which were included in the databases of ProQuest, Emerald and SCOPUS. This facilitated the indication of the area of science to which the research could contribute, while also the contextualization of research in terms of literature (Rowley, Slack, 2004; Khan et al., 2001; Higgins et al., 2019).

Subsequently, by taking advantage of the principles of planning the scientific research (Schwarz et al., 1999; Creswell, 2013) the following steps were formulated in the research process:

1. choice of research area – companies listed on the WIG ESG index on GPW were chosen for analysis, namely on the day of commencing research, in which there were 60 companies on the index,
2. identification of enterprises that declare the achievement of growth at the level of Industry 4.0 among entities listed on GPW in the ESG index – 16 companies,
3. familiarization of the way of nonfinancial reporting by the indicated enterprises in 2022 according to the following criteria:
 - report on activities + ESG report, or
 - report on the subject of nonfinancial information, or
 - report on sustainable development, or
 - integrated report, or
 - information on company website, or
 - lack of reporting.
4. choice of only those companies that published reports for 2021 for further analysis, namely, 8 companies,

5. identification of types of GRI indicators of a social aspect reported in the analysed companies,
6. familiarization of the elements of the social aspect in the reports on the analysed companies.

The preparation of reports on sustainable development on the basis of GRI standards helps organizations to measure the results, while also managing the changes, strive towards sustainable development, in which the reports contain indicators characteristic of both the positive and negative impact of organizations on the environment, society and the economy, while also indicating the specific and tangible activities of the organizations. The indicators and gauges agreed on at the international forum make it possible to gain access to information and compare data in the reports on sustainable development, thus ensuring stakeholders greater knowledge that is essential to take conscious decisions (GRI, 2016).

For the purpose of analysis of the reports, the content analysis method was applied. Content analysis may be briefly defined as the systematic, objective, and quantitative analysis of message characteristics. It includes both human-coded and computer-aided text analysis (Krippendorff, 2004; Wu et al., 2020). The content analysis assumes that the study of the content is meaningful. This assumption requires the content be accepted as a ‘common meeting ground’. That is, the content analyst assumes that the ‘meanings’ he ascribes to the content by assigning it to certain categories correspond to the ‘meanings’ intended by the communicator and/or understood by the audience (Berelson, 1970). This study conducts content analysis as a systematic means of evaluation to identify the core factors; thus, it may be applied to the analysis of practically any type of communicative materials and would constitute a subjective analytical method of content by means of the process of systematic classification of encryption and the identification of topics or patterns (Hsieh, Shannon, 2005). Content analysis is a reliable and valid academic methodology for social sciences that analyzes reports on the basis of their important aspects, authenticity, or meaning (Joubish, Khurram, 2011). Research follows the procedures applied by (Denyer, Tranfield, 2006; Tranfield et al., 2003) and consisted of the following steps:

Step 1. Data sources were identified. The research process is based on public data, such as annual statements, sustainability reports, corporate social responsibility reports, corporate websites, trade unions’ opinions, and targeted interviews with company representatives.

Step 2. Categories were developed. The correct categories were prepared and tested in order to identify the elements which may be ambiguous or still require further clarification in order to subsequently specify the categories by defining the specifications relating to what is necessary to take into consideration, or what should not be taken into consideration when there is uncertainty, in order to ensure the credibility of the encryption.

Step 3. The encrypted data was acquired by taking a decision which should be encrypted in one category or multiple categories on the basis of a preliminary review of the data and testing of the encryption. The method of the paradigm funnel (Berthon et al., 2003) was used on the

most general to the most detailed data for analysis in order to achieve the intended results. This concept facilitated the grouping into thematic groups on the basis of the adopted criteria of the research findings. This diagnosis facilitated the comprehension of the information available in the pool of data acquired from the preferred reporting items, as well as the adopted guidelines of meta-analysis.

Step 4. The acquired results were analysed. The validation of the accuracy of the information was conducted over several stages (Hyde, 2000) in order to be able to interpret the acquired results and also compare them with the information acquired during the course of the literary review. The research process was conducted by the mutual impact of the induction and deduction processes. Gleichzeitig, objectivity was maintained during the course of data analysis, while also the cognitive distance was maintained, as well as the social and emotional distance with respect to the analysed sources (Duberley, 2015).

4. Results

As a consequence of the research conducted, during which the research area was chosen (Step 1), enterprises declaring the achievement of development at the level of Industry 4.0 were identified (Step 2), the way of non-financial reporting became known to the aforementioned enterprises in 2022 (Step 3), 8 companies were selected to go through to the next phase of the research process which had fulfilled all the hitherto assumed criteria. Subsequently, the identification of the types of GRI indicators of a social aspect reported in the analysed companies was carried out (Step 4).

The results have been presented in the diagrams (see: Figure 1, Figure 2, Figure 3).

Table 1.

Identification of the research area

Company name	Industry 4.0 Concept Declaration	Activity report/ report on non-financial information	Sustainable report development/ESG report	Information on the website
Allegro	v		v	
CD Projekt	v		v	
Grupa Azoty	v	v		
ING Bank Śląski	v			v
KGHM Polska Miedź	v			v
LPP	v		v	
PKN Orlen	v	v		
Tauron	v	v		

Source: Self-analysis.

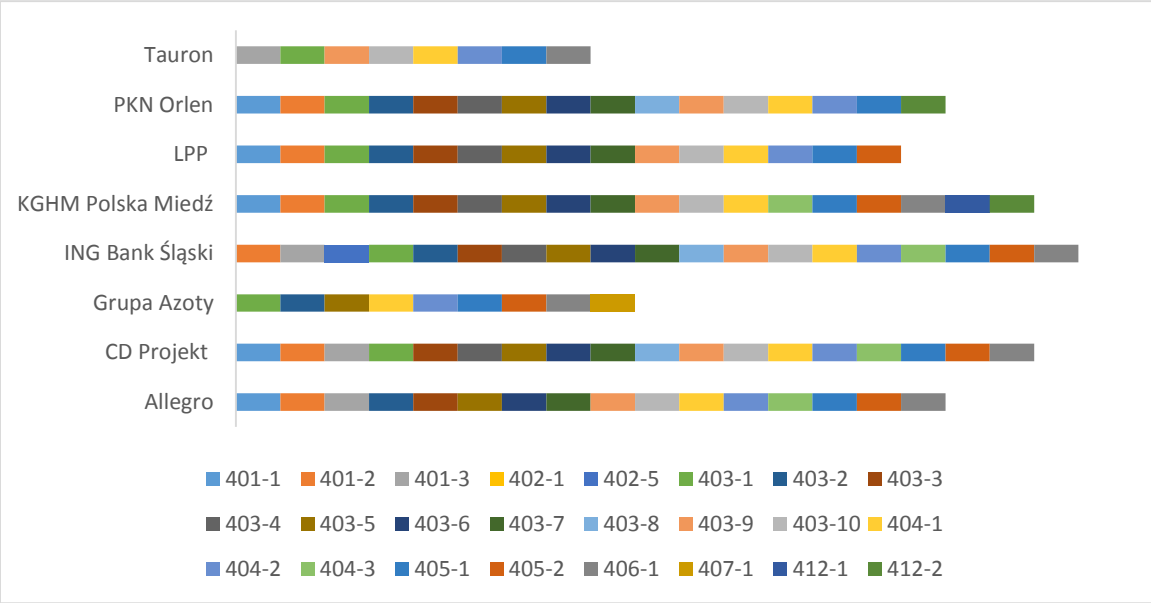


Figure 1. GRI indicators reported by companies in the employee area.

Source: own study based on research reports.

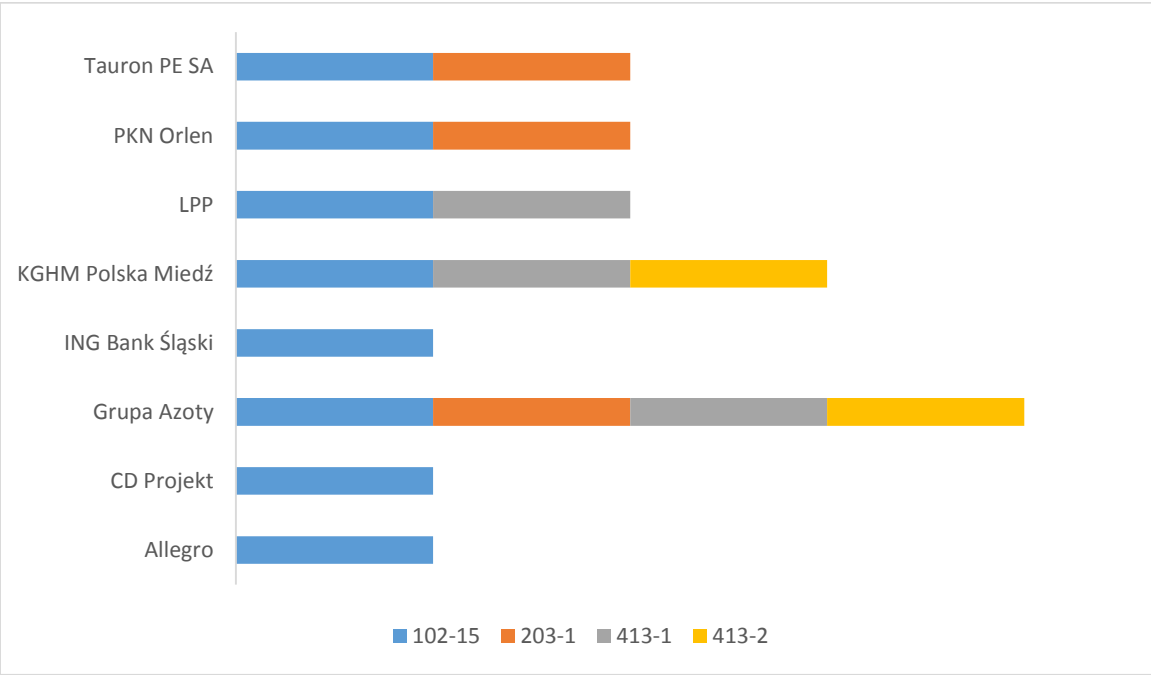


Figure 2. GRI indicators reported by companies in the area of the local community.

Source: own study based on research reports.

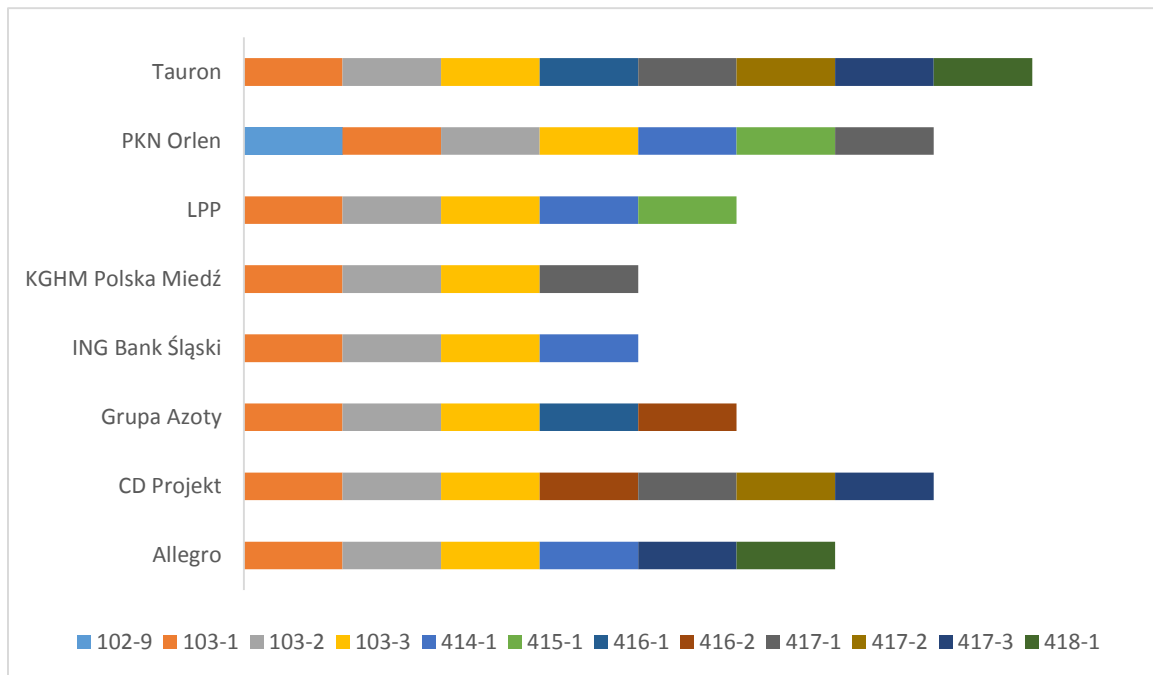


Figure 3. GRI indicators reported by companies in the area of other stakeholders - mainly suppliers and customers.

Source: own study based on research reports.

In conclusion, the research conducted illustrated the following issues:

- All the companies analysed submit reports according to the GRI indicators, in which their identification and level of detail is varied – companies have discretion in terms of presenting data.
- The largest group of indicators described by the companies constitutes the area of employment – it would seem to be relatively easy to present with regard to the numerical data available on the digitized personnel systems; on the other hand, this area constitutes an important level for every employer in terms of building employer branding.
- Communication with stakeholders is conducted with the aid of electronic tools, which is in accordance with the concept of Industry 4.0.
- Only one of the companies analysed, namely, Grupa Allegro.eu SA, provides detailed reports on activities aimed at shaping technological competences.
- The social dimension among the analysed companies is also described in the majority of cases in the context of ecological activities – activities on behalf of the natural environment, taking care of the environment in which the particular group of stakeholders functions.
- Training of employees is partially executed with the aid of electronic tools – e-learning, which is according to the concept of Industry 4.0.
- Activities on behalf of employees are most widely described by three of the analysed companies, whereas reports on the external stakeholders, namely the local communities, while also clients and suppliers are provided by Grupa Azoty SA, KGHM Polska Miedź

SA, PKN ORLEN SA and Tauron SA, thus enterprises whose area of business activities involves emissions in the manufacturing process.

5. Summary

Business activities in a social or environmental area may also translate into the economic performance of the company, hence, it would seem to be significant for enterprises implementing the concept of Industry 4.0 to pay attention to the elements of nonfinancial reporting.

The relation between Industry 4.0 and the GRI indicators remains to a large extent stable depending on the enterprise, its sector, and magnitude, while it also seems to rather depend on the specific technologies used. Apart from the extraordinarily stable relationship with building the level of engagement of the employees, various technologies would seem to be associated differently with various practices in terms of building relations with the other groups of stakeholders. Our conclusions indicate the necessity to maintain caution in creating ties based on the use of imperative concepts, and also the significance of Industry 4.0 in terms of the future of the analysed enterprises.

Although advanced research methodology facilitated the analysis of social practices within the framework of sustainable development among Polish companies listed on the stock exchange in the WIG ESG index, there are certain limitations to which attention should be drawn to. First and foremost, despite the wealth and multiperspectives of the data collected and analysed, the findings are limited to the declarations of the enterprises stipulated in the reports published by them. Hence, future research should aim at verification by means of interviews and observations in the firms in order to check the accuracy of their declarations. Such empirical evidence derived from implementing the technologies of Industry 4.0 in social processes and relations with stakeholders will facilitate a discussion about the differences between the planned impact, the declared impact and the actual one. Future research could also execute vertical integration, or fragmentation with a prevalent approach that is rather oriented towards the cooperation between an enterprise and its environs.

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THE DYNAMICS OF PARTICIPATION OF EXPERIENCE MODULES AND EXPERIENCES IN THE ORGANISATION'S NARRATIVE WITH EMPLOYEES

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Purpose: Creating - through an appropriate organisational narrative - positive experiences and experiences for employees is an important instrument for their acquisition and longer retention in the organisation. The aim of the article is, firstly, to verify the degree of uniform presence of the sensory, emotional, intellectual, behavioral and relational module in this narrative, and, secondly, to determine whether the content of these modules changes under the influence of contextual changes.

Design/methodology/approach: As part of the research investigation, the content of 520 pieces of information provided on websites by a purposively selected organisation for 2000 and 2023 was analysed and evaluated (using an attendance analysis, as well as a diversity index and an equal distribution deviation index). Conclusions were related to the degree of satisfaction of various needs of employees.

Findings: It was confirmed that all modules of experience and encounters were present in the organisation's narrative with employees. It also emerged that the content of these modules is influenced not so much by the changing context of the organization's functioning as by general social trends (performatization, cultural narcissism).

Study limitations: The study was limited to one organization. Limitations also relate to the ambiguity that exists in some cases in attributing information to modules of experiences and experiences.

Practical implications: The results can be used in programming the content provided to employees and in improving the conduct of analyses of the extent to which their needs are met.

Originality/value: the proposed way of investigating the extent to which the diverse needs of employees are met is original. Conclusions about the non-dominant impact of the pandemic and post-pandemic context on the content provided to employees may be surprising.

Keywords: experience and encounters modules, narratology, COVID-19 pandemic, market of experiences, context analysis.

Category of the paper: scientific publication.

1. Introduction

In the period of increased mobility of employees on the labor market resulting, among others, from the entry of the so-called liquid generation into this market (Bauman, Leoncini, 2017), the challenge for human capital management is not only to acquire but also to retain valuable employees in the organization (Glattes, 2016). One of the means that can be used for this purpose is effective communication (narrative) with (future) employees. It should provide a credible message creating/sustaining a positive attitude towards the organisation (Kreutzer, 2018, pp. 95-119). The content of this communication should trigger positive experiences and encounters in its addressees, i.e. correspond to the spirit of the Employee Experience. The following research questions were formulated:

- Are all modules of experience and encounters evenly represented in the narrative of the organization with employees, i.e. are the diverse needs of employees met?
- To what extent is the conceptualisation of the content of the above modules influenced by the organisation's mission and the changing context in which it operates?

as well as the corresponding hypotheses:

- All modules of experience and encounters appear in the narrative of the organization with employees, but their representation is uneven.
- The mission of the organization determines the highest share of the related module of experiences and encounters, but this does not apply to periods when contextual conditions determine the hierarchy of the importance of modules in the narrative of the organization with employees.

It is assumed that in the conditions of crystallizing and governed by mechanisms of adapting activities to the employee (customization) and commoditization (commoditization) of the experience market (constituting a stage of market development (Pine II, Gilmore, 1998, p. 98)), the individual needs of customers, including those operating on the labor market, i.e. (potential) employees, are important, which, moreover, constitutes the coherence of different types of markets. They are participants in the experience economy - the advanced post-industrial economy. Creating a diverse and focused verbal message to future and current employees may not be easy in the conditions of anti-linguistic culture (Lasch, 2019, p. 172) and homo videns (Sartori, 2005), bringing to the fore visual message, iconic and not expressed in sounds or letters.

Section 2 presents the state of the art of the Encounters and Experiences modules. The methodology of our own research based on the literature study is presented in section 3, while the results of the empirical research and an attempt to interpret them, followed by the conclusions, are presented in sections 4 and 5.

2. Literature review - types of experience modules and encounters

The sensory module includes separately or in combination (in order to achieve multisensoriality (Cachero-Martinez, Vazquez-Casielles, 2017, pp. 473-486)) visual, auditory, tactile, olfactory, gustatory stimulation applied to employees in order to elicit specific positive sensations. It is therefore closely related to aesthetics (Schmitt, Simonson, 2019) and aesthetic economics (Reckwitz, 2017) and aesthetic leadership (Hansen, Rapo, Sauer, 2007, pp. 544-560). Includes, among others:

- appropriate use of colours (e.g. the cheery mood-creating colour yellow (Darnikowska, 2004)),
- the use of visualisation techniques, e.g. circept (Cempel, 2005, p. 94) to motivate creativity,
- avoiding 'sensitising words' (e.g. 'golden handcuffs' in relation to pro-loyalty programmes),
- the use of aesthetically pleasing, linguistically polite and morally correct (including - adapted to the expectations of different generations of employees) vocabulary in communication, e.g. avoiding polysemy (Burska et al., 2016, p. 41),
- the avoidance of creative expressions, in the form of, for example, slang or periphrases or syntactic parallelisms,
- reducing nuisance odours that are not good for health (Schiffman, Williams, 2005, pp. 129-132) and taste and odour stimuli that make it difficult to concentrate on work,
- shaping aesthetically pleasing work spaces, positively influencing vigour (the work engagement component) and behaviour (Hall, Hall, 2001, pp. 14-15, 43) and the health and sensory experience (including the sense of touch) of employees (Pachura, 2016, p. 409),
- use of the audiosphere function (Mizera-Pęczek, 2023, pp. 59-69).

The ethical use of the so-called emotional engineering as part of the emotional module, which contradicts the use of psychomanipulation, is aimed at regulating (initiating, sustaining, modulating) the states experienced at work. They are the result of social interaction, but also of a match or mismatch between the ability profile of employees and the requirements of the work tasks or projects undertaken. In the case of matching, employees may experience flow, and in the absence of flow – anxiety, boredom or apathy (Csikszentmihalyi, 2008). This module includes the shaping of an appropriate work climate (e.g. by making appropriate use of the phenomenon of affective contagion (Hatfield, Cacioppo, Rapson, 1994) and consciously influencing the psychological capital of employees (Seligman, Csikszentmihalyi, 2000, pp. 5-14).

The intellectual module is related to challenging employees at work in the form of increased mental effort and creative, divergent thinking, and in the case of performing work perceived as monotonous – making reflections in the field of job crafting (tasks, relationships or ways of thinking about work). Its content also includes the formation of the cognitive components of attitudes required for work.

The behavioral module is associated with triggering and maintaining the desired (adequate to the organization's mission and culture) employee behavior (Zang, Parker, 2019, pp. 126-146) in the form of, for example, appropriate work efficiency, retention in the organization, positive attitude to changes or not resigning from civic behavior at work. The formation of this module requires the use of performative verbs (e.g. Apply!, Join us! within the Candidate Experience, an element of the Employee Experience relating to recruitment processes).

The relational module is concerned with the formation of relationships with people with whom social capital is formed (Pocker, Ballantyne, 2016, pp. 128-143). It ensures the smooth running of mutual learning processes within the organisation (Cascio, Montealegre, 2016, pp. 349-375), the formation of trust, the strengthening of bonds, the satisfaction of affiliative needs and helping each other at work, which is particularly important in a multicultural and multigenerational work environment.

3. Research methodology

The aim of the article is, firstly, to verify the degree of uniform presence of the sensory, emotional, intellectual, behavioral and relational module in this narrative, and, secondly, to determine whether the content of these modules changes under the influence of contextual changes. As part of the research investigation, the content of 520 pieces of information.

In order to verify the formulated two research hypotheses, an analysis of the narrative/analysis of the content (content) of current events (units of analysis) placed on the website of a deliberately selected organization – a public university educating economists (its name was annotated, but – in order to objectify – it was not decided to choose its own home university) was used. The choice was also determined by the easy accessibility of the content of the (also archived) broadcasts to those not connected with the university under study and the transparency of the presentation, which facilitates analysis. The object of the study is thus the number/percentage of information whose nature allows it to be attributed to a specific (cf. section 2) module of experiences and encounters. Using secondary materials, the study is therefore qualitative-quantitative in nature, i.e. it requires a labour-intensive analysis of the text in order to properly identify the module. When conducting it, it is important to be aware that: "Content analysis is never better than the categorisation key used in it" (Pisarek, 2019, p. 41).

Therefore, the issues of assigning specific content to a particular module are described in detail below.

It was thus assumed that as belonging to the sensory module there would be (dated as news/updated events) information referring to the senses, i.e. concerning e.g.: evaluations of the appearance of newly created websites, attached Christmas cards, image-marketing campaigns, films (e.g. about the university in the online era), singing presentations (e.g. performances by the university choir), new interior design of university buildings, including installed sensors; catering facilities for students on campus.

As far as the emotional module is concerned, information regarding, for example:

- pride in the successes (scientific, teaching, sporting, environmental) of students and staff,
- expressions of gratitude,
- expressed fears,
- providing hope, psychological support.

In turn, the intellectual module was assigned information about scientific events (environmental lectures, programs, projects, webinars, foreign language learning, scientific circles, opportunities to obtain certificates, interviews on scientific topics, comments, etc., of Nobel laureates, consultations, coaching sessions, study visits, book presentations).

News about content containing the imperative of action, such as: announcements of the Conference of Rectors of Economic Universities, Rector's orders, information and didactic surveys, submission of diploma theses, application for doctoral studies, conducting remote classes, placement tests, student service rules, recruitment, recruitment for grants, conducting elections, access to the library, invitation to participate in competitions, application for scholarships, implementation of control activities, were assumed to belong to the behavioral module.

In addition, it was assumed that the relational model will include the content of information on the functioning of the academic community, such as: open days of universities, television interviews, adaptation days, celebrations of important celebrations, hosting outstanding figures, hundredth birthdays of retired employees, employee farewells, unveiling of employee commemorative boards, promotion of graduates, speeches, letters to the academic community, integration events, activities for the local community, presentation of employee profiles.

In order to find an answer to the first research question, the following were used:

- a frequency analysis (incidence) of each of the five modules in relation to the total number of units of analysis for the selected period,
- the degree of diversity (diversity index) showing the presence/absence of information from each of the five modules, making use of the literature on its determination (Abramowska-Kmon, Muszyńska, 2012, pp. 11-32),

- an index of deviation from equal distribution, indicating how many percentage points (with a negative/positive value) a given module is represented in minus or in plus than would result from the equal frequency of the information in the organisation's narrative with employees in the case of equal representation through this information of the individual modules.

In order to capture the change in context, it was decided to conduct a news analysis for 2020 (the year of the pandemic) and 2023 (the postpandemic year).

According to the content of the hypotheses, all modules are expected to occur, but in varying intensity and a higher share (related to the mission of the university) of the intellectual module in the post-pandemic period than in the pandemic period, when other needs of university stakeholders may come to the fore. Determining possible changes in the proportion of modules will require benchmarking, i.e. analysing the content of the modules on a dynamic basis.

4. Test results and their interpretation

The results of the frequency analysis obtained for both years are presented in Table 1.

Table 1.

Numbers of information units identified for the surveyed university as individual experience modules for 2020 and 2023

Period under review	Sensory module	Emotional module	Intellectual module	Behavioral module	Relation module	Total
2020	9	42	66	75	38	230
2023	6	50	66	85	83	290

Source: Own study.

According to the first formulated hypothesis, for both periods all modules are represented (diversity index equal to 100%), but with different frequencies. For 2020, only 3.9 per cent of the information units belong to the sensory module (it should be added that visual stimuli in the form of, for example, an aesthetically pleasing layout of the text or highlighting its individual words are present in almost every information unit, but they are very rarely the focus of the content). This percentage is 18.3% for the emotional module, while for the intellectual, behavioural and relational modules it is equal to: 28.7%, 32.6% and 16.5%. This implies the following deviations from equal distribution:

- minus 16.1 p.p. (sensory module),
- minus 1.7 p.p. (emotional module),
- plus 8.7 p.p. (intellectual module),
- plus 12.6 p.p. (behavioural module),
- minus 3.5 p.p. (relation module).

In the module with the lowest share in 2020 and the largest negative deviation from equal distribution, i.e. in the sensory module, almost all stimuli (except for one – information about sensors on the university building) relate to visual and/or auditory stimulation. Their content is:

- new website,
- Christmas song,
- image campaign,
- European Literature Night,
- performance by an academic choir,
- Christmas card,
- a film about the functioning of the university during the COVID-19 era.

As for the content of the emotional module for 2020, their small spectrum of use draws attention. Joy, pride, admiration (e.g. in connection with a degree award or the assumption of a prestigious position by a university employee or student success) dominate. In individual cases, there is gratitude or the expression of concern (against the background of the impact of social disputes and their legal, political and social consequences in Poland on safety and health during the pandemic), the giving of psychological support, hope and thus - concern, but also the expectation "that things will get better" (Lazarus, 1991, p. 122, after Franken, 2013, p. 314). While there are no signs of negative emotions, i.e. messages expressing surprise at the situation or surrender (a mix of fear and liking (Plutchik, 1980)) or disappointment (a mix of surprise and sadness (Plutchik, 1980)), there are also no signs of emotions expressing a positive attitude (liking) towards the coping methods used, i.e. functioning efficiently despite the context.

In connection with this context, performatives (Wybraniec, 2016, p. 85) associated with the behavioral module gained the advantage of messages in general, which is understandable in situations of the impact of the presented behaviors on the health and safety of the community. The primacy of the behavioural module (for which there is the greatest positive bias) over the intellectual during the pandemic is not surprising in this situation. "Pandemic" in its nature is also to some extent (8 out of 38 messages) the information belonging to the coverage module (such as the publication of the letter on civic solidarity during COVID-19).

Also in 2023, the least (with a reservation such as for 2020) information units (2.1% of their total number) qualify for the sensory module. They concern:

- Climate Days,
- photo report from the innovation design marathon,
- video reports from the musical theatre,
- photo report of the rectors' debate,
- photo report from the gala at the end of the university's jubilee celebrations,
- photo report of the inauguration of the business individual study programme.

Due to the above participation of the module, its deviation from equal distribution is the highest, amounting to in minus 17.9 pp.

The highest share, as in 2020, is not the intellectual module (share – 22.8%; deviation from the equal distribution in plus – 2.8 pp), but the behavioral one (share – 29.3%; deviation from the equal distribution in plus – 9.3 pp). So it was not just pandemic contextual conditions that determined the latter's stature. The share of the emotional module in 2023 is similar to that in 2020. (17.2 %; deviation from equal distribution - 2.8 p.p.). At the expense of the intellectual module, above all the share of the relational module increased (to 28.6 %). The deviation rate from equal distribution for it in 2023 is plus 8.6 p.p.

5. Discussion and conclusions

The first hypothesis was positively verified. This verification demonstrates that various employee needs are being met through information. However, significant (reaching up to 17.9 p.p. in minus and 12.6 p.p. in plus) deviations are indicative of the uneven degree to which these needs are being met. The low participation of the sensory module may indicate that even in times of homo videns, the university sees its role in not joining the pervasive (Lasch, 2019) anti-language culture. Nevertheless, it seems expedient to reflect on the optimal shaping of the sensory module's contribution to the organisation's narrative with its stakeholders.

In the pandemic and post-pandemic period, the participation of the emotional module did not differ significantly, which may be surprising, because the first period required greater sharing of emotions. This is probably due to the dominance of communicating the joy of successes rather than information having a calming effect on the community. Perhaps the reason for this lies in the belief that universities - because of their mission - should not go down the path of expressive organisations.

The share of the intellectual module expressing the university's mission (28.7% and 22.8%) for both years has a deviation in plus, but the above data do not allow to positively verify the second hypothesis. Quite simply, the share decreased, not increased, in the postcovid period, which contradicts the above hypothesis. The reasons for this can be seen in the performatisation that permeates all organisations (Carlson, 2007), resulting in a relatively high proportion of the behavioural module among the modules of experience and lived experience. At the same time, the times of remoteness have led to an increased interest in direct (rather than just virtual) social relationships, with the implication that the in minus deviation of this module value in 2020 will change to an in plus deviation three years later. In conclusion, contrary to the hypothesis formulated, it is not contextual conditions that seem to determine the prioritisation of modules in the organisation's narrative with employees, but rather certain general social trends, such as those described in the literature by Ch. Lasch or M. Carlson.

Undoubtedly, one should follow the dynamics of the participation of experience modules and experiences of the narrative of the organization with employees. In order to reduce the workload and increase the objectivity of the analyses in this area, consideration should be given to the development of appropriate software, which would also make it possible to make the necessary corrections on an ongoing basis.

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INFLUENCE OF SELECTED CHARACTERISTICS OF THE MANAGER ON THE MANAGEMENT OF ENTERPRISES IN THE BESKIDS REGION

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Purpose: This paper presents the results of a study characterizing managers of enterprises operating in the Beskids Region. The research attempts to identify selected personality traits of managers and assess the impact of these traits on organizational management. This research presents a picture of the existing reality and approaches to the use of abilities, creativity and skills of the manager in the Beskids Region. The research attempted to identify selected characteristics of managers that can affect organizational management. The research was a pilot study.

The main objective of the study is to better understand the subject and satisfy the knowledge of the manager's work and his characteristics, which significantly affect the management style of a particular organization.

Design/methodology/approach: The research attempts to identify selected personality traits of managers and assess the impact of these traits on organizational management in the Beskids Region. A diagnostic survey method was used for the study. A survey questionnaire was used as a tool.

Findings: The results of the pilot study confirmed the general thesis that business management is influenced by the manager's personality traits and the manager's skills.

Research limitations/implications: This research should be treated as pilot research. It is proposed to increase the number of surveyed managers in the Beskids Region.

Practical implications: It is proposed to introduce systematic conducting continuous monitoring of the perception of the impact of managers' personality traits on company management in the Beskids Region. Making managers aware of the importance of the impact of their personality traits on company management and achieved results will encourage them to develop themselves and participate in training and training in the field of human resources management.

Originality/value: New in the paper is an identification and analysis of the impact of managers' personality traits on company management in the Beskids Region. Effective managers should use liberating management, which stems from the resilience of the organization and a positive attitude towards the efforts of employees performing specific tasks.

Keywords: manager, management, enterprise, personality traits of managers.

Category of the paper: empirical researches.

Introduction

Each of us has certain abilities that characterize only him. Each of us is unique. Our traits, whether physical, mental or acquired or innate, affect how we function and coexist with other individuals. The personality traits of each of us define ourselves, but also in different ways and in different forms determine our influence on other individuals.

Each social role requires the possession of certain traits or talents that enable one to perform a certain function at the level of society, the group, co-workers and family.

This study attempts to identify and evaluate managers of companies operating in the Beskids Region with regard to the impact of selected characteristics of the manager on the functioning of the company.

The main objective of the study is to better understand the subject and satisfy the knowledge of the manager's work and his characteristics, which significantly affect the management style of a particular organization. The following research questions were formulated: what personality traits do they use in their work?, what role does the manager play in his company? what skills are necessary in the work of a manager? The research questions asked allowed for defining the area and direction of research.

Role of the manager in the management of the organization

A manager is a person whose primary task is to implement the management process. It is the manager's responsibility to make decisions, plan and organizing (Griffin, 2017, p. 7). Any person who makes decisions is responsible in a company or organization for the management process is called a manager.

According to G. Bartkowiak and H. Januszek (Bartkowiak, Januszek, 1999, p. 142), a manager is a person who is primarily responsible for the company's situation in the market. "In any situation, the primary goal of the manager is the development of the enterprise, through which he achieves satisfaction, professional success and social prestige".

M. Holstein- Beck (Holstein-Beck, 1996, p. 1), on the other hand, claims that a manager is a person who must "rule over some whole, manage it completely i.e. economically, energetically and responsibly". A manager today is a person who has experience, relevant qualifications and leadership qualities. He is expected not only to have substantive knowledge, but also the ability to manage people, delegate tasks. A good manager must have a whole set of qualities and skills that enable and facilitate his work. These include: interpersonal skills, conceptual abilities and technical skills. The former are related to communication, while the ease of establishing contacts and appropriate contact with subordinates is an indispensable

characteristic of a good manager. Of course, no less important are conceptual abilities, that is, the ability to think analytically, logically and abstractly. A manager should also understand and organize the production process.

An interesting thesis on the characteristics of a manager, both personal and learned ones is presented by K. Obłój. He believes that the best managers are so-called leaders. He also claims that the oldest approach to the leader has always been based on three assumptions:

- the ability to lead stems from certain character traits,
- a leader a person is born, not becomes,
- leaders (what "average" managers mostly lack) have charisma.

K. Obłój citing research and analysis from various fields of life, gives the characteristics of a true leader: appearance (superficiality), personality traits, interpersonal skills and management skills. He must also have qualities that enable him to perform the role of an organizer i.e. he should skillfully plan, set and enforce tasks. An excellent manager must have communication skills, be able to convince others, deal with difficult people, have tact and personal charm (Obłój, 1994, p. 117).

The most desirable personality traits of a manager-leader are: self-confidence, ambition, achievement and success orientation, assertiveness, stress tolerance, persistence and firmness, intelligence and courage. And the necessary skills of a manager-leader are: creativity and innovation, tact and diplomatic talent, persuasive speaking and listening skills, quick decision-making, ability to set tasks and organize work (Drucker, 1999, p. 118).

P.F. Drucker stated that in an organization there must be people who are responsible for the mission, the processes, the tasks and their results. "There must be a conductor who keeps an eye on the score. There must be people who are focused on organizing the mission, who set the strategy for execution and determine what the results are" (Drucker, 1999, p. 52). He argues that a normally endowed person can, through practice, achieve full competence in a given field. One may not be a brilliant manager, because it takes special talents to do so. He identifies five habits that seem to have their foundation in a person's personality traits. For perfection and being effective you need systematic development but also individual qualities. To be an effective manager one should:

- skillfully manage your time,
- use in people what is best in them,
- focus on the external world,
- introduce hierarchies of goals into your actions,
- deal only with the most important matters (Drucker, 1994, pp. 36-37).

According to R.W. Griffin (Griffin, 2017, p. 24), managers "often have to make decisions and solve problems based on intuition, experience, instinct and personal views on things". Not only learned skills but personality traits, intuition and ingenuity greatly help a manager to lead an organization.

The report "Polish Manager in Times of Crisis" presents the most valued qualities of a manager. It turns out that not only education, specialization in one's field but also interpersonal qualities, talent or objectivity are important (Anam, 2024).

The qualities of each manager and his subordinates as well as the organization's customers are "culturally marked". It is important for every head of an organization to have the intuition and ability to see culturally conditioned problems. Every effective manager of an organization should be aware of the existence of cultural stereotypes in his own and others. Looking in terms of personal human behavior, a leader in a group had to have emotional resilience in order to calm and help the others in a moment of crisis. This is also true in the organizational dimension, a manager must calm the anxiety of employees and strive to calmly survive the most difficult moments.

The attributes of a manager cover various areas of organizational leadership and are essential in managing subordinates and the entire structure. These qualities are produced as a result of experience, favorable character traits, degree of personal culture. It is on professionalism, the ability to bring about change, enthusiasm, drive and talent but also on knowledge and experience that the entire process of completing tasks depends.

From the beginning of the twentieth century to the end of the second decade of the twenty-first century, the position, role and importance of the manager underwent many transformations, caused mainly by changes in technical, technological and information advances in the world. Currently, the role of the manager is changing as a result of factors, situations, attitudes, expectations, etc., resulting from the very different structures of organizations (Kieltyka, 2016, p. 4).

Examining the literature on the subject, it can be concluded that the pace of a manager's work is very dynamic, and the activities performed are short-lived and varied (Hare, 2012, pp. 163-172). At present, it can also be said that managers are strongly action-oriented rather than thinking-oriented (Jedrzejczyk, 2012, pp. 173-183). In fact, a manager acts primarily on an ad hoc basis, in response to various stimuli. Managers are constantly haunted by the need to choose between what can be done and what should be done. The manager as a reflexive planner seems to exist only on the pages of classic management textbooks. Real managers act on an ad hoc basis because the nature of their work forces them to do so. Managers perform a lot of routine activities, actively participate in various types of negotiations and deal with the processing of "soft" information that concerns the interface between the organization and the external environment. Given the technological transformations taking place in communication using digital means of communication, the use of older, less interactive communication channels can no longer be justified (Kieltyka, 2016, p. 4).

Attributes of the manager of the future

Economic progress, the socio-economic situation, the expansion of markets, globalization, which is creeping into every area of life, poses new challenges for organizations and thus managers new challenges. It is now necessary to constantly adapt to change, the model in which one directs others only by defining goals, such as reducing costs, high quality production, giving orders or controlling subordinates, is no longer sufficient.

Global trends require adaptation to global changes - the emergence of a new type of manager - international manager. In this style of management it is necessary:

- acceptance of national differences,
- social responsibility of the company,
- guided by the welfare of employees,
- reduction of procedures in the management of the company,
- sensitivity to social changes,
- decision-making based on internal agreements - between management and employees,
- sensitivity to social change,
- orientation to the production of products, more leadership, fewer commands,
- good mastery of foreign languages (Stępczak, 2003, p. 14).

Today, a management style based on creative leadership is preferred. It is based on interaction, giving employees more freedom to make actions and decisions, supports their development and motivates them to act.

U. Gros (Gros, 2003, p. 67) defines the characteristics of a global manager as a person who transcends his country with his knowledge, expertise and management issues. He has a transnational background and is open to multiculturalism. According to U. Gros, such a manager must possess qualities that will allow him to cope with any situation in his own country as well as abroad. These qualities are:

- constant deepening of knowledge, constant striving to cross linguistic, cultural and political boundaries, unbridled curiosity,
- emotional connection with employees of different nationalities,
- ability to manage uncertainty,
- double sense - management of the company plus organization.

The qualities that a manager of the future should exhibit were also identified by E.H. Schein, he believes that it is necessary:

- achieving a high level of perception and understanding of the environment,
- having great emotional strength - in order to cope with his own and others' anxiety,
- learning to analyze cultural premises, identifying them,
- constantly deepening one's knowledge,

- willingness and ability to involve others and get their active participation in solving the complex tasks that the new situation will bring, sharing knowledge and the power to control according to the knowledge and skills of people which allows and encourages them to take responsibility (Schein, 1997, p. 89).

The study of employees' personalities is an area of constant interest for researchers, for example: the characteristics of employees' personality traits in turbulent environments have been developed using the "Big Five" five-factor personality theory (Rogozińska-Pawelczyk, 2013, p. 95), the "bright" and "dark" sides of an employee's personality have been distinguished (Bajcar, 2019, p. 75), a model of managers' professional personality has been created in the context of the concept of constant individual personality traits (Wilsz, 2014, p. 25).

Thus, the manager of tomorrow must be intellectually brilliant, flexible and consistent in action. Open to the initiatives and ideas of subordinates. He should care about his own development as well as that of his employees. A strong will and motivation to complete tasks is the way to success. The manager of the future must be familiar with models and techniques for planning financial and technological issues, as well as the principles governing organizational dynamics. Globalization further forces the manager to have the ability to navigate different cultures and the ability to adapt quickly to the environment. "A global manager should be a cosmopolitan who represents knowledge of different cultures, a skillful negotiator and an initiator of cooperation" (Hazuka, 2024).

Image of a manager

Among the most important skills that any manager aspiring to become a senior manager should have are: the ability to operate in a multicultural environment, the ability to think systemically, the readiness for continuous learning, interpersonal skills, the predisposition to run a business entity independently, conceptual skills, analytical and diagnostic skills.

A manager's skills give a picture of his overall image. This image includes not only individual qualities, predispositions or skills, but also the entire personality of the person who plays the role of manager. In this personality, his intuition, emotionality, mentality, social adaptation, predispositions of psychological nature and social nature, which lead to effective and efficient management, deserve special mention (Kieltyka, Jedrzejczyk, 2013, pp. 375-386).

The success of a manager is determined by the involvement of his entire identity especially including non-rational elements such as intuition, mentality, seventh sense or mental qualities. In addition to a high degree of expertise (often strict), a manager should exhibit self-reflection about himself and have a kind of awareness of what he wants, intends or does for the organization. In ad hoc activities, he should think about opportunities and ways to take

advantage of them, solve problems efficiently, look for opportunities, and be guided by the need for success (Penc, 2001, p. 36).

There is an increasing demand for employees, eager to develop their intellectual potential, able to handle very large amounts of information efficiently and able to create their own innovative information. Thanks to such employees, scientific, technical and technological progress can take place, thanks to which their companies will be able to cope with global competition and "if employers want to have creative, entrepreneurial and effective employees with a high degree of "intellectual capital", they should first of all employ the right people, i.e. those whose values of constant individual personality traits correspond to the qualities desired in an employee in a given position, as they guarantee the proper implementation of the functions of the position. In order for such employees to be effective, appropriately selected individualized interactions should be directed to them, due to the values of these traits of theirs, because mainly such interactions effectively stimulate the creative activity of a person and contribute to the growth of his "intellectual capital" (Wilsz, 2012, p. 139).

Impact of selected characteristics of the manager on the management of the enterprise in companies in the Beskids Region

Today there is a widespread awareness that the most important resources of an enterprise are no longer raw materials, capital or material values, but employees, their knowledge, qualifications and motives, which they follow in their quest for better work, change and progress (Penc, 2010, p. 20). This realization was an incentive to undertake research to characterize the characteristics of modern managers. Managers who, in the modern economy, represent the strategic wealth of the organization.

Currently desirable personality traits of managers are: self-confidence, activity, attitude to self-realization, positive self-esteem, ability to make decisions, independence, flexibility in thinking and acting, ease of speaking, empathy, energy. Emotional competence (emotional intelligence) seems to be dominant, which in practice is expressed in the ability to form interpersonal bonds, communicativeness and empathy. (Kieltyka, 2016, p. 8).

The research attempted to identify selected characteristics of managers that can affect organizational management. The research was conducted among managers managing small, medium and large enterprises located in the Beskids Region. The research was a pilot study.

The main objective of the study is to better understand the subject and satisfy the knowledge of the manager's work and his characteristics, which significantly affect the management style of a particular organization. The following research questions were formulated:

1. What personality traits do they use in their work?
2. What role does the manager play in his company?
3. What skills are necessary in the work of a manager?

Against this background, the general hypothesis was established: "the management of the company is influenced by the personality traits of the manager and the skills of the manager" and the following specific hypotheses:

1. Intuition plays an important role in the work of a manager.
2. Managers primarily play a leadership role in the organization.
3. Persistence and decisiveness are the qualities that managers most often use in their work.
4. Interpersonal skills are essential in the work of a manager.

A diagnostic survey method was used for the study. A survey questionnaire was used as a tool, which consisted of factual questions and metric questions.

The survey was conducted with managers in 60 companies in various industries, including: automotive, service and trade, financial, medical, educational and local government in the Podbeskidzie region. The survey was conducted in November/December 2023.

The surveys included 29 women (48%) and 31 men (52%). Among the respondents, more than half work at the middle level (department managers), 38% of the respondents are owners or CEOs of companies. The smallest group accounting for only 5% are front-line employees. The surveyed managers reported in 23 cases that they graduated with a degree in economics, 18 in the humanities, and 17 in a technical field. Two people among all respondents gave other answers. One person reported that he had a high school education, the other that he had graduated from medical school.

Traits of the best manager in the survey

The best and most effective manager, like any other employee, is first and foremost a person who performs his duties with passion, and the results of his work give him satisfaction. This assumption was confirmed in our survey. Most of the respondents perform their tasks with full commitment, and the work gives them satisfaction. The work performed for 87% of respondents is satisfying, 10% of respondents chose the answer "I don't know", and only 3% of respondents the work performed does not bring satisfaction.

Managers for whom the work performed brings satisfaction reported that it is knowledge and experience that ensure success (30.7%). On the other hand, managers whose work does not bring satisfaction equally (25% each) said that ambition, education, knowledge and experience, and talent guarantee success. Those who could not clearly answer the question of whether work brings them satisfaction chose acquaintanceship as an element of success.

The majority of respondents - 92% do their work with passion, 8% said, that they perform their professional duties without passion.

Managers today should have the knowledge and experience to solve any problem in the company. Professional practice is the basis of an effective and creative manager. Increasingly, a manager is required to be honest and fully dedicated to the company.

The largest number of respondents, 30%, reported that knowledge and experience ensure success in life, followed in turn by education - 16% - valued by respondents, then integrity - such an answer was chosen by 15%, ambition was indicated by 14% of respondents, 13% - acquaintances, 11% - talent, and 1% chose to enter another answer.

Respondents were also given the opportunity to evaluate themselves and indicate what kind of employee they consider themselves to be. The majority of managers consider themselves to be specialists in their industry (35%), or skilled professionals (32%) in their field. Leaders as well as talented managers are considered by 15% of respondents each.

48.2% of respondents say they enjoy challenges the most. 23.5% of all respondents rate themselves as creative, 16.5% brilliant and only 11.8% consider themselves talented. It is noteworthy that an almost identical number of women (47.5%) and men (48.9%) say they are the person who first describes themselves as a manager who likes challenges (Figure 1).

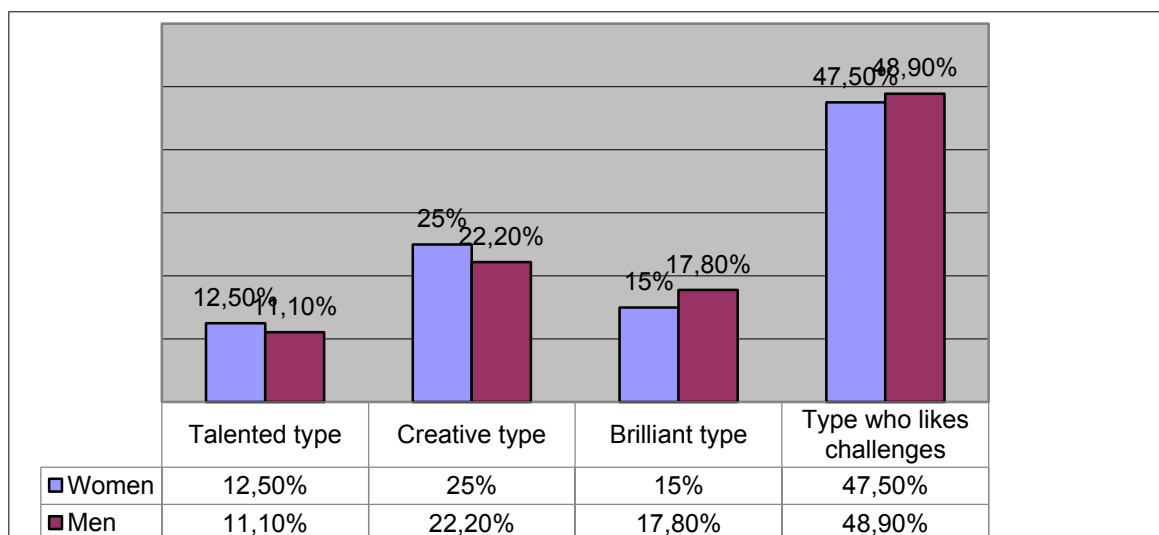


Figure 1. Perception of managerial qualities according to respondents.

Source: own research.

Respondents, when making decisions in the company, are firstly guided by an analysis of the situation - 35% of respondents indicated so, followed by the importance of experience in the decision-making process - 29%, knowledge (21%), intuition (9%), opinion of others (4%). Only 2% of respondents gave the answer - instinct and emotions.

Talented managers believe that talent makes them successful (26.3%), while creative managers also point to talent and ambition. Managers who described themselves as brilliant chose connections (23.3%) as the path to success.

People who consider themselves to like challenges believe that success in life is primarily ensured by honesty (52.9%). The success factors in a manager's life indicated by the surveyed managers are presented in Table 1.

Table 1.

Success factors in the life of a manager according to respondents

Succes factors in the life of a manager	Familiarity	Integrity	Ambition	Education	Knowledge and Experience	Talent	Other
Type of manager	%	%	%	%	%	%	%
Talented	16,7	11,8	15,2	14,6	14,9	26,3	0
Creative	20,0	26,5	27,2	17,1	22,5	31,6	33,3
Brilliant	23,3	8,8	15,2	19,5	11,9	10,5	33,3
Fond of challenges	40,0	52,9	42,2	48,8	50,7	31,6	33,4

Source: own research.

A manager is an individual who must fulfill several roles, each of which affects the management process. Roles are divided into three basic categories: interpersonal (representative, leader, liaison), informational (observer, promoter, spokesperson) and decision-making (entrepreneur, resource dispenser, negotiator, counter-disturber).

17% of respondents consider themselves leaders, 14% play the role of a representative, 13% of managers each chose answers for both resource disposer, anti-disruptor and negotiator. The least number of respondents indicated answers - spokesperson (5%), observer (5%), promoter (4%). The analysis indicates that respondents primarily point to interpersonal roles (leader, representative) and decision-making roles (counter-disruptor, resource disposer, negotiator). They are mainly focused on designing and implementing changes in the organization, resolving and reducing conflicts, distributing resources outside the organization.

The ideal manager is a person with technical, conceptual and interpersonal skills. The level of skills depends on one's knowledge, personal abilities, or experience. Technical skills are necessary to perform and understand how to do the job, and enable the manager to perform operational management functions. A manager must also have the intellectual potential (conceptual skills) to understand the principles of the organization and its environment. A person who manages an organization cannot work well with subordinates if he does not have interpersonal skills. A manager must be equipped with the ability to connect with employees, understand them and motivate them.

Respondents on the scale ranked conceptual skills (42.3%) highest as the most important, followed by interpersonal skills (40.8%) and finally technical skills (16.9%).

A good manager should have the ability to think strategically, the ability to make decisions quickly, and must be one hundred percent focused on executing the entire management process. Courage, energy and high realism are qualities without which one cannot be the best manager. High ambition allows those running an organization to achieve the greatest success in management. Manager, is a profession that requires the ability to see human needs and empathy. Survey results confirm these assumptions. The surveyed managers indicate that they make intensive use of their qualities in management, such as strategic thinking (11.2%), intelligence (9.8%), entrepreneurship (9.4%) and resistance to stress (9.4%).

Conclusions and recommendations for managers resulting from the research conducted in the Beskids Region

The ideal manager should, even under unfavorable conditions, put in maximum effort and commitment. Challenges and their realization are the essence of a manager's work.

The responses of managers regarding professional success can be divided into two main types. For respondents, success is firstly positive achievements, execution of a plan, introduction of a new product, etc. The second group of responses can be categorized as those related to the person of the manager. Respondents also indicated as their individual success - promotion, improvement of qualifications, winning awards or designations.

This understanding of success can be attributed to a good manager - an ideal combination of caring about the condition, functioning and development of the organization with the need for continuous improvement, supplementing knowledge and skills. Awards, honors and promotions testify to the reliable work of the manager.

A survey of managers in enterprises in Beskids Region allowed us to identify important characteristics of a manager that have an impact on his work:

1. A manager who performs his work with commitment, passion and satisfaction not only performs his duties well, but infects his subordinates with his enthusiasm.
2. A manager who takes on challenges is open to new solutions, which he can discuss with his subordinates to create a well-functioning system.
3. Interpersonal skills enable managers to understand the opinions of employees, but also allow them to influence them effectively.
4. The ability to think strategically is helpful in creating, but also allows one to anticipate the results.
5. Motivate so that subordinates perform more willingly what they need to perform.
6. The qualities of a good leader guarantee cooperation with employees.

The results of the pilot study confirmed the general thesis that business management is influenced by the manager's personality traits and the manager's skills.

Making managers aware of the importance of the impact of their personality traits on company management and achieved results will encourage them to develop themselves and participate in training and training in the field of human resources management.

Effective managers should use liberating management, which stems from the resilience of the organization and a positive attitude towards the efforts of employees performing specific tasks. Above all, they must be enthusiastic about what they do. They should inspire, encourage, be open-minded and creative, and set an example of ethical behavior. An effective manager should be a cosmopolitan with excellent general education, tolerant of other cultures, efficient in teamwork, with an independent way of thinking and acting (Kiełtyka, 2016, p. 10).

Summary

Employees in the current market situation are extremely valuable assets of an organization. The good functioning of any institution depends primarily on the manager and his subordinates. The human resources of any organization are its strategic resource, which is worth taking care of. "It can even be said that the development of human resources is an essential strategy for the survival and development of the organization. The development of employees should, therefore, be a fundamental value for both the organization and itself" (Listwan, 1993, p. 73). Increasingly, competition between organizations is based firstly on human potential, the better the staff the more innovative the solutions. It is the committed, properly motivated and reliably working team of people that is now the most valuable asset of a company.

The management staff of companies in the Beskids Region are people who work with full dedication to company matters. They are individuals who enjoy being challenged. Managers use their personality traits to manage the company. These include intelligence, strategic thinking, entrepreneurship and ingenuity. Often, both men and women use intuition in their daily duties, but skillfully reconcile rational aspects with intuition.

A manager of the new generation is a person with a large body of knowledge and a high level of intelligence, especially emotional and social intelligence (Kuc, Żemigala, 2010, p. 240). He should be characterized by special innate personal and interpersonal predispositions, imagination, courage, leadership skills to be able to efficiently manage the organization (Koźminski, Piotrowski, 2006).

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PILOT PROJECT TO INCREASE THE ECONOMIC EFFICIENCY OF SURFACE WATER PUMPING STATIONS

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Purpose: The most common effects of surface subsidence are flooding and waterlogging of the most depressed areas, and a change in the direction and intensity of surface water runoff. Stopping drainage would result in flooding of depressed areas on the surface and contamination of near-surface aquifers, which are also a source of drinking water.

Design/methodology/approach: The research was carried out based on geodetic measurements carried out by surveying services in the vicinity of the analyzed watercourse. From the prepared database of functional scenarios for pumping stations, the optimal variant was selected based on a panel study of experts.

Findings: The publication analyses the possibilities of reducing the costs of the functioning system of storm water drainage from drainless basin in the area of an abandoned mine. A technically feasible and economically viable design solution was presented.

Research limitations/implications: Due to the limited area of available land, the pumping station modernization project envisages generating electricity only for own needs. When making investment decisions, all investment attractiveness factors indicated in the study should be taken into account.

Practical implications: The process of draining drainless basins is energy-intensive. Reducing expenditure on the purchase of electricity will improve the security of energy supplies. The pumping station has some retention, but a longer shutdown time could lead to environmental problems. Removing the damage would require financial outlays and would take many years.

Social implications: Planned energy supply security projects may have a positive impact on the local community and economy. The project in question will create new markets related to "green energy".

Originality/value: The combination of drainage problems in drainless basin and the use of renewable energy sources to improve power supply security has not been the subject of scientific research so far.

Keywords: drainless basins, flood risk, RES, elements of the circular economy; mine closure.

Category of the paper: Research paper, conceptual paper, case study.

1. Introduction

Underground mining operations affect the environment both during the period of active mining and after the liquidation of the Mining Plant. The provisions of the Geological and Mining Law extensively take into account environmental protection and, among other things, oblige the entrepreneur to repair any damage caused by the mining plant's operation. The legislator obliges the mining entrepreneur, or its successor in title, to identify any environmental hazards associated with past mine operations. The entrepreneur is obliged to present the areas of shallow mining operations as places potentially at risk of surface-type discontinuous deformations, specify the locations of discontinuous deformations coinciding with the edges of mining operations, the occurrence of tectonic disturbances, and determine the category of suitability of the area for development after the end of mining operations. The entrepreneur, and the Mine Restructuring Company S.A. (SRK S.A.), as the legal successor to the previous mining operation, is obliged to restore any property located in the mining area where damage has occurred due to the previous mining activity. The impact of mining on the environment covers a wide spectrum of factors (Prusek, Turek, 2018).

2. Materials and methods

The mining activity carried out in various forms affects the atmosphere, hydrosphere and lithosphere, and the pits that occur in the rock mass can pose a threat to the surface. Continuous and discontinuous deformations always accompany the extraction of deposits, regardless of the method of mining, and these affect changes in water relations (Bondaruk et al., 2015; Chmielewska et al., 2020; Łabaj et al., 2020). Impacts on the lithosphere are associated with the storage of wastes from previous mining activities and land transformations in the form of continuous and discontinuous deformations. Most often, continuous deformations are observed in the form of subsidence basins, slopes and deformations caused by uneven subsidence of the rock mass (Salom, Kivinen, 2020; Strzałkowski, Ścigała, 2017; Strzałkowski, 2015). With shallow underground mining, under favorable circumstances, discontinuous deformations of the surface type (sinkholes or funnels) or linear type (terrain steps, sills, fissures) can be formed. For the formation of discontinuous surface deformations, suitable conditions must exist. Their formation is favored by shallow mining operations with roof collapse, the presence of old shallow mine workings, unclosed shafts or shafts (Strzałkowski, Szafulera, 2016; Strzałkowski, Tomiczek, 2015). The main factors that cause deformations of the linear type, may be the overlapping of mining edges in several seams and the associated unevenness of the deposit selection, as well as the occurrence of outcrops of tectonic faults on the Carboniferous

roof with a small thickness of overburden layers (Salom, Kivinen, 2020; Strzałkowski, Szafuła, 2016; Strzałkowski, 2010).

The impact of mining operations on the environment covers not only the period of mining, but also a long time after the end of mining. Continuous deformations may manifest themselves until the extinction of the rock mass activity, that is, until about 5 years after the end of mining activities. The situation is different with the formation of discontinuous deformations, which can manifest themselves even decades after the excavations generating them have been performed (Strzałkowski, Ścigala, 2017; Strzałkowski, 2015).

Coal mining also significantly affects changes in water relations on the surface as well as inside the rock mass (Salom, Kivinen, 2020; Fajkiewicz et al., 2004; Ignacy, 2017). After the end of mining by underground methods, the most common problem is the de-elevation of the ground surface, causing waterlogging and flooding of the most depressed zones, as well as changes in the direction and intensity of surface and underground water runoff. The most important element in the prevention of hazards resulting from changes in hydrogeological conditions caused by mine liquidation is the effectiveness of the dewatering system. Cessation of dewatering would result in flooding of lower-lying areas on the surface and contamination of near-surface aquifers of drinking water sources (Mhlongo, Amponsah-Dacosta, 2016; Mhlongo, 2023; Wysocka et al., 2019).

Post-mining activities also have a negative impact on water quality parameters in watercourses into which water from mine drainage is discharged. In this case, the decisive influence is the suspended solids found in these waters and the above-normal concentrations of chlorides and sulfates, whose values increase with the depth of the mining operation carried out.

At the mine site there is a system of eight pumping stations for rainwater in depressurized subsidence basins (Fig. 1.). Approximately 2.5% of the anticipated expenditures for the mine's liquidation are spent annually on the maintenance and operation of the pumping stations (Chmiela, Smoliło, 2023b; Magdziarczyk et al., 2023). For social reasons, some flooding may be particularly severe, since the northern part of the mining area is located within the three large cities of the Silesian agglomeration (Kaczmarek et al., 2022; Kaczmarek, 2022). Conducting drainage of non-drainage basins protects the local community from potential flooding during periods of increased rainfall. The Company's pumping stations discharge about 150 million m³ (data for 2022) of rainwater and water carried into the non-drainage basins by local watercourses into the rivers annually. The purchase of electricity is one of the largest cost components. Energy consumption in 2023 at SRK S.A. was about 290 GWh, which corresponds to equivalent emissions of about 240 million Mg CO₂ into the atmosphere (Chmiela, 2022, 2023; Wojtacha-Rychter et al., 2021).

The main research objective of the analysis carried out was to identify the optimal solution for regulating water relations in the developed drainless basin and to develop a pilot project for a surface water pumping station, and to learn about the impact of changing conditions on the

economic efficiency of the energy self-sufficiency model of an exemplary surface water pumping station (Chmiela et al., 2023b). Modernization of the existing pumping station infrastructure combined with new technologies that also serve the local community will be a partially self-financing solution with a positive social and image perception. One way to reduce the need to purchase electricity from the grid is to build photovoltaic farms (Chmiela et al., 2023a, 2023b). Equipping a pumping station with RES will be a pilot solution that can be replicated in subsequent locations. The combination of renewable energy sources (RES) and the drainage processes of the non-drainage basins is a new solution that has not been practiced before (Tokarski et al., 2021). In addition to meeting the energy needs of the pumping station, the project aims to revitalize degraded non-watershed areas and protect endangered drinking water intakes (Bukowski, 2007). A very important design element was to reduce future costs and increase the financial efficiency of the project (Smoliło et al., 2023). Economically, maintaining a surface water pumping station is expensive and cumbersome. A pumping station, even one operating under an automatic control system, requires control and supervision. Failure or malfunction can even in the short term lead to flooding (Khomenko, Jelonek, 2023; Prakash Pandey, Prasad Mishra, 2022). In the area of the pumping station, the near-surface layer is formed by clays or loams with very low filtration properties, which will lead to their filling with water if pumping is abandoned. Modernization of the existing rainwater pumping system can lead to measurable budget savings and the restoration of occupied land for the purpose of serving residents or the needs of owners (Bluszcz, Smoliło, 2021; Krzemień et al., 2022, 2023). The stabilization of rock mass movements caused by the cessation of mining activities makes it possible to present a definitive model for rainwater pumping stations.

After analyzing the applied options for the use of RES in the modernization of pumping stations, models for the operation of pumping stations were determined on the basis of direct interviews with experts. The research was conducted on a representative group of 65 people. The experts were academics and engineering staff of the Company's energy-machinery departments. After the initial database of functional pumping station scenarios was created, they were again evaluated by the same experts in a second panel survey, asking them to assign each scenario a rating according to their preferences. On the basis of the obtained ratings for the best decision scenarios for pumping station upgrades, price discernment (surveys) was carried out, which made it possible to identify the optimal option for pumping station upgrades for current market conditions. The results also made it possible to assess trends in the change in economic efficiency of the planned project. (Gawęda, 2021; Gawęda, Sajnog, 2020).

The study identified areas and research issues that need to be addressed in order to optimize possible future processes for the modernization of the drainage system of non-drainage basins. The study was carried out based on the results of cyclic surveying of the observation lines located in the mine site, carried out by the surveying services, as well as on the basis of additional surveying measurements commissioned by these services on an ongoing basis. For design purposes, geodetic measurements of situational and elevation parameters of the

shape of the analyzed watercourse in the mining area were made. As part of the study, geodetic measurements of the vicinity of the analyzed watercourse (stream) were updated, as well as an audit of the operation of the surface water pumping station and the updating and adaptation of the design and cost-estimate documentation for the envisaged modernization. In order to analyze the feasibility of upgrading this pumping station, a geodetic survey of the creek bed was carried out. In the final stage, the size of the necessary expenditures that would allow the modernization of the pumping station and reduce the cost of drainage of the catchment of the analyzed drainless basin was updated.

In 2015, SRK S.A. took over the put into liquidation mining plant. The analyzed pumping station is located in one of the agricultural communities adjacent to large cities in the Silesian Agglomeration (Bondaruk et al., 2015; Chmielewska et al., 2020; Łabaj et al., 2020). The current surface morphology of the mine site should be considered unchanged due to the termination of mining operations in 2016. The increments of land surface subsidence caused by mining have disappeared, but the surface deformation caused by previous mining activities has triggered the formation of no-tide basins (Ignacy, 2017). The resulting drainless basins are drained through a system of surface water pumping stations. Figure 1 shows the location of the pumping station under study.

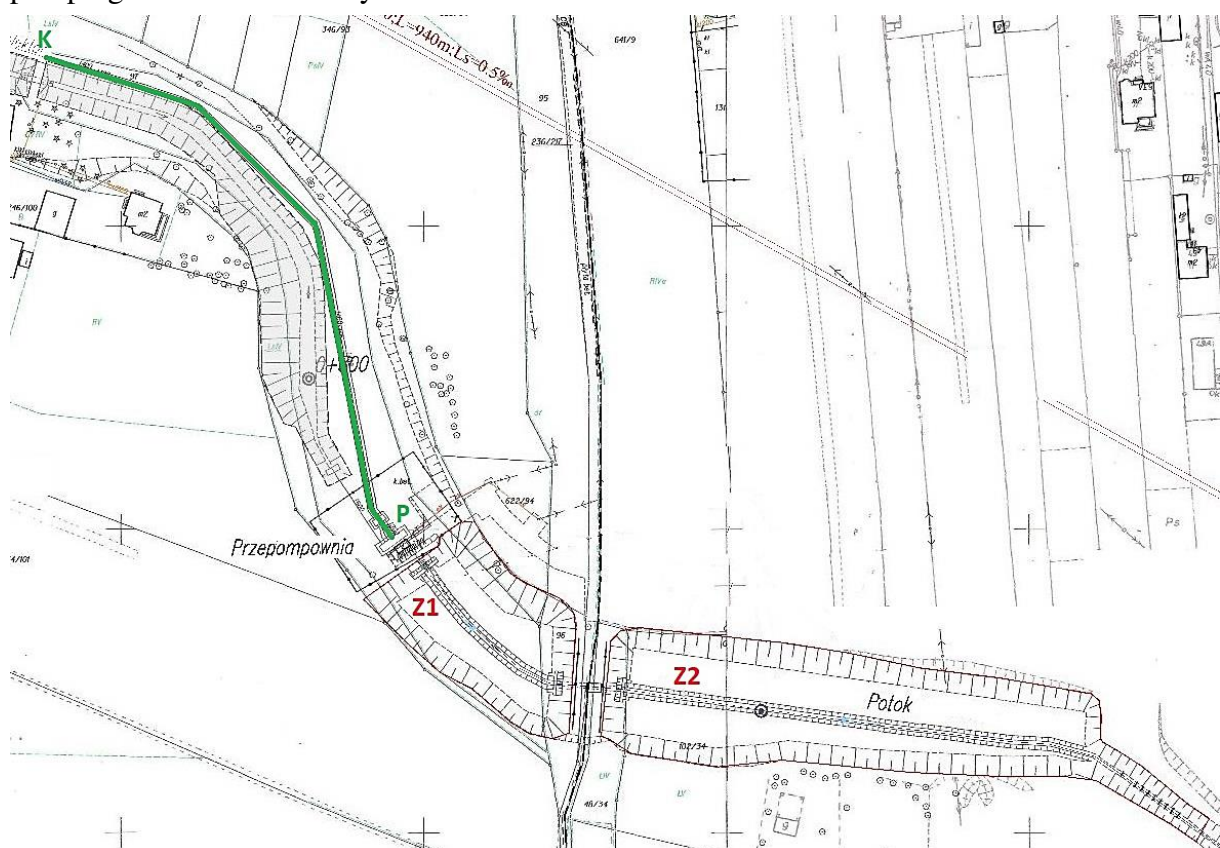


Figure 1. Location of the pumping station

Source: own study based on SRK S.A. internal materials.

The pumping station maintains a dewatering system based on a system of 4 pumps with a total pumping capacity of about 4000 m³/h. Each of the pumps is driven by a 450 kW motor. The task of the pumping station is to drain the drainage basin of water carried by the stream and rainwater during increased rainfall. Pumping is carried out in a continuous system all days of the year, but due to the varied inflow, 1 to 4 pumps are activated. To the prepared catchment area Z1 in Figure 1, all water flowing into the stream and water from rainfall or snowmelt is directed. The waters from catchment Z1, in accordance with the water-legal permit, are pumped via pipelines about 470 m to a section of the riverbed (green line in Fig. 1), the same stream, located slightly above the river bed, from where they flow into it by gravity.

3. Results and discussion

The mining area of the mine closure is located in the Silesian province (Poland). The mine with its current area and mining site of 28.4 km² was launched in the late 19th century. As the shallow resources were depleted, it went deeper and deeper, and mining moved south. Mining at the mine was terminated in 2016 with the transfer of the mine to the Mine Restructuring Company S.A. (Prusek, Turek, 2018; Kaminski et al., 2022) The mine is being restructured in a model with some pits left to create a district pumping station for dewatering neighboring mines (Dźwigoł, 2007).

The greatest impacts in landforms were caused by subsidence (Strzałkowski, 2015; Shavarskyi et al., 2022). Approximately 90% of the mining area was within the range of influence of the ongoing mining operations. There were continuous and discontinuous land deformations, but mainly in the form of subsidence basins, within the range of I-IV influence categories (Fajklewicz et al., 2004). The filling of depressed developed areas with water can turn them into wastelands through the formation of floodplains, the formation of swamps and peat bogs (Riesgo Fernández et al., 2020; Rubio et al., 2019). In order to counteract the effects of the resulting land subsidence on the mine site, regulation of the river and its tributaries has been used so far by building embankments, deepening the bottom in their beds, building new and deepening existing drainage infrastructure, backfilling depressurized basins and restoring proper water runoff, and building surface and groundwater pumping stations (Knothe, 1984). As the legal successor of the mining operation, SRK S.A. is obliged to build water pumping stations for the protection of these areas (Strzałkowski, Tomiczek, 2015; Strzałkowski, 2010; Chudek, 2010). There are eight surface water pumping stations draining surface water and groundwater from the mine's unlined basins within the mine's range of influence.

The analyzed pumping station functionally includes 2 main watercourses. These are the creek that feeds water into its channel, which has been lowered by land subsidence, and the river, in which the creek originally had an outlet and into which water is currently pumped by the pumping station.

The stream has a length of about 3.9 km and a catchment area of 2.7 km². At the lowest point of the basin caused by post-mining subsidence of the land surface, a water pumping station has been built (Fig. 1). Water from the pumping station is pumped into the bed of the watercourse in question by four pipelines \varnothing 600 (green line in Fig. 1) and then after a distance of about one kilometer it flows into the River. The waters of the stream in their entirety are pumped into its bed in the lower course from where gravity outflow of pumped waters to the river is already possible. The River flows from Katowice to its confluence with the Oder River. The total length of the River is 75.3 km, and the analyzed section crossing the Mine Area is 3.9 km long. In this section, the riverbed is regulated and embanked on both sides to a height of 1.5 m to 8.0 m (Fig. 2). In the Mining Area, the slope of the river bed along almost the entire section is close to 0.0‰.



Figure 2. River embankments built as part of the removal of 'mining damage'.

Source: SRK S.A. internal materials.

All the pumping stations located in the mining area of the Branch are located in the regions of drainless basins created by mining operations and are located in the catchment area of the River. The pumping stations discharge water directly into the River or into its tributaries. The location of the analyzed pumping station is shown on the map in Figure 1. The pumping station receives inflowing water from the "upper" lowered channel to the higher section of the channel of this stream in its lower course. The threat of flooding obliges the owner, which is the Mine Restructuring Company S.A., to continuously divert water from the upper, lowered channel of the stream to its lower section. The area of the drainage basin is about 250 hectares. Two reservoirs (Z1 and Z2 in Figure 1) have been constructed on the Stream above the pumping station for the retention of excess water, during periods of snowmelt or particularly intense rainfall. The total retention of the reservoirs is estimated at about 15,000 m³. A pumping station is built below the lower reservoir (Figure 3 and P in Figure 1). The task of the pumping station is to maintain the desired level of the inflowing water table in the Z1 reservoir. The pumping

station is equipped with four pumps with a total pumping capacity of 4000 m³/h. With the help of these submersible sewage pumps, water is pumped through four pipelines down the creek to collector K in Figure 1. From the aforementioned collector, water flows freely into the unlined portion of its base channel. In the downstream section of the creek, the water was dammed both by a culvert under the DK road and by natural outfalls in the downstream, estuarine section, where the ordinates of the creek bottom reach the ordinates of the river bottom.



Figure 3. Intake of stream waters in the lower floodplain by the pumping station (view toward the NW)
Source: internal materials of SRK S.A

During times of heavy precipitation, attention has been drawn to the relatively rapidly rising water level in the estuary section of the Creek. In addition, these waters cannot be properly discharged into the river because the water table in the river is also rising. As a result of the high water level in the riverbed, the so-called backflow of surging waters into the stream bed may occur and the lowest-lying areas may also be flooded (Gajdzik et al., 2022).



Figure 4. Reconstruction of a bridge over a creek along the DK state road.
Source: SRK S.A. internal materials.

For this reason, the mine has already reconstructed the bridge under the DK national road (Figure 4) and dredged and regulated the "lower" section of the stream bed (Figure 5). Failure of the pumping station; electrical or mechanical, may cause flooding reaching the water table ordinate of about 220.0 m above sea level, causing flooding on the left bank of 810 meters. Flooding on the right bank will be much smaller and will only occur over a distance of 550 m.



Figure 5. Widening and deepening of the stream bed with a change in the shoreline.

Source: SRK S.A. internal materials.

Another problem is the mouth of the creek to the river, and at the same time the discharge point of the pumped waters. It has been observed that during periods of intense precipitation, the water level in the river rises significantly, causing water to pile up in the estuary section of the stream bed, leading to flooding of areas in the estuary area. However, such a state of affairs is not directly related to the pumping station. Under such circumstances, the solution is to drain the dammed waters into a previously prepared floodplain polder (Salom, Kivinen, 2020).

There is still a possibility of drilling absorption wells in the reservoirs to filter surface water deep into the Quaternary formations to the 1st aquifer. According to a geological borehole located about 200 m south of the reservoir, there is a package of 25 m of sands below a layer of clay 1 m thick. It will be possible to drill about 4 absorption wells, responsible for draining some of the rainwater from surface runoff.

In order to improve runoff, the section of the old "lower" stream bed should also be made clear on an ongoing basis, with the goal of gravitational flow of rainwater into the river. Currently, water stagnates in many parts of this section, providing a place for rotting and decaying vegetation.

Photovoltaic farms can be established on industrial land for production purposes, but attention should be paid to the existing technical infrastructure (cabling, pipelines, gas pipelines, etc.) and to the contamination of the site by previous production processes (Chmiela, Smoliło, 2023a; Doorga et al., 2022). An additional advantage for locating the farm next to a pumping station is good access for technical vehicles.

The operation of the pumping station required leaving the pumps in the cast controlled from a container building located nearby (Figure 6).



Figure 6. Equipment of the pumping station (view in SW direction).

Source: internal materials of SRK S.A.

The surface facilities are accompanied by an area of 0.2 hectares (Fig. 7). In 2022, the pumping station pumped out about 9 million m^3 of water. The project to upgrade the pumping station involves the construction of a farm with a generating capacity of about 0.16 MWp resulting from the area of available land adjacent to the pumping station. The built photovoltaic farm will be able to produce up to about 260 kWh of "green", "clean" electricity per year. The calculations assume 1600 hours of sunshine per year, which is the average for the area. In selecting the size of the photovoltaic farm, the maximum use of available areas including the area of available roofs was assumed. The pumping station at minimum load (only 1 active pump) requires about 450 kW. It is estimated that the pumping station, to carry out its operations, requires about 3.9 MWh of electricity per year.



Figure 7. SRK S.A. properties adjacent to the pumping station.

Source: own study based on <https://mapy.geoportal.gov.pl/imap/>

Assuming a minimum load of only one pump, the farm could meet up to about 36% of the pumping station demand on sunny days and up to 7% of the energy required for the pumping station on an annual basis. This leads to a reduction in equivalent atmospheric emissions of about 214 Mg CO₂ (Howaniec et al., 2023; Woszczyński et al., 2023; Villar et al., 2020). The use of the potential of RES sources is limited by technical and atmospheric conditions, but even on sunny days the generated energy will be completely consumed by the built-in pumps. The missing part of the electricity throughout the year, the pumping station will draw from the national grid. Table 1 shows the basic operating parameters of the modernized surface water pumping station.

Table 1.

Operating parameters of the upgraded surface water pumping station

	Units	2022	IV 2023	I 2024
Energy price	Multiples of the purchase price of 1 sewage pump installed in the pumping station	0.004	0.011	0.006
Energy savings		1.3	2.7	1.8
Outlays for the farm		8,1		
Simple payback time	[years]	6.5	3.0	4.6

Source: own study.

For the unit purchase price of electricity in the fourth quarter of 2023, the energy produced by the farm would give savings equivalent to the purchase of about 2.7 sewage pumps installed at the pumping station (Table 1.). Taking into account the cost of constructing the farm plus the additional cost of maintaining the installation, the simple payback time for the additional expenditures would be about 3 years. Such a short payback time for additional expenditures is due to the fact that the vast majority of maintenance costs are already incurred, and the additional ones are minimal.

In the first quarter of 2024, there will be a change in electricity unit charges. The decrease in the unit price of electricity negotiated with the local supplier has reduced the cost of purchasing electricity, resulting in an extension of the simple payback time for additional expenditures to 4.6 years. Further reductions in the unit energy purchase price and another extension of the simple payback time for additional expenditures are likely (Table 2). Due to inflation and other market conditions, it is estimated that the unit power purchase price will not fall below the 2022 price. With such a low unit price under the current market situation, the simple payback period for additional expenditures will not exceed 6.5 years. Even such a payback period for additional expenditures suggests carrying out the described project (Gawęda, 2022; Gawęda, Złoty, 2023; Schoenmaker, Schramade, 2019).

4. Conclusions

The long-term exploitation of the deposit has led to the creation of drainless basins, and this has necessitated the construction of a number of pumping stations that allow the use of acreages at risk of flooding or permanent inundation.

- The pumping station, which is the subject of the study, was constructed in a basin caused by mining operations, covering part of the stream bed. It is responsible not only for the transfer of rainwater, but also for the uninterrupted pumping of water flowing in this watercourse. The pumping station is the only mine facility that pumps the running waters of the watercourse, not to another watercourse, but 470 meters below, to an unlined old section of the same stream. Stopping pumping or failure of the pumping station can cause flooding. This forces the uninterrupted transfer of the creek's waters to its lower section.
- Combining surface water pumping stations with RES is an innovative solution to the reality of liquidated mines. In addition to covering the energy needs of the pumping station, the project aims to revitalize degraded non-floodplain areas and protect endangered drinking water intakes. A very important design element was to reduce future costs and increase the financial efficiency of the project.
- The proposed project is economically justified and recommended for implementation due to increased flood safety. Implementation of the proposed project requires capital expenditures equivalent to the purchase of about 8.1 sewage pumps installed at the pumping station, and the expenditures incurred should pay for themselves after about 3 to 7 years.

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APPLICATION OF LINEAR ORDERING METHODS TO ASSESS THE LEVEL OF INEQUALITY IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT GOAL 10 IN THE EUROPEAN UNION

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Purpose: The purpose of this article is to compare the results of linear ordering conducted using various methods to assess the achievement level of the tenth sustainable development goal, i.e., reducing inequalities in European Union countries in 2022. A specific aim of the study is also to identify the technique that shows the greatest agreement with other forms of ordering.

Design/methodology/approach: In this study, three methods of linear ordering were used to assess the diversity of inequality levels in the European Union. The reference methods include Hellwig's development measure and the classical TOPSIS method. A non-reference method was also used based on the averaged values of normalized features. The synthetic variables were computed using indicators of the tenth sustainable development goal, which were applied to assess progress in goal achievement in EU countries. To assess the consistency of the obtained rankings, Kendall's rank correlation coefficients were calculated, and similarity measure vectors were computed.

Findings: The study addresses the issue of choosing a linear ordering method to determine the level of achievement of the 10th Sustainable Development Goal, which aims to reduce inequalities in the European Union countries in 2022. Based on the analysis, it can be concluded that the choice of synthetic variable construction procedure affects the ranking of the examined objects. Based on the similarity measure vectors of the rankings, it was found that the ranking constructed using the TOPSIS method with zero unitarization is the closest to all other rankings.

Research limitations/implications: The authors acknowledge that the choice of variables for the study does not fully capture the level of socio-economic inequalities in EU countries. The study used only the indicators of the 10th Sustainable Development Goal, monitored and published by Eurostat, to assess the level of inequality. Additionally, the final ordering of objects within linear ordering methods depends on the variable selection and normalization method adopted by the researchers.

Practical implications: The study's results may be useful for policymakers in the European Union countries. Using an aggregate synthetic measure to assess a multidimensional phenomenon can facilitate evaluating progress in achieving the goal. Additionally, the application of an appropriate method to identify the countries best achieving the goal provides an opportunity to identify processes contributing to success and apply them in countries with lower levels of goal achievement.

Originality/value: The study proposes the use of a multi-criteria analysis approach, which is currently considered an effective method for measuring and describing multifactor phenomena. Several methods of variable aggregation often yield different results. Therefore, it seems appropriate to compare several methods of evaluating a given phenomenon and choose the one with the greatest agreement with others. This procedure is not commonly used as a standard quantitative tool in assessing the diversity of inequality levels in EU countries.

Keywords: linear ordering, non-reference and reference methods, country ranking, inequalities, sustainable development.

Category of the paper: Research paper.

1. Introduction

Contemporary societies face many challenges, including the elimination of poverty and the reduction of social inequalities. These issues are closely linked to various global aspects such as debt, falling commodity prices, insufficient food production per capita, industrialization shortfalls, and growing economic disparities between different social strata (Utzig et al., 2023).

Poverty and social inequalities also constitute key obstacles to achieving sustainable development (SD), which aims for a lasting improvement in the quality of life for current and future generations through the appropriate balance of economic, human, and natural capital.

The Sustainable Development Goals (SDGs) are a set of seventeen global goals established in September 2015 by all member states of the United Nations (Sachs et al., 2018). Given the multifaceted nature of sustainable development, specific tasks have been defined for each goal to be achieved by 2030, totalling 169 tasks. Each of these tasks has been assigned indicators to measure progress, totalling 231 indicators. The responsibility for reporting progress rests with the governments of individual countries. This allows for systematic monitoring of progress worldwide in achieving the Goals (UN, 2015).

The European Union has developed its own set of indicators for the 2030 Agenda, tailored to the specifics of EU member states, with reporting conducted by Eurostat. This enables precise tracking of progress towards sustainable development at the European level.

It is worth noting that the diversity of indicators can help measure, monitor, and control various dimensions related to sustainable development. On the other hand, it can also make it difficult to assess overall progress towards sustainable development (Guijarro, Poyatos, 2018). A solution to this problem could be the application of a single aggregate synthetic measure. Such an integrated indicator is more accessible to interpret than a broad range of different indicators, and it also allows for country comparisons and assessment of changes over time. This is important because systematic progress monitoring in achieving sustainable development goals provides countries with significant feedback. It is believed that the key benefit of measuring and comparing international results is the ability to draw scientific conclusions from

the achievements of high-performing countries and focus on processes that have contributed to their success in improving one's level (Navarro, 2000).

Linear ordering methods are often used for evaluating multi-feature objects, enabling multidimensional comparative analysis. These methods allow for the ranking of objects from “best” to “worst” (Sompolska-Rzechuła, 2020). These methods are based on calculating a single value, called an aggregate or synthetic variable (Malina, 2004; Bąk, 2018b). There are several procedures for aggregating variables, which can be divided into non-reference and reference methods (using measures of distance from a reference point or anti-reference point). Descriptions of these procedures can be found in Kukuła, Luty (2015), Bąk (2018a), Ture, Dogan, Kocak (2019), Roszkowska, Filipowicz-Chomko (2021).

Reference methods for linear ordering are frequently used to assess the level of development of various phenomena. For example, TOPSIS has been used to assess good governance (Ardielli, 2019), economic and environmental energy efficiency (Vavrek, Chovancová, 2019), the implementation of the Europe 2020 strategy (Ture, Dogan, Kocak, 2019), differences in working conditions (Tutak, Brodny, 2022), the use of renewable energy sources in road transport (Kisielińska et al., 2021b), institutional quality (Balcerzak, 2020), the use of ICT in enterprises (Vasilić, Semenčenko, Popović-Pantić, 2020), and energy poverty (Zhou, Wang, Hussain, 2022). Meanwhile, Hellwig's method has been applied to assess education progress (Roszkowska, Filipowicz-Chomko, 2021), agricultural development levels (Reiff et al., 2016), macroeconomic stability and competitiveness (Roszko-Wójtowicz, Grzelak, 2020), and living conditions (Wawrzyniak, 2016). These methods are also used to evaluate progress in achieving sustainable development goals (Gavurova, Megyesiova, 2022; Roszkowska, Filipowicz-Chomko, 2020; Szymańska, 2021). Applying different methods often results in country rankings that differ from each other. Authors attribute differences in rankings to different standardization methods (Roszkowska, Filipowicz-Chomko, 2021). This means that the choice of method can affect a country's position in the ranking, which may influence the usefulness of conclusions drawn from these analyses.

This article aims to compare the results of linear ordering conducted using various methods to assess the diversity of inequality levels in European Union countries in 2022. A specific aim of the study is also to identify the method that shows the greatest agreement with other forms of ordering. The analyses are based on statistical data provided by Eurostat for the realization of the tenth Sustainable Development Goal, i.e., reducing inequalities in the European Union (SDG 10) in 2022. The calculations were performed using Statistica 13.1 and Microsoft Excel.

2. Research Method

The construction of a synthetic measure within the framework of linear ordering of objects proceeds through the following stages:

- Selection and screening of diagnostic variables.
- Determination of the nature of the variables.
- Normalization of the variables to bring them to a similar order of magnitude.
- Determination of the coordinates of the reference point, or the reference and anti-reference points in the case of reference aggregation.
- Construction of the synthetic measure and determination of the linear ordering of objects.

In this study, the reference methods used to assess the diversity of inequality levels in the European Union were Hellwig's measure of development (Hellwig, 1968) and the classic TOPSIS method (Hwang, Yoon, 1981). The method based on the averaged normalized values of features (Wypych, 1982) was applied as a non-reference method.

For all the linear ordering methods adopted in the study, both reference and non-reference, variables were normalised using zero unitarization. In the literature, this is considered a universal method for normalizing diagnostic features (Kukuła, 1999):

- for stimulant:

$$z_{ij} = \frac{x_{ij} - \min_i x_{ij}}{\max_i x_{ij} - \min_i x_{ij}} \quad (1)$$

- for destimulant:

$$z_{ij} = \frac{\max_i x_{ij} - x_{ij}}{\max_i x_{ij} - \min_i x_{ij}} \quad (2)$$

where: z_{ij} – the normalized i -th observation of the j -th variable, for $i = 1, \dots, n$, and $j = 1, \dots, k$.

The formulas for the synthetic variables for the three selected linear ordering methods used in the study are presented in Table 1.

The synthetic variable q_i takes values from the interval [0;1]. The highest value of the aggregate variable indicates the best position of a given object, while the lowest value indicates that the object is in the worst situation in the analyzed area (Ulbrych, Lesiak, 2022). Normalized values of Hellwig's aggregate variable q_i may exceed the interval [0;1] if significantly outlying objects are in the set of ordered objects (Bąk, 2018a).

Kendall's rank correlation coefficients (1938) were determined to assess the consistency of the obtained rankings, and vectors of similarity measure values were calculated.

Table 1.
Synthetic Variables in Selected Linear Ordering Methods

Name of the Method	Synthetic Variable q_i
Hellwig's Measure of Development	$q_i = 1 - \frac{d_{i0}}{d_0}, (3)$ <p>where:</p> $d_{i0} = \sqrt{\sum_{j=1}^k (z_{ij} - z_{0j}^+)^2}, (4)$ $d_0 = \bar{d}_0 + 2 \cdot s_d, (5)$ $\bar{d}_0 = \frac{1}{n} \sum_{i=1}^n d_{i0}, (6)$ $s_d = \sqrt{\frac{1}{n} \sum_{i=1}^n (d_{i0} - \bar{d}_0)^2} (7)$
Classic TOPSIS Method	$q_i = \frac{d_{i0}^-}{d_{i0}^+ + d_{i0}^-}, (8)$ <p>where:</p> $d_{i0}^+ = \sqrt{\sum_{j=1}^k (z_{ij} - z_{0j}^+)^2}, (9)$ $d_{i0}^- = \sqrt{\sum_{j=1}^k (z_{ij} - z_{0j}^-)^2}. (10)$
Non-Reference Method	$q_i = \frac{1}{k} \sum_{j=1}^k z_{ij}. (11)$

Source: Own elaboration based on: Miłkowska (2016), Bąk (2018a), Sompolska-Rzechuła (2020), Kisielińska et al. (2021a).

3. Research results

Using Eurostat data, a set of 11 explanatory variables was preliminarily selected to assess the diversity of European Union (EU-27) countries regarding the level of inequality within SDG10, analyzed across three complementary dimensions (Szymańska, 2021):

- monitoring the reduction of inequalities between countries (indicators: adjusted GDP per capita (EU-27 = 100), adjusted gross household disposable income per capita (EU-27 = 100));
- monitoring the reduction of inequalities within countries (indicators: quintile share ratio; relative median poverty gap (% distance to poverty threshold), the share of disposable income held by the poorest 40% of the population (% of income), people at risk of poverty or social exclusion (% of the population));
- monitoring facilitation in migration and social integration (indicators: people at risk of income poverty after social transfers (% of population aged 18 years and over), young people not in employment, education, or training (NEET) (% of population aged 15 to 29 years), early leavers from education and training (% of population aged 18 to 24 years), employment rate (% of population aged 20 to 64 years), first-time asylum applications (number per million inhabitants).

Considering statistical criteria for variable selection, such as discriminatory power and degree of correlation with other characteristics (Kukula, 2020), four indicators were excluded from the set: adjusted gross household disposable income per capita, quintile share ratio, people at risk of income poverty after social transfers, and employment rate. The first three indicators were eliminated due to a high level of Pearson's correlation coefficient ($r > 0.75$), while the employment rate was excluded due to a low coefficient of variation ($V < 0.1$).

As a result, seven diagnostic variables were adopted for assessing the diversity of EU countries in terms of inequality levels and constructing synthetic measures:

- x_1 – adjusted GDP per capita (EU-27 = 100),
- x_2 – relative median poverty gap (% distance to poverty threshold),
- x_3 – share of disposable income held by the poorest 40% of the population (% of income),
- x_4 – people at risk of poverty or social exclusion (% of the population),
- x_5 – early leavers from education and training (% of population aged 18 to 24 years),
- x_6 – young people not in employment, education, or training (% of the population aged 15 to 29 years),
- x_7 – first-time asylum applications (number per million inhabitants).

Among the listed variables, only variables x_1 and x_3 are stimulants. The remaining variables are considered destimulants. No nominal variables were identified.

Table 2 presents the results of the linear ordering of European Union countries in 2022 obtained based on selected reference methods: Hellwig's measure of development and the classic TOPSIS method, as well as a non-reference method.

Considering the presented values of the synthetic measure, it can be concluded that the diversity of inequality levels among EU-27 countries in 2022 was significant (Table 2). The distance between the country with the highest level of the synthetic measure and the country with the lowest level was 0.681 for Hellwig's method, 0.409 for the TOPSIS method, and 0.475 for the non-reference method.

In each applied method, the top three places in the ranking were occupied by the same countries: Ireland, Luxembourg, and Slovenia. Spain, Italy, Romania, and Bulgaria ranked the lowest. In the case of the Hellwig method, Romania and Bulgaria swapped their positions. Romania was ranked last, and Bulgaria was second to last. Poland's position compared to other European Union countries was relatively high, as evidenced by its ranking (eighth, seventh, and sixth) in all constructed rankings.

Table 2.

The ranking of EU countries and the synthetic measure values describing the level of inequality in the context of the tenth Sustainable Development Goal in 2022 based on selected linear ordering methods

Country Position	Hellwig Method		TOPSIS Method		Non-reference Method	
	Country	q_i	Country	q_i	Country	q_i
1	Ireland	0,677	Ireland	0,762	Ireland	0,779
2	Luxembourg	0,602	Luxembourg	0,722	Luxembourg	0,763
3	Slovenia	0,539	Slovenia	0,694	Slovenia	0,753
4	Netherlands	0,536	Czech Republic	0,683	Czech Republic	0,741
5	Czech Republic	0,520	Netherlands	0,678	Netherlands	0,714
6	Finland	0,489	Finland	0,654	Poland	0,697
7	Sweden	0,476	Poland	0,645	Slovakia	0,695
8	Poland	0,455	Sweden	0,636	Finland	0,693
9	Denmark	0,449	Slovakia	0,632	Sweden	0,661
10	Slovakia	0,408	Denmark	0,614	Denmark	0,633
11	Portugal	0,377	Malta	0,590	Malta	0,622
12	Germany	0,371	Portugal	0,584	Portugal	0,608
13	Malta	0,369	Germany	0,575	Belgium	0,600
14	Belgium	0,340	Belgium	0,573	Germany	0,595
15	Hungary	0,332	Hungary	0,566	Hungary	0,591
16	France	0,329	Croatia	0,555	Croatia	0,575
17	Croatia	0,314	Lithuania	0,546	Lithuania	0,563
18	Lithuania	0,303	France	0,537	France	0,544
19	Austria	0,301	Cyprus	0,524	Cyprus	0,535
20	Cyprus	0,244	Austria	0,521	Austria	0,525
21	Latvia	0,198	Latvia	0,478	Latvia	0,470
22	Estonia	0,196	Greece	0,471	Greece	0,460
23	Greece	0,184	Estonia	0,450	Estonia	0,438
24	Spain	0,126	Spain	0,403	Spain	0,380
25	Italy	0,070	Italy	0,387	Italy	0,351
26	Bulgaria	0,015	Romania	0,372	Romania	0,311
27	Romania	-0,004	Bulgaria	0,353	Bulgaria	0,304

Source: own elaboration based on Eurostat, Sustainable Development Indicators.

The positions of individual countries in the prepared rankings vary. The position in all rankings was the same for seven countries (Ireland, Luxembourg, Slovenia, Hungary, Latvia, Spain, and Italy). However, the ranking differences for the remaining EU countries are insignificant, ranging within 1-3 places. Furthermore, there is a greater convergence between the TOPSIS benchmark ranking and the ranking obtained through the non-reference procedure - twenty countries achieved the same positions. The calculated value of the Kendall tau correlation coefficient $\tau = 0.98$ confirms this statement. Analysis of the Kendall tau correlation coefficients between the remaining rankings also confirms a high consistency in the ordering by different linear ordering methods (Table 3).

Table 3.

The Kendall tau correlation coefficients between the rankings ($p < 0.05$)

	Hellwig Method	TOPSIS Method	Non-reference Method
Hellwig Method	1,00	0,94	0,92
TOPSIS Method	0,94	1,00	0,98
Non-reference Method	0,92	0,98	1,00

Source: own study.

When analyzing the results of the linear ordering of objects obtained using different methods, choosing the ordering that shows the highest agreement with the other rankings is recommended. The procedure proposed by Kukuła and Luty (2015) was applied to select the results closest to the others.

For each pair of created orderings, the similarity measure of rankings was estimated, and then a vector of similarity measure values was calculated. The methods of variable selection were compared in the following order: non-reference, Hellwig, TOPSIS. The vector of similarity measure takes the form:

$$[\bar{u}_p] = [0,9506; 0,9341, 0,9615].$$

Linear ranking of countries obtained using the TOPSIS method, with zero unitarization, is the closest to all other rankings. When this method was applied to assess the achievement level of the tenth sustainable development goal, i.e., reducing inequalities, Ireland took the first place, while Bulgaria took the last. The highest position in the ranking is primarily due to a very high level of adjusted GDP per capita and a low percentage of young people prematurely ending education and training in Ireland. Conversely, Bulgaria exhibited the lowest level of adjusted GDP per capita and a relatively high percentage of young, unemployed, uneducated, and untrained individuals.

4. Summary

Various methods of linear object ranking were applied to assess the achievement level of the tenth sustainable development goal, i.e., reducing inequalities. Two reference methods, Hellwig's and TOPSIS, as well as a non-reference method, were utilized. The use of both approaches is justified due to the different ways of determining rankings in these two groups of methods, often resulting in diverse outcomes. In all methods, zero unitarization was applied for variable standardization to eliminate differences in rankings caused by different standardization methods.

The results of the analyses indicate that the ranking obtained using the TOPSIS method with zero unitarization demonstrates the greatest consistency with other rankings.

The obtained results confirm significant diversity among European Union countries in terms of inequality levels in the context of sustainable development. It is anticipated that changes in these disparities will occur in the coming years. Differences between individual countries are expected to gradually diminish, mainly due to the implementation of European cohesion policy. However, this is a slow and long-term process.

The research area covered in this study is extremely extensive. Further expansion of the analysis is planned, utilizing linear ranking methods on other research objects, including all European countries. Future research goals using linear ranking methods will include other normalization algorithms and assigning variable weights.

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EMPLOYEE COMPETENCIES IN THE CHANGING ORGANIZATIONAL ENVIRONMENT

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Purpose: The study aims to identify changes in the importance of employee competencies in the competency structure under the influence of selected elements of the business environment. The results obtained are derived from literature analysis and empirical research.

Design/methodology/approach: The problem in the study was formulated as the influence of selected elements of the macro-environment of enterprises (such as: aggressive competition, economic crisis, knowledge-based organization, modern technology, and internationalization) on the reconfiguration of the weights of employee competencies (among them: creativity, flexibility, information processing and knowledge generation, interdisciplinary knowledge, and interpersonal communication) in the competency structure.

Findings: The strongest changes was perceived between the increase in the importance of knowledge and information in the business environment and the competencies of information processing and knowledge generation. The second strongest relationship was between the economic crisis and employee flexibility. The third was the relationship between the intensity of competition and employee creativity, and the last one was the relationship between the use of modern technology and employees' interdisciplinary knowledge.

Research limitations/implications: Limitations of the article include the size of the sample only from Malopolska region and lack of the equivalence of the investigated group.

Practical implications: The results of the conducted research draw attention to the current needs of enterprises in the field of employee competencies and therefore provide information for schools, students, unemployed people, employees of enterprises, and all those for whom it is important to acquire and develop their own competencies.

Originality/value: The study pointed out the influence of selected elements of the macro-environment of enterprises on the reconfiguration of the weights of employee competencies in the competency structure.

Keywords: Organizational environment, competencies, change.

Category of the paper: Research paper.

1. Introduction

Changes taking place in the environment have been and continue to be widely raised in scientific as well as non-scientific circles. In recent decades, they have been dynamic in nature; increasingly, the modern economy, and in particular the business environment, is being described as volatile, turbulent, unpredictable, unstable, and uncertain. This is due to many factors that make up the technological, economic, political legal, socio-cultural, and competitive environment.

Changes occurring in different types of environment to varying extents force companies to adapt to new operating conditions, which also affects the sphere of human resource management (Gigauri, 2021). A fundamental question arises as to how this affects employee competencies, and whether a "new employee" is needed as a result, equipped with either completely new competencies or the same ones, but at a different level than before.

The fact that competencies can be measured, assessed, and developed allows attempts to identify the existing competency gap and eliminate it. Undertaking research related to competencies makes it possible to track the dynamics of changes in their expression in organizational practice, manage them, and anticipate future needs. Understanding the causes of changes in the value of competencies in the competency structure will contribute to reducing the problem of the competency gap between the competencies that employees have and those desired by organizations.

Therefore, the aim of this publication is to identify changes in the importance of employee competencies in the competency structure under the influence of selected elements of the enterprise environment.

2. The environment of modern enterprises: current and emerging issues

The environment of an organization can be broadly defined as "the totality of conditions and impacts of various organizations (institutions) that influence the behavior of individual enterprises" (Gierszewska, Olszewska, Skonieczny, 2013). These are all the processes, phenomena, and entities related to the organization through mutual interaction, but not included in it (Brózda, Marek, 1999). It includes a set of different conditions that directly and indirectly affect the functioning of the organization, creating opportunities on the one hand, and limitations on its development on the other (Wach, 2008).

The multiplicity of definitions of the environment entitles to simplify the mutual environment-organization relationship despite the awareness of its complexity.

In the technological environment cited in the Introduction, changes are particularly rapid. Examples include the emerging and obsolete technical innovations in the field of consumer electronics. Although known for a long time, they have now fundamentally changed the work environment (Ćwiek, Ćwiklicki, Firszt, 2021).

Moreover, recent years have particularly emphasized the importance of technology in the functioning of companies. The period of the COVID-19 pandemic forced partial or complete changes in the way work was performed by most employees and forced employers to change management principles, including development, work evaluation and valuation (Zhang, Yu, Marin, 2021). Organizations became responsible for the health and safety of their employees, struggling with problems they had not previously experienced (Koveshnikov, Lehtonen, Wechtler, 2022). Remote work management reversed the perspective from "a worker going to work" to "work going to a worker". The solutions adopted in relation to remote work will be norms with a longer validity period (Selmer et al., 2021, p. 12). This is confirmed by López Peález (2021, p. 377) stating that "the pandemic has accelerated a process of digitalization that has produced relevant changes in...companies' organization".

One of the most important events in the economic environment of the 21st century was the economic crisis initiated in 2008, the effects of which are still being observed. This is a time of great opportunity for so-called agile organizations, taking advantage of opportunities. The crisis is also an impulse to take more risky and radical actions; it is a wake-up call for innovation in the sense that it forces better use of existing resources, which are particularly valuable in times of crisis. Studies indicate that the most common response to the crisis was to cut costs and save (Orlowski, Pasternak, Flaht, Szubert, 2010). This was followed by searching for new markets and customers, being more active in the market, and lowering prices of products and services. The last two actions, in particular, can be seen as an attempt to use the crisis to make changes and treat this period as a source of potential opportunities. As the research shows, relatively few companies took a proactive stance during the crisis, such as starting to look for new markets (20%) or intensifying advertising (12%) (Orlowski et al., 2010, p. 39).

Another event that changed the conditions under which companies operated was Poland's accession to the EU in 2004. This had a positive effect on the level of internationalization of Polish companies, linking the Polish economy to the economies of other countries. In the competitive environment of enterprises, the number of foreign entities increased, and access to foreign markets became easier. An increase in the requirements of customers was observed, as they began to pay more attention to the quality of products, and their impact on health and ecology. A global customer emerged, purchasing global products in a global market.

According to J. Kotowicz-Jawor (2008), small and medium-sized companies experienced a significant impact of European institutions on their behavior. This refers to regulations, norms, and standards, including those related to ecology. According to the research presented by U. Grzelonska (2008), EU bodies had the greatest impact on the attitude of companies to the environment at the beginning of Poland's EU membership. About 33% of enterprises noted

changes under the influence of EU bodies. Based on the survey results, it can be concluded that in 20% - 67% of enterprises, Poland's accession to the European Union resulted in changes in labor relations, internal organization systems, technical standards, and approach to the environment. It turns out that EU accession was perhaps the most important factor in terms of the strength of its impact, changing the functioning of enterprises in our country.

The expansion of markets and the increase in the number of entities intensified competition, giving it a more aggressive character. The reasons for this are seen in the internationalization of enterprises and the development of transnational corporations, the processes of consolidation: mergers, the opening of markets, the expectations of the global consumer, the increasingly shorter lifecycle of products, and easier and faster access to information. New concepts of corporate competitiveness are related to innovation, entrepreneurship, and alliances (Ring, 2006, p. 19). The increase in competitive pressure should prompt companies to intensify investment in R&D, innovation, learning, and knowledge (Thomas, Inkson, 2015). Competitive advantage based on knowledge is becoming more and more characteristic of modern enterprises operating under aggressive competition.

The previously mentioned ecological issues as challenges in the management of organizations include problems of environmental protection and quality. The green management/green HR category is an aftermath of the pressure of modern societies to improve the quality of the environment, and the international quality standards (PN-EN ISO 14001:2015-09) and the European Parliament directives (2004/35/EC) are its formal expression. The idea of green HR is a tool for the implementation of the concept of sustainable development of organizations, the goal of which is the green economy (Bugdol, Stańczyk, 2023).

In summary, in order to face the increasing demands of the environment, companies are becoming innovative and flexible, i.e. able to adapt quickly to ongoing change. Intangible resources such as knowledge or the ability to learn, stemming from human capital, are increasingly important sources of competitive advantage (Tome, Gromova, 2021). The internationalization of companies is forcing a change in the competitive strategy to one based on innovation, which consequently entails the requirement to have appropriately qualified employees equipped with the necessary competencies.

3. Employee competencies in business management

The term "competency" has been in use since about the middle of the 20th century, and denotes the characteristics of people resulting from their personality traits, attitudes, motivation, knowledge, experience, and skills, which are revealed through behavior, enabling them to perform professional tasks and achieve results at least at a satisfactory level (Kocór,

2019). Unlike qualifications, which are much more formal in nature, competencies determine future professional performance to a greater extent.

Particularly interesting groups of competencies are the key competencies, i.e. those considered most important, and the universal competencies, i.e. those common to all employees. Since they are not limited to a narrow group of employees or companies, learning about the possibilities of their diagnosis, assessment, and development is attractive from the point of view of their importance to a relatively wide range of people.

Employee competencies serve organizations, first and foremost, as a measure of the quality of human capital and the effectiveness of achieving goals, and consequently for attracting, rewarding, evaluating, and developing employees. In other words, they help carry out the basic functions of human resource management by closely linking them to the organization's vision, mission, and strategy. As a result, competencies today determine the competitive advantage of companies. On an individual level, the development of competencies, in accordance with the concept of lifelong learning, continues over many years and requires effort, time, and cost. However, nowadays, competencies determine the possibility of obtaining employment in a desired job position and, consequently, material and social status.

In this context, it is worth seeking knowledge - based on solid research - explaining how the business environment affects employee competencies and when, and as a result of what, the importance of these competencies changes. The available research tends to focus on narrow groups of competencies (for example, managerial or soft competencies), on competencies related to a specific profession (for example, the competencies of a teacher, or a nurse), or those related to a particular social group (for example, the competencies of students, graduates, the unemployed). However, it is difficult to find representative studies devoted to a group of key universal competencies, that is, the most important competencies common to all employees and all enterprises in the existing environmental conditions.

4. Methodological assumptions of the reported research¹

The problem in the study was formulated as the influence of selected elements of the macro-environment of enterprises on the reconfiguration of the weights of employee competencies in the competency structure. This allowed the construction of a research model determining the possible relationship between the environment and employee competencies. The independent variables were selected elements of the enterprise environment such as aggressive competition, economic crisis, knowledge-based organization, modern technology, and internationalization. Their selection was based on the assumption that they are current and significant, they reflect

¹ Full details of the reported research can be found in a forthcoming book published in 2024 by PWE (in progress).

the volatility of the contemporary environment and are associated with a high probability of influencing the importance of employee competencies.

The dependent variables were the weights of specific employee competencies selected on the basis of literature analysis, existing research, and the authors' reflections. These included creativity, flexibility, information processing and knowledge generation, interdisciplinary knowledge, and interpersonal communication. It was assumed that they should be more important for enterprises now than in the past, universal, therefore common to all employees, and related to the likelihood that they changed due to changes in the environment.

The main objective of the study became the identification of changes in the importance of employee competencies in the competency structure under the influence of selected elements of the macro-environment of enterprises.

The empirical research² was carried out on a group of 195 enterprises registered in the Małopolska region. The enterprises were represented by people in managerial positions (questionnaire surveys) and by employees of human resources departments (interviews). The most important results and conclusions of the research are summarized below

5. Assessment of the contemporary environment and its impact on the functioning of enterprises

The survey conducted in the first part dealt with issues related to the environment of enterprises - its characteristics and impact on their functioning.

The results made it possible to conclude that in the opinion of the people surveyed:

- the contemporary business environment is characterized primarily by a greater frequency of changes, greater complexity, and a faster pace of change, and to a lesser extent - by greater impact and uncertainty,
- the volatility of the business environment has increased the most over the past few years,
- the technological environment has changed the most in recent years,
- the phenomena that most affected the company's operation in the socio-cultural environment were: greater mobility of society (47%),
- the spread of mass consumption patterns (38%) and changes in the level and quality of education in society (37%),
- in the political and legal environment, the most important changes affecting business operations are domestic legal regulations (45%), the complexity of laws (40%), international regulations (38%), and instability of laws (30%),

² Empirical research was carried out in April-June 2018. The main sources of information for the research were surveys obtained from 220 people employed in managerial positions and 40 interviews conducted with employees of human resources departments.

- in the competitive environment, the increase in customer demands for products and services is the most important change affecting business operations,
- the 2008 economic crisis was felt by businesses to a moderate extent, and the resulting changes in businesses were mostly positive,
- the Internet and means of communication such as emails, instant messaging, tele- and videoconferencing are the most commonly used modern technologies by the surveyed enterprises,
- the use of knowledge in companies is low, and it is mostly based on a widespread orientation to continuous improvement and regular review and updating of operating procedures.
- internationalization in the surveyed companies is mainly manifested in the existence of a large number of foreign cooperators, operations in many foreign markets, and the occurrence of intensive interactions with people from other countries.

6. Key employee competencies in the surveyed companies. Observed trends of change

In the next research step, competencies considered as key were diagnosed, their changes over time (updating to the needs of the environment), and the most important skills included in the competencies.

The results obtained showed that *all of the five selected competencies adopted in the survey were considered key in more than half of the surveyed companies.*

The most important competency in the opinion of the surveyed managers was interpersonal communication (78%). Three competencies were also rated highly: flexibility (73%), information processing and knowledge generation (73%), and creativity (70%). The fewest respondents indicated interdisciplinary knowledge (57%). It should be noted that for each of the competencies, the number of negative responses did not exceed a dozen percent, which means that all of the listed competencies were key for more than half of the respondents.

We also examined the specific characteristics and behaviors related to this competency that are currently most important. This turned out to be: the ability to work in a team (83%), the ability to listen (81%), and language competencies (77%).

The respondents' statements also showed that often job candidates with a high level of expertise (mainly technical) simultaneously present a deficit in competencies related to interpersonal communication and teamwork. Moreover, they believed that the most important type of intelligence today is interpersonal intelligence. Intrapersonal, linguistic, and logical-mathematical intelligence were also frequently indicated. Thus, the predominant intelligence types were those related to the so-called soft skills (except for the last one). The challenge,

therefore, is to find employees who have well-developed both the so-called hard competencies and the soft ones.

The universal competencies required from employees change over time, and they have changed the most over the past few years.

9 out of 10 respondents believed that the set of universal competencies that employees currently have has changed over time compared to the past. More than half of the managers surveyed also believed that the universal competencies required from employees have changed the most over the past few years. The fewest, only 1%, claimed that this occurred before 1989. Also, the majority (more than half) of HR professionals pointed precisely to the last few years, without specifying either a specific number of years or a specific event. A tendency was also observed to attribute greater importance to changes that have occurred relatively recently, compared to those that occurred in the more distant past. Therefore, extreme caution should be exercised in drawing firm conclusions about when exactly a particular change occurred.

The importance of all five key competencies adopted in the research model increased.

The largest increase (above 70% of indications) was recorded for the following competencies: creativity (77%), flexibility (76%), interpersonal communication (74%), and information processing and knowledge generation (72%). The importance of interdisciplinary knowledge increased to a lesser extent (57%).

Company size did not significantly differentiate the responses, creativity and flexibility were only slightly higher in small companies, and interpersonal communication, information processing and knowledge generation in large companies. Flexibility and interdisciplinary knowledge are the competencies that are now more important primarily for managers from the production department. Information processing and knowledge generation for managers from the IT department, and interpersonal communication for the logistics department. Interestingly, creativity was equally important in the opinion of virtually all surveyed managers regardless of the department they came from.

There are three main areas of science in which employees today, more than in the past, should have general knowledge: technical sciences (72%), sciences (66%), and social sciences (62%).

On the other hand, the importance of natural sciences (e.g. biology, geography, environmental protection) (36%) and medical, health, and physical sciences (29%) was rated lower. The least important from the respondents' point of view was general knowledge in the humanities (e.g. history, philosophy, cultural studies) (11%), agricultural, forestry, and veterinary sciences (7%), and the arts (e.g. film, music, visual arts, theater) (6%). It can be assumed that as interest in environmental issues and cultural globalization increases, these types of knowledge will also become more important.

The respondents also identified computer science as the scientific discipline currently of greatest importance (an average of 8 out of 10 people), and interpersonal intelligence as the most important of its possible types.

7. Summary

In summary, the conducted research confirmed the authors' thesis that as a result of changes in the macro-environment of enterprises, the importance of competencies in the employee competency structure is modified. Generalizing the results obtained, it can be stated that:

1. There is a relationship between the increase in the intensity of global competition in the corporate environment and the increase in the importance of employee creativity in the competency structure.
2. There is no relationship between the level of internationalization of enterprises and the importance of employees' interpersonal communication skills.
3. When enterprises operate in an economic crisis, the importance of employee flexibility increases.
4. There is a relationship between the level of use of modern technologies in enterprises and the importance of knowledge of an interdisciplinary nature.
5. There is a relationship between the level of use of knowledge in enterprises and the importance of information processing skills and knowledge generation.
6. One element of the environment can affect multiple competencies, for example, a higher level of competition affected not only the importance of employee creativity but also the importance of flexibility, information processing skills and knowledge generation, as well as interdisciplinary knowledge.
7. Elements of the environment affect competencies with varying degrees of intensity. The strongest of the relationships studied was between the increase in the importance of knowledge and information in the business environment and the competencies of information processing and knowledge generation. The second strongest relationship was between the economic crisis and employee flexibility. The third was the relationship between the intensity of competition and employee creativity, and the last one was the relationship between the use of modern technology and employees' interdisciplinary knowledge.

The research results obtained made it possible to supplement the cognitive issues regarding the influence of environmental elements on the universal competencies of employees. On the other hand, from a utilitarian perspective, the results of the conducted research draw attention to the current needs of enterprises in the field of employee competencies and therefore provide information for schools, students, unemployed people, employees of enterprises, and all those for whom it is important to acquire and develop their own competencies.

Even though the article provides the research findings within specific sample, we see potential practical and organizational contributions. However this contribution may be limited due to the fact that the reported research does not allow the results to be generalized. Therefore, a follow-up study is planned.

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TECHNICAL ONLY? THE IMPORTANCE OF SELECTED COMPETENCES OF MANAGERS AND ENGINEERS IN INDUSTRY 4.0

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Purpose: The aim of the study was to determine which engineering and managerial competences are of high importance in enterprises operating in accordance with the assumptions of Industry 4.0.

Design/methodology/approach: The MAXQDA tool was used to analyze the acquired information, generating structured data clouds.

Findings: As a result, soft skills turned out to be the most important competences, mainly related to effective interpersonal communication, systematic learning and adaptation to change, also in the technological area.

Research limitations/implications: Quantitative research on a larger sample would be needed to examine the links between specific factors on a set of competences and adaptability to changes in workers. If respondents were to be informed about the areas most affected by the impact of Industry 4.0, more extensive and detailed qualitative research would have to be carried out focusing on this issue.

Practical implications: The information obtained in the results of the research allows to emphasize the importance of soft skills in the catalog of those that are significant in Industry 4.0 enterprises. Thanks to this, the selection of training for employees can be more adapted to the actual needs of the company.

Originality/value: The analysis of literature sources allowed to see that the previous research focused on presenting the competences of engineers and managers in relation to individual areas of industry. The research results included in the publication are a list of the most important competences of these in enterprises 4.0. This allows you to understand the key elements influencing the development of the professional path of engineers and managers during the Fourth Industrial Revolution.

Keywords: engineering competence, managerial competencies, Industry 4.0.

Category of the paper: Research paper.

1. Introduction

The concept of industry is strongly connected with the technical and technological aspects of the functioning of enterprises. As a result, strong emphasis is placed on employees having this type of competence as key to the smooth functioning of a modern production company. The aim of the research was to identify those types of competences that are perceived as particularly important by management and engineers and to confront their set with the common goal of technological improvement in the context of Industry 4.0.

For this purpose, specific objectives have been defined which concern:

- define the universal competences that every employee should have,
- identify key engineering competencies in Industry 4.0,
- identify key managerial competencies in Industry 4.0,
- the impact of education on competences used at work,
- the impact of age on the ability to adapt to industrial change,
- the impact of seniority on the skills and ability to adapt to change.

A preliminary analysis of literature and online sources showed that the research so far focused on presenting the competences of engineers and managers in relation to particular areas of industry. However, the changes in the type of competence that take place with the development of industry are also important. This represents a significant limitation in understanding the key elements influencing the development of the professional path of engineers and managers during the Fourth Industrial Revolution. The study conducted by identifying the most important competences using a qualitative approach may be the basis for developing a catalog of key ones.

The first formulation of the term Industry 4.0 appeared in Germany in 2011 during the international Hannover Messe and referred to the high-tech strategy undertaken by the German government (Silva, Barriga, 2020). Today, Industry 4.0 refers to the Fourth Industrial Revolution and its beginning is considered the second decade of the 21st century (Gonzalez, Gasco, Llopis, 2024)

2. Understanding concepts and changes in them

2.1. Industry 4.0

The definitions available generally define Industry 4.0 as a concept, strategy or set of changes that must be made in a company to improve performance (Kagermann et al., 2013; Lasi et al., 2014; Hermann et al., 2016; Gracel et al., 2017, 2018; Wyrwicka, Mrugalska, 2017; Ślusarczyk, 2018; Philbeck, Nicholas, 2018; Chou, 2018; Rossit, Tohmé, Frutos, 2019; Savage,

2022). The changes concern the technological base and organization of the company, and result from the development of new technologies. The term Industry 4.0 is a new way of doing business that focuses on automation and digitalization of manufacturing processes. The use of new technologies related to storage, processing and acquisition of data, among others by intelligent machines, affects the way the company operates and the necessary competences of employees. The impact of Industry 4.0 on the organization of work results from the support of human physical labor or its complete takeover by machines (Lasi et al., 2014).

2.2. Competence

Competencies can be understood in a very ambiguous way, although the term refers to three distinct trends related to employee performance, expected labor standards and attributes of the individual (Lacatan, Penuliar, 2021). The ways of understanding cited in particular trends explain competences in a narrower way as knowledge, experience, abilities, predispositions and skills required and used in the workplace (Terkowsky, Frye, May, 2019) or the characteristic elements, features - motives, skills, self-image, ways of using knowledge (Boyatzis, 2008). In a broader sense, they are presented as a combination of elements such as employee qualities, skills, abilities, knowledge, experience and sense of responsibility, which make up the ability to achieve the expected, satisfactory result of the work entrusted to him (Dubois, Rothwell, 2008).

The basic division of competences involves distinguishing them between social skills and skills necessary for the performance of the work, i.e. soft and hard skills respectively. Soft competence refers to those qualities that are responsible for interpersonal relations, i.e. communication, emotional and social skills. They are a set of conditions that determine how an individual behaves in different situations. Hard competences, also referred to as basic competences, are those that determine the ability to perform work in a given position. The difference between hard and soft is that they are measurable and concrete, i.e. verifiable (Souza, Debs, 2023). Hard competences include substantive knowledge and specialist skills that enable a good performance of the entrusted task (Dohertya, Stephens, 2023).

2.3. Engineering competence

The basis of the competence of Engineer 3.0 is his extensive technical knowledge, knowledge of the rules and adherence to standards and performance of work with high quality. The competencies attributed to 3.0 engineers are mainly hard, process and technology-related. The technical knowledge of Engineer 4.0 will have to concern not only the specifics of the production process supported by him. Expectations for 4.0 engineers will require them to take a broad view of the functioning of the company as a whole and understand the links between processes. It is anticipated that every such employee will need to know the basics of cyber security, the importance of which is growing strongly in modern companies (Gracel et al.,

2017). In the era of the Fourth Industrial Revolution, engineers are required to have extensive technical knowledge and knowledge of advanced technologies (Grabowska et al., 2022).

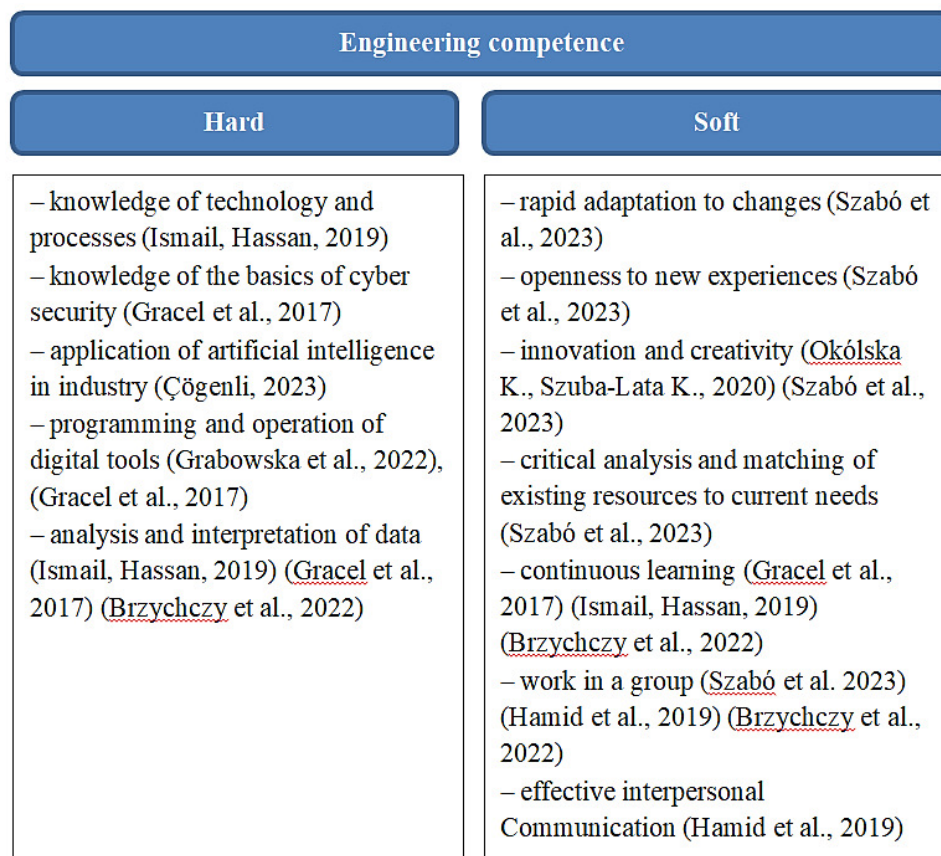


Figure 1. Summary of Engineering Competencies.

Source: own study based on: Ismail, Hassan, 2019; Gracel et al., 2017; Çögenli, 2023; Grabowska et al., 2022; Brzywczy et al., 2022; Szabó et al., 2023; Okólska, Szuba-Lata, 2020; Hamid et al., 2019).

The basic feature among the required competencies of 4.0 Engineers is the increased emphasis on soft skills, once considered “non-engineering” (Szabó et al., 2023). This is due to changes in the labor market caused by the dynamic development of available technologies. Employers pay attention to the soft skills exhibited by employees, because they influence adaptation to the working environment (Fletcher, Thornton, 2023). That is why the characteristic feature of Engineer 4.0 is openness to change. Other soft skills valued by employers in relation to modern engineers are: ability to work in a group, ability to solve problems, willingness to learn, communication skills, time management, flexibility (Fletcher, Thornton, 2023; Gracel et al., 2017). A set of engineering competencies is presented in Fig 1.

2.4. Managerial competence

4.0 managers are required to have the same competencies as managers in management positions also during the Fourth Industrial Revolution: managing people, project teams, and communicating effectively. Additional competences required by modern managers are those that support the development of not only the company, but also employees,

i.e. communication skills, openness to change, innovation, undertaking new ventures and highly developed technical competences (Gracel, Makowiec, 2018). Other soft skills that are new among the desired managerial competences mentioned by the authors are: recognition of talents, ability to set the path of development and the ability to transfer knowledge (Fig. 2).

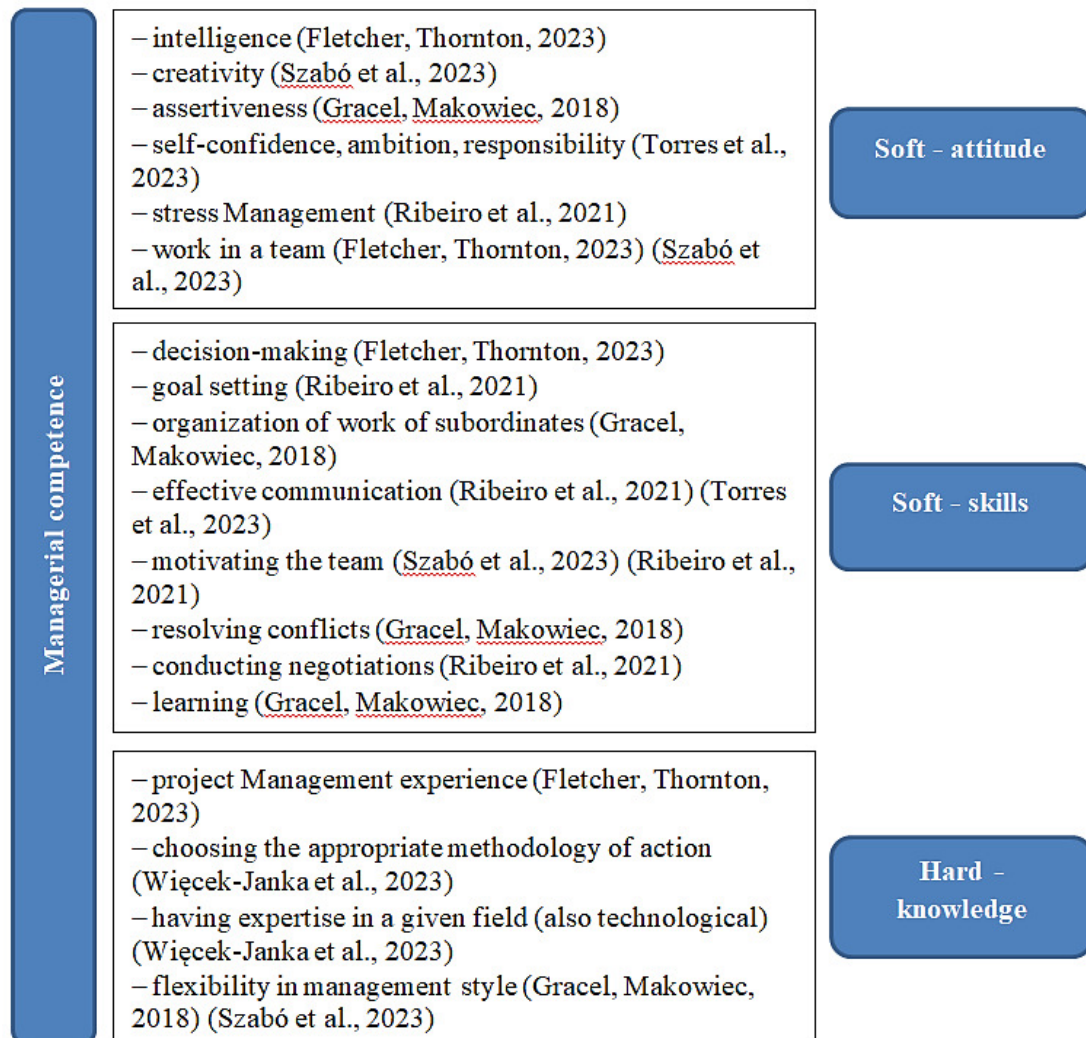


Figure 2. Summary of Managerial Competencies.

Source: own study based on: Fletcher, Thornton, 2023; Szabó et al., 2023; Gracel, Makowiec, 2018; Torres et al., 2023; Ribeiro et al., 2021; Więcek-Janka et al., 2023.

4.0 managers face many new challenges in managing a team. Employees become more independent, change jobs more often, have a better education. This increases the focus on the way the manager works, which in the company affects the quality of the work of subordinates through appropriate motivation and commitment (Fletcher, Thornton, 2023). A study conducted by Gracel and Makowiec (2018) confirms the need for continuous training of managers who are responsible for the performance of the company. The authors also emphasize the use of necessary hard skills, as well as the increasing importance of soft skills. The most important role of a manager in Industry 4.0 is to take care of the company and employees (Fletcher, Thornton, 2023).

3. Methodology

3.1. How to obtain information

The study was conducted at the turn of 2023 and 2024. The data were collected using in-depth individual interviews (IDI), the purpose of which is to obtain information on social phenomena and processes taking place in the studied environment by obtaining their description from a specific respondent selected on the basis of criteria specified by the researcher (Jakubowski et al., 2020). In particular, aspects such as:

- work in a manufacturing company,
- knowledge and work with elements of Industry 4.0,
- the title of engineer in the case of lower levels than managerial positions (for engineering competence),
- work in a managerial position or higher (for managerial competences),
- at least 2 years of professional experience.

The interviews were conducted with six people, two of whom were employed in managerial positions and four were engineers.

The study is exploratory. In order to provide comprehensive information obtained, two different approaches were used at the same time - deductive and inductive. With regard to the deductive approach, a preliminary analysis of scientific sources enables the familiarization and use of information obtained from previous studies, the results of which have been made available. The use of an inductive approach gives the opportunity to see and present innovative opinions of respondents. The combination of theoretical knowledge with individual experiences of professionally active engineers and managers allows for a comprehensive and possibly innovative development of a catalog of competences.

3.2. Research tool

The MAXQDA program is used for comprehensive qualitative analysis and interpretation of data in text, sound and video form. It works on the basis of a system supporting content analysis (CAQDAS - Computer-Assisted qualitative Data Analysis Software), and its interface is intuitive to use, which allows for effective use of data analysis tools. The program is versatile and supports a variety of file formats. One of its key functions is the ability to categorize and encode data fragments.

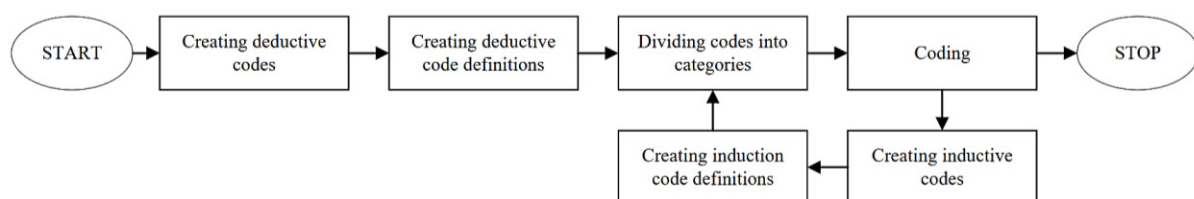


Figure 3. Code development process.

Source: own study.

Coding, the process of which is shown in Fig. 3, allows the systematic selection and grouping of relevant elements, facilitating the identification of the main themes and patterns in the analyzed material. The available solutions allow you to create and assign codes both before and during the analysis, as well as arrange them in a hierarchical way. The program enables deep code analysis through tools allowing to identify the relationships between them. Functions such as pattern search and generation of thematic reports enable organizing the data structure and directing the analysis in search of significant dependencies. The software offers advanced visualization tools such as code clouds, heat maps and diagrams. Graphical data presentations are available to help you understand and present your analysis results.

4. Results of the study

The data analysis was carried out using three code clouds created in MAXQDA program concerning respectively the competences of Engineer 4.0, the competences of Manager 4.0 and universal competences required of each employee. The generated code clouds contain managerial and engineering competencies separated by respondents. Prior to the beginning of the analysis of the interview transcripts, seventeen deductive codes with managerial competence and nine deductive codes with engineering competence were recorded based on a literature review.

As a result, three code clouds were developed. Two of them, concerning engineering and managerial competences, combine deductive codes (blue) with inductive codes (yellow), which allows to verify their occurrence in the daily professional practice of respondents. In contrast, the third cloud, which contains a compilation of universal skills codes for all employees, only presents inductive codes, since this aspect was not anticipated in the analysis at the literature review stage. The font size of each competency code indicates the relative frequency of its occurrence. As a result, the codes were ordered by the number of occurrences - from the largest to the smallest.

The number of appearances shows how many times in the interviews a competency has been encoded in a certain way. It is not limited by the number of interviews conducted or respondents, because during the interview interlocutors mentioned specific competences often several times. This is in line with the assumptions of conducting qualitative research using MAXQDA tool, where the results are based on the frequency of raising specific issues, which indicates their importance.

4.1. Engineering competence

The Engineering Competency Code Cloud (Fig. 4) consists of nine deductive codes (blue) and seven inductive codes (yellow). The most important, because the most often indicated by respondents, competence is the ability to constantly learn. It is understood as the ability and readiness to constantly acquire new skills, knowledge and to improve existing competences. It shows up primarily as participation in various activities organized by external entities, but also a high commitment to current company affairs and drawing experience from other employees.



Figure 4. Code cloud for engineering competencies.

Source: own study.

Taking into account the number of indications of a given code in interviews, another is a hard competence, which is technical knowledge. It is treated as a specific form of knowledge concerning the applications, operations and operating principles of technology, tools, machines, systems, or other technical fields. Related to it are computer skills relating to computer operation, use of software, hardware, as well as various information technologies.

Two other competences, which are mentioned as often in interviews, are effective communication and the ability to adapt to changes. Communication consists in the ability to effectively communicate information, establish contacts and communicate effectively with other people. It concerns both obtaining information from people employed in the company, drawing their attention to possible shortcomings, but also various types of contacts with people outside the organization, such as customers and suppliers. Both of these aspects require the ability to adapt and respond flexibly to new situations, new conditions or changing environments. In particular, respondents meet such requirements during the implementation of projects, implementation of technology or in the situation of the need to obtain information in areas that have not been explored before. The last three competences concern the introduction of changes in the processes implemented by enterprises, often related to the need to solve problems during which an appropriately empathic approach to their employees is necessary.

4.2. Managerial competence

In the managerial competence cloud (Fig. 5) there are fourteen deductive codes (blue) and six inductive codes (yellow). Taking as key amounts of indications of individual codes in interviews, it can be seen that the emphasis here is primarily on soft skills.



Type of competence	The name of the code	Number of instances
Soft	Effective communication	9
	Anticipating and responding to events	7
	Decision-making	6
	Continuous learning	6
	Teamwork	6
	Development planning	6
	Knowledge sharing	6

Figure 5. Code cloud for managerial competencies.

Source: own study.

The most frequently mentioned here is effective communication consisting in the effective transfer of information, establishing contacts and effective communication with other people. The ease of contact with others can be of particular importance in the ability to anticipate and respond to events. This requires the ability to analyze the environment in order to notice the possibility of different situations, events, problems and to take effective action when they occur. Obtaining information is therefore crucial here. They often form the basis for decision-making, which consists in choosing one of many possible solutions by the decision-maker. Communication skills, in turn, allow to explain the basis and objectives of decisions taken.

In the case of managers, continuous learning most often concerns methods of effective management of the human team, changes or familiarization with the possibilities of supporting their work by modern technologies. In principle, all skills indicated by respondents in relation to managerial competences are associated with effective teamwork. It means working with other team members to achieve common goals, effective communication, cooperation, division of tasks among team members and supporting other team members in the implementation of their tasks is necessary. This last element is related to the transfer of knowledge, i.e. the ability to teach others and create an atmosphere that encourages asking questions.

Support for team members is also often a form of assistance in setting the path of their development, i.e. defining the direction and goals of their career. It is manifested in the provision of training and other forms of training for employees, in particular in response to their ambitions and aspirations for development.

4.3. Universal competence

The analysis of the received answers allowed to generate a cloud of codes (Fig. 6) presenting universal competences, which in the opinion of the respondents should have every employee. Five soft skills are most often identified. Most of them are skills that were indicated by respondents also in the area of engineering and managerial competences. However, they are considered crucial for all employees, only their manifestations may be slightly different.



Code	Number of coded fragments		
	Universal competence	Engineering competence	Managerial competence
Openness and adaptability to change	4	8	3
Effective communication	3	8	9
Continuous learning	3	12	6
Teamwork	3	3	6
Diligence	3	0	0

Figure 6. Code cloud for universal competencies.

Source: own study.

The only universal competence that has not been mentioned by respondents in relation to the managerial or engineering catalog is conscientiousness. It is understood as accuracy, diligence, responsibility and reliability in the approach to work and performing tasks. This approach to the tasks performed is an expectation addressed to all employees regardless of the level in the hierarchy, education or position.

5. Summary/recommendations/plans for further research

The aim of the presented research was to develop a catalog of engineering and managerial competences expected at selected positions in manufacturing companies of Industry 4.0. The literature review made it possible to develop questionnaires of interviews, which were then carried out with employees of production companies, and to encode the deductive area.

In order to develop a catalog of required 4.0 engineers and managers of 4.0 competencies, a qualitative analysis was carried out using MAXQDA tool. The results of work in the program were generated clouds of code visualizing recognized as important competences.

The conducted analysis allowed to develop a catalog of engineering and managerial competences expected at the indicated positions in Industry 4.0. The obtained results of the study coincide significantly with the content presented by the authors cited in the literature analysis.

In the case of Manager 4.0 competencies, fourteen of the seventeen key skills listed were noted in the study participants. In addition, six competences were selected, which did not manifest as significant in the content of the analyzed publications. The developed Engineer 4.0 Competency Catalog contains nine skills selected from the literature review and is supplemented by seven more.

The information obtained in the course of the interviews allowed for partial fulfillment of the specific objectives. On their basis, the universal competences that each employee should have, key engineering competences in Industry 4.0 and key managerial competences in Industry 4.0 were defined. For the purposes of examining the impact of factors such as education, age and seniority on competence or adaptability to change, the respondents' responses were not clear and these objectives were therefore considered only partially achieved. Drawing up proposals would require more interviews and more information.

The answers of the respondents indicate the importance of soft over hard competences. Respondents say that technical knowledge can be acquired by anyone, and the most important is the ability to adapt to working conditions and find oneself in a team.

The respondents' opinions on dynamic changes in the required competences emphasize mainly the effects of the introduction of modern technologies forcing employees to acquire technical expertise and corresponding management methods. This includes skills such as

coping with stress or managing a team. The respondents' answers indicated three areas in which the biggest changes occur: the scope of managerial knowledge, the approach of employees to work and the scope of technical knowledge. However, the obtained results do not allow for detailed determination of the relation of dynamic changes to the given areas. Their development requires further research.

Some of the results obtained were not unambiguous or did not allow for a thorough understanding of the issue. This is due to the limitations of the research carried out. Quantitative research on a larger sample would be needed to examine the links between specific factors on a set of competences and adaptability to changes in workers. If respondents were to be informed about the areas most affected by the impact of Industry 4.0, more extensive and detailed qualitative research would have to be carried out focusing on this issue. Both of these aspects are treated as directions for future work.

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HUMAN SIDE OF LEAN MANUFACTURING: AN INSIDER'S PERSPECTIVES ON WORK ENVIRONMENT

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Purpose: We aimed to understand how integrating lean principles with human factors can contribute to a more productive, satisfied, and motivated workforce. Additionally, the paper investigated the roles of employee empowerment, continuous improvement, and organizational support in creating a human-centered lean manufacturing environment.

Design/methodology/approach: The authors conducted a detailed analysis of the literature. This theoretical analysis enabled to preparation of a comprehensive and detailed examination using a survey questionnaire, providing in-depth insights into the research statements. This data was extended due to the participant observation which allowed to immerse in the day-to-day activities of the workers.

Findings: Lean Manufacturing positively impacted the humanization of work, with effective team cooperation and communication boosting productivity. However, some employees felt excluded from joint decision-making and feedback processes, which could harm motivation and organizational effectiveness. Enhancing training opportunities could help employees better adapt their skills to their tasks.

Research limitations/implications: The limitation of the research is the pilot study which was conducted among 15 respondents from one company. In the future, it is planned to extend it to other production companies.

Originality/value: The paper makes a contribution to the field by linking Lean Manufacturing and human aspects in a Polish work environment. Instead of exploring the traditional benefits of Lean Manufacturing in enhancing operational efficiency and reducing waste, we focused on its impact on the workforce, workplace culture, and employee engagement.

Keywords: human-centered approach, Lean Manufacturing, work environment.

Category of the paper: Research paper.

1. Introduction

Nowadays, technological and information progress determines the new challenges that work faces, such as the need for continuous skill development, adaptation to rapidly changing environment, and managing the integration of advanced technologies into existing workflows (Guest et al., 2022). Despite the increase in the implementation of automation and robotics in production systems, human involvement remains vital because of their essential skills in supervising and managing these processes (Ahmed et al., 2022). Therefore, the well-being of employees becomes not only a moral duty but also a factor that provides benefits for the company (Ho, Kuvaas, 2020). Additionally, these advancements bring about new considerations for data security, remote collaboration, and maintaining a balance between automation and human oversight. In order to overcome all these challenges, new attitudes such as a human-centered approach can be introduced to companies.

A human-centered approach, which prioritizes the well-being and satisfaction of employees, customers, and communities, is essential for building an efficiently operating enterprise. It enables the integration of the technical system and human capital in the organization. By its adoption, enterprises can create a positive work environment that not only drives employee engagement and motivation but enhances efficiency and productivity. It leads to sustainable growth and success for the organization. It can be noticed in Lean Manufacturing, which focuses on creating more value for customers with fewer resources. Lean principles emphasize the elimination of waste, continuous improvement, and optimizing processes to enhance efficiency and productivity. It may seem that its idea focuses solely on organizational and technical aspects, but that would be a mistake. The primary objective of Lean Manufacturing is to focus on people (Gaiardelli et al., 2019; Mrugalska, 2020). It assumes maximum utilization of the potential of workers and machinery but without overproduction or ordering too large quantities of raw materials that would require subsequent storage. From this perspective, it leads to enhanced employee satisfaction, reduced stress, and improved collaboration, ultimately resulting in a more motivated and productive workforce. Additionally, lean manufacturing emphasizes employee involvement and empowers workers to take ownership of their roles, encouraging innovation and a proactive approach to problem-solving. Reducing waste, including those relating to the non-exploitation of human potential, is the key to improving the efficiency of processes. The analysis of the human role in the context of Lean Manufacturing allows to identify areas that may affect the productivity of work and the elimination of unwanted inconveniences of the work environment (Bouranta et al., 2022).

In this paper we analyzed the human aspect in the concept of Lean Manufacturing in a production enterprise. We did not explore traditionally if Lean Manufacturing enhances operational efficiency and reduces waste but we emphasized its impact on the workforce, workplace culture, and employee engagement. By examining the integration of lean principles

with human factors, we aimed to understand how lean practices can contribute to the creation of a more productive, satisfied, and motivated workforce. Furthermore, the paper investigated the roles of employee empowerment, continuous improvement, and organizational support in fostering a human-centered lean manufacturing environment. It allowed to highlight the significance of the human element in the successful implementation of Lean Manufacturing.

2. Human aspects in work environment

Humanizing a work means understanding human nature and growing a culture that lets humans succeed while the organization can flourish in the same time. In the long run, humanizing work requires constant, continual, continuous attention, where it is implemented a system of principles and practical actions focused on the individual psychophysical capabilities of a worker (Kawecka-Endler, Mrugalska, 2014). For this aim, the activities are indicated and introduced into practice to eliminate or at least limit the negative impact of work on people by the work environment. Such a system offers working conditions that not only do not harm the physical and mental health of employees but also pay attention to improving the comfort and safety of work. Humanizing work is often visible in the implementation of modern forms of labor organization, the enrichment of its content, and the increase of employee participation as well as the flexibility of working time (Walczyzna, 2012).

Some authors claim that the human aspect of work can be easily distinguished in its technological elements (elimination of heavy and burdensome work, improvement of the comfort and safety of work, and the introduction of new, human-friendly forms of organization of work) and social (mainly increased employee participation and satisfaction of other employee needs, such as social or cultural) (Mikuła, 2009). It shows that the humanization of work is multifaceted. Furthermore, it is important to emphasize that improving the quality of life at work must be carried out from the perspective of every employee who enters the organization with all their needs, goals, values and limitations (Umair et al., 2023a; Umair et al., 2023b). Work environment significantly impacts the quality of human life and is reflected in other areas of personal life (Marquez et al., 2020).

Humanizing work means making work and places of work more human-centered approach. To achieve this, the following actions must be taken (Venema, 2024):

- recognize and treat employees as people, and only as resources,
- put your people first,
- believe and trust that people want to do good work, and you will achieve the best results if you get out of their way and trust that they will cope,
- appreciate that people can only do their best when they feel safe from physical, emotional and mental hazard,

- understand reciprocity: trust breeds trust, and the opposite of trust is fear, and acting out fear breeds fear,
- to manage does not mean to lead, you manage work and lead people, and only respect for leadership creates leaders,
- treat your people as unique, individual human beings with unique, individual desires and needs who need unique, individual support to ensure you benefit from their best efforts,
- adapt work and workplaces to people, and not the other way around,
- understand that humanizing work is the first step towards accepting diversity, ensuring equality and social inclusion,
- accept the fact that high performance and amazing results come not from measurement and management, but from enticing, encouraging, and appreciating,
- understand human nature and the development of a culture that allows people to thrive so that the organization can prosper.

3. The role of humans in the concept of Lean Manufacturing

The concept of Lean Manufacturing efficiently utilizes a company's resources to improve production. While it may initially appear to focus primarily on the technological aspects of production, it significantly impacts its human resources (Trenkner, 2008). Within the framework of Lean Manufacturing, the human aspects are expressed through several key principles (Mikuła, 2009):

- giving priority to people in the organization,
- continuous improvement of production processes and reduction of waste,
- development of employees and upgrading their qualifications,
- teamwork and regular communication along with collegial decision-making,
- joint planning of organizational activities by employees,
- decentralization of control and information systems and transfer of responsibilities and powers to lower levels of the organization,
- use of customer relations.

These principles highlight how Lean Manufacturing not only optimizes technological and production processes but also places a strong emphasis on the human element, fostering a more inclusive, empowering, and efficient work environment. Additionally, employee training and skill development serve as boosters for unlocking the true potential of a Lean Manufacturing operation. If we create conditions for personal and professional development and leverage individual abilities employees will experience job satisfaction. Increasing skills is perceived as an investment in human capital that benefits both employees and employers (Pietras, 2015).

Teamwork plays a crucial role in Lean Manufacturing. Individuals inherently seek to be part of a social group, and workplace relationships are vital for achieving specific goals. Effective communication and collaborative decision-making help employees feel integral to the team and ensure their opinions are valued by the company. Joint planning of organizational activities humanizes work, enabling employees to influence the transformation of work processes and maintain control over their professional development (Sikora, 2013).

Another human element in the concept of Lean Manufacturing is the decentralization of tasks. Employees are given greater autonomy and responsibility for decisions about their work, which provides them with a sense of control and influence over the implementation of production processes. The transfer of responsibility allows for the rapid detection and resolution of problems, fostering a sense of belonging and enhancing internal motivation and commitment to work. An example of this decentralization is the standardization of work, where employees are actively involved in developing labor standards and thus are motivated to continuously improve them.

Standardization of work, as a tool for enhancing safety, quality, and productivity, creates opportunities for joint problem-solving and reliance on colleagues (Pawłowski et al., 2010). This collaborative approach fosters a dynamic work environment where employees actively engage in improving processes and supporting each other. One of the most significant advantages of Lean Manufacturing in ensuring employee satisfaction is its ability to avoid monotony. Monotony is detrimental to employees' health and learning abilities. Workers exposed to monotonous tasks experience a decline in intellectual abilities and skills over time, eventually becoming indifferent to their duties. An inadequate working environment can lead them to underperform, reducing both their productivity and well-being. Lean Manufacturing addresses this by enabling employees to continually develop their skills and knowledge, transforming them into agents of change within the workplace. These activities aim to facilitate work and ensure uninterrupted workflows. As a result, employees become more self-sufficient and capable of performing tasks across different positions, which increases their autonomy and fosters a proactive attitude (Selimović, 2022).

The concept of Lean Manufacturing is focused on respect for people. Individuals are crucial in the implementation process; their behavior, thinking, and actions can provide a competitive advantage by reducing waste and streamlining processes. It is accurate to say that Lean is based on two fundamental principles: respect for people and continuous improvement. Balancing human factors and technical elements is essential to determine the suitability of Lean Manufacturing for implementation (Halling, 2020).

4. Methods

In order to collect information on the impact of the concept of Lean Manufacturing on human aspects, empirical research was carried out among employees in a selected production company. This company specializes in the production of assembly lines. It is localized in the Wielkopolska region. The research was performed in April-May 2023. It consisted of two parts: a survey questionnaire and a participant observation. The questionnaire consisted of 17 statements:

- feedback on workflow information,
- communication,
- opportunity to show your own initiatives and be creative,
- search for solutions to improve work,
- adapt work to employees' skills,
- influence on the implementation of your work,
- joint decision-making about workflow,
- consultations or talks about problems,
- influence of working conditions on the results,
- performance of unnecessary activities,
- monotony,
- opportunity to use your own knowledge, capabilities and skills in practice,
- extension of your skills by using the experience of colleagues,
- a sense of belonging to a team,
- employee awareness of their role in the production process,
- possibility to participate in training and improve your qualifications,
- safety at work.

The 5-point Likert scale was used with five answer options, including a neutral option, to assess respondent's opinions. It was a pilot study as it involved only 15 employees of this company working on the assembly of the technology line. In the participant observation, one of the researchers was immersed in the day-to-day activities of the workers. This allowed her to gain firsthand experience due to engaging directly with the tasks and routines of the employees.

In the analyzed production line there were employed only men. Thus, all the respondents invited to participate in the investigation were the same sex. However, it is essential to consider that the respondent group might influence the results, particularly in understanding perspectives on Lean Manufacturing's impact on the workforce, workplace culture, and employee engagement. The gender homogeneity could also affect the generalizability of the conclusions, necessitating a careful interpretation of the data and an awareness of potential biases in the

responses. Therefore, future research should aim to include a more diverse respondent pool to gain a comprehensive understanding of Lean Manufacturing's effects across different demographic groups.

5. Results

The age structure of the respondents was as follows: under 25 years – 13.3%, in the 25-35 years – 40%, in 36-45 years – 33.3%, 46-55 years – 6.7% and over 55 years of age – 6.7%. When analyzing the work experience, it should be noted that in each group there were 5 employees, i.e. 5 people employed over 1 year, 5-10 years and over 10 years. None of the respondents worked for less than 1 year.

According to the questionnaire results, 80% of respondents felt that they were receiving or rather receiving feedback on the progress and results of their work. Only 20% of respondents said that they were unlikely to get feedback about their work. In addition, all employees claimed that their relationships are based on mutual communication.

The vast majority of respondents (approximately 87%) believed that they had the ability to demonstrate initiative in improving the workflow. 13.3% of respondents did not give an unambiguous answer to the question. In response to the question about finding solutions to improve work, respondents most often gave positive answers on this topic. Only 26.7% of respondents did not express their opinion, and the remaining 6.7% did not notice the steps taken to improve work processes. In the surveyed group of respondents 53.3% agreed that the job was adapted to their skills and capabilities, 26.7% also agreed with this statement. The remaining 20% of respondents believed that the job was not adequately adapted to their capabilities.

When assessing the impact of employees on their own work, all respondents found that they influenced decision-making. The majority of the team (i.e. 73.3) believed that decisions were taken by a team. However, it should be noted that 26.7% of respondents disagreed with this opinion. All respondents had the opportunity to discuss problems with their team or supervisor. 73.3% of respondents explicitly agreed with the statement.

In the next part of the survey, working conditions and their impact on work results were discussed. All respondents believed that working conditions in the company were conducive to the results achieved. However, it should be noted that the majority of respondents (i.e. 93.3%) believed that they were fulfilling responsibilities that contributed nothing to the end result of their work. Only 6.7% of respondents claimed that they were unlikely to do such activities during their working day. All respondents noted a lack of monotony in their work due to the ability to perform diverse activities during their shift. Bearing in mind the question about the use of knowledge in practice, all employees answered yes. The majority of respondents (i.e. 87%) strongly said that they had, or rather had, the ability to complement their skills by

using the experience of their colleagues. In addition, as much as 93.3% of them had a sense of belonging to the team. However, it should be noted that 6.7% were unable to clearly define their position. The majority of employees (i.e. 86.7%) were aware of the importance of their role in the production process. However, 13.3% did not feel an important part of the production process and believed that without them the company could also the intended results. Some employees (33.3%) felt that they did not have many opportunities to improve their qualifications. However, the vast majority of employees noticed that they had the opportunity to attend training to improve their qualifications.

In the case of safety assessment, more than half of the respondents considered that the employer cared about safety in the workplace. Only 18.2% disagree with this statement.

6. Discussion

The results of the questionnaire survey indicated that the concept of Lean Manufacturing positively affected the humanization of work. Effective team cooperation was one of the most crucial values for employees. It was especially visible when we focused on communication which was viewed positively by all respondents. Effective communication allowed to achieve the desired results increasing simultaneously productivity. In the analyzed case, employees worked as a team and effectively performed their tasks and goals. In addition, they had the opportunity to influence how their tasks were implemented. Nevertheless, joint decision-making on workflow and feedback was not always viewed positively by all respondents. Research results showed that some team members felt excluded from the decision-making process. Such circumstances can have a negative impact on the willingness of employees to work and on the operation of the entire organization. Moreover, giving feedback was not always appropriate. However, this is an extremely important process, as it reduces errors and improves work efficiency. It would be worth paying attention to the possibilities of expanding your knowledge through training, which lack is sometimes noticed by respondents. It would make it easier for employees to adapt their skills to their tasks.

Following the participant observation, it can be concluded that the interests of employees were a priority. Employees were treated with respect and their well-being was extremely important. Furthermore, they were not means of achieving the goals of the organization but were active participants in the organizational processes. There was an atmosphere of mutual trust in the organization. Employers knew that the employees were a key component of the production process and that the knowledge and skills of employees had a direct impact on the development of the organization.

In order to eliminate waste, workplaces were organized in such a way that unnecessary activities were eliminated. The assembly zone was designed so that employees did not have to move around the space more than necessary. Each employee was equipped with a tool cart that allowed them to move the tools they needed.

Continuous improvement is a complex and advanced process aimed at constantly searching for areas for improvement and optimization. During the observation, it was noted that the company was systematically introducing improvements. Employees had the opportunity to submit their ideas for improving processes and eliminating difficulties through a dedicated platform. The involvement of employees in improvement processes made them feel a valuable part of the organization.

Recently, a competence matrix was developed and introduced into practice. Identifying the skills and competence levels of employees helped in managing employee development. One of the major losses in an organization was the non-exploitation of human potential. Identifying the abilities of each team member would enable the establishment of an individual development plan, including offering dedicated training programs and mentoring that would help to increase employee engagement and strengthen their relationships.

An important element affecting humanizing work is communication between employees. Within the framework of the Lean concept, stand-up meetings were introduced, allowing regular exchange of information and experiences. The meetings had a short duration and a specific formula and were intended to convey brief information about the project currently underway. The introduction of this type of meeting allowed to improve team communication and significantly affected its effectiveness. In the analyzed enterprise, decentralization of responsibility as an element of humanization of work was applied. In addition, the introduction of work standardization allowed employees to perform specific tasks consistently, which minimized the risk of errors and possible delays. The setting of standards enabled employees to take over greater control over their activities, which gave them a sense of influence on the results of their work. Effective delegation of responsibilities during the assembly works let them to be carried out more efficiently without the need for repeated inquiries to the senior management.

7. Summary

In recent years, the approach to humanizing the workplace has changed significantly. At present, more attention is being paid to issues related to the humanization of work and the impact of the concept of Lean Manufacturing on its improvement. The results of the research showed that effective team cooperation and communication were highly valued by employees, contributing to increased productivity. Employees appreciated working as a team and having

the ability to influence task implementation. However, not all respondents viewed joint decision-making and feedback positively; some felt excluded from the decision-making process, which could negatively impact employee motivation and organizational operations. Additionally, feedback was sometimes deemed inappropriate. However, enhancing training opportunities could help employees better adapt their skills to their tasks.

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BEHAVIORAL FACTORS CREATING COMPANY'S CULTURE OF INNOVATION

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Purpose: The purposes of the article are to present the impact of behavioral factors on the creating in company innovation culture, showing the cause and effect relationship between the enterprise's environment and the development of the pro-innovation attitude of its employees.

Design/methodology/approach: Desk research and statistical methods were used to prepare the article. As a result of the analysis of sources, it was found that the issues of creating an innovative organizational culture and behavioral aspects of innovation are usually limited to research on innovative work behavior (IWB), when the basis for pro-innovative behavior of employees in the company are behavioral patterns, social values and priorities created by the external environment. The use of statistical methods allowed to confirm this thesis.

Findings: During the research, it was found that the innovative culture of enterprises is determined by behavioral models created under the influence of factors in the external environment, primarily the development of civil society, the level of democracy, freedom and equality under the law. Under the influence of these factors, social values, behavioral patterns, culture and attitudes of society members are shaped, which are the basis for creating an innovative culture in enterprises.

Originality/value: Research results show that innovative culture is a derivative of the level of development of society. Behavioral models created by society constitute the "core" of employee behavior in an enterprise. At the company level, the elements of innovative culture correct behavioral models in accordance with the adopted development philosophy. Based on the use of A.Ellis' ABC model, it was proven that the key areas of innovative culture include managing employees' emotions, because their behaviors are a reaction not to events, but to their interpretations.

Keywords: innovative culture, behavioral factors, innovation.

Category of the paper: Research paper.

1. Introduction

Innovations play a key role in strengthening a company's competitive position on the market. Innovative activity is determined by a number of factors, the key among which is human capital, its resources and quality. Innovations are the result of the creative activity of

company employees. This determines the role and importance of the conditions in which this activity is carried out, because they determine the behavior of employees and their willingness to be creative and innovative. Innovative work behavior (IWB), which can be defined “as the intentional creation, introduction and application of new ideas within a work role, group, or organization, in order to benefit role performance, the group, or the organization” (Jensen 2000), is the subject of numerous studies (Asfar, Umrani, 2019; Hughes et al., 2018; Montani et al., 2015; Wynen et al., 2020).

2. Innovation culture of the company and its elements

In theory and practice, the concept of innovative culture is increasingly used. Innovative culture is viewed as collective behavior that shapes the way new products and services are created and sold to customers (Manly et al., 2023). Most authors interpret innovative culture as part of the organizational culture of a company (Watkins, 2013; Nieminen, 2020), which allows it to be defined as a set of interconnected formal and informal rules, norms, traditions, models of behavior and conduct, values and priorities that directly or indirectly influence on pro-innovative behavior of employees, their creativity and innovation. The innovative culture of each company is unique, changes over time, and depends on many factors.

A review of scientific literature indicates that innovative organizational culture is a multidimensional concept. Researchers distinguish from several (Kania, 2018; Dobni, 2008) to 26 dimensions of innovative culture (Garza, López, 2020). Systematization of existing concepts allows us to isolate further components of innovative culture.

Leadership commitment to innovation. Senior management is committed to fostering a culture of innovation within the company by leading by example and setting the tone for the rest of the organization. Management attitudes are one of the key factors determining employee creativity and organizational innovation (Kim, Baik et al., 2019). Therefore, one of the most important functions of a leader is to support and encourage staff engaging in creative processes (Schoemaker et al., 2018). Leadership style is the main factor in creating a sustainable competitive advantage of a company on the market (Schyns et al., 2020).

Open communication and cooperation. Having cooperative connections and open exchange of knowledge and information flow favors joint solutions aimed at reducing the costs of innovation development and maximizing marketing opportunities (Gonsales-Benito, 2016). Cooperation and open communication not only ensure an increase in the effectiveness of work even on difficult tasks and in complicated situations, but also contribute to the accumulation of new knowledge and experience (Levine, 2013). Based on the assumption that knowledge is everywhere, the integration of external knowledge and communication ensures acceleration of innovation cycles and lower costs. Open communication and collaboration are driving a new

open innovation paradigm that helps companies leverage internal and external sources of knowledge to gain a decisive competitive advantage (Félix, 2022).

Emphasis on learning and continuous improvement. Knowledge is aging and therefore continuous updating is a critically important condition for a company's survival on the market. The goal of continuous knowledge improvement and improvement is to help change organizational processes, policies and practices. Therefore, continuous improvement should be included in everyday work, in a systematic and organic way (Building a Culture..., 2019). This aspect of innovative culture is particularly important as the importance of knowledge as the basis for company development increases. A review of scientific publications reveals the need to develop a theory of continuous improvement (Lahy, Fuond, 2015).

Focus on customer needs and market trends. The company's innovative culture assumes its orientation towards meeting customer needs and monitoring market development trends in order to identify opportunities to introduce innovations. Customer orientation and customer relations have a great impact on business development, enterprise innovation and create appropriate staff behavior (e.g. Joshi, 2016; Chen et al., 2018). Relationships with customers, recognition of their needs and expectations are part of the company's intellectual capital, serve as inspiration for innovation and are part of its innovative culture.

Support in experimenting and taking risks. Every innovation comes with risk. Risk aversion is the result of fear of punishment for project failure. Therefore, part of an innovative company culture is to encourage employees to try new ideas and take calculated risks to drive innovation. (Caro-Gonzalez, 2024). Some researchers pay special attention to the need to maintain appropriate discipline (Pisano, 2019). Some publications emphasize that supporting and encouraging each employee to seek and discover unconventional, non-standard ways of achieving goals and performing tasks is the key to the development of innovation in the organization (e.g. Szczepańska-Woszczyzna, 2014).

Encouraging diversity and inclusion. A company with a high innovation culture values diversity and inclusion, recognizing that a diverse workforce brings different perspectives and experiences that can lead to innovative ideas. Diversity and inclusion are important for several reasons:

- they allow you to attract and retain the most creative and talented people,
- they ensure the integration of various perspectives and experiences, which results in the emergence of new ideas and non-standard solutions,
- improve the psychological climate, morale and willingness of employees to engage in innovative activities,
- they create a positive image of the organization on the labor market.

Rewards and recognition for innovation, support for creativity and problem solving. Every innovation is based on three pillars - knowledge, resources and motivation (Oksanych, 2020). Therefore, an essential element of the organization's innovative culture is an effective employee motivation system, which is based on a well-thought-out set of incentives to introduce innovations through rewards and recognition for their contribution to introducing innovations

in the company. At the same time, organizational culture plays a key role in motivating innovative behavior because it can arouse commitment among organizational members in terms of belief in innovation as an organizational value and acceptance of innovation-related norms prevailing in the organization (Hartmann, 2006).

Creating a culture of innovation is not just a trend, but a strategic imperative (Dieffenbacher, 2023), as it is a necessary condition for the success of a modern enterprise in a dynamically changing market. The creation and development of an innovative culture is influenced by many external and internal factors. The analysis and assessment of these factors is very important for the process of creating an innovative culture, because it allows to take into account their impact both on the innovative culture as a whole and on its individual components. This, in turn, enables effective management of the creation of an innovative culture and adjustment of its profile to the philosophy and development strategy of the organization.

3. The influence of the external environment on the creation of an innovative company culture

The innovative culture of an organization is determined by the behavior of its employees, primarily its management staff. Therefore, the impact of the organization's external environment on shaping its innovative culture should be assessed through the prism of the impact of external factors on staff behavior.

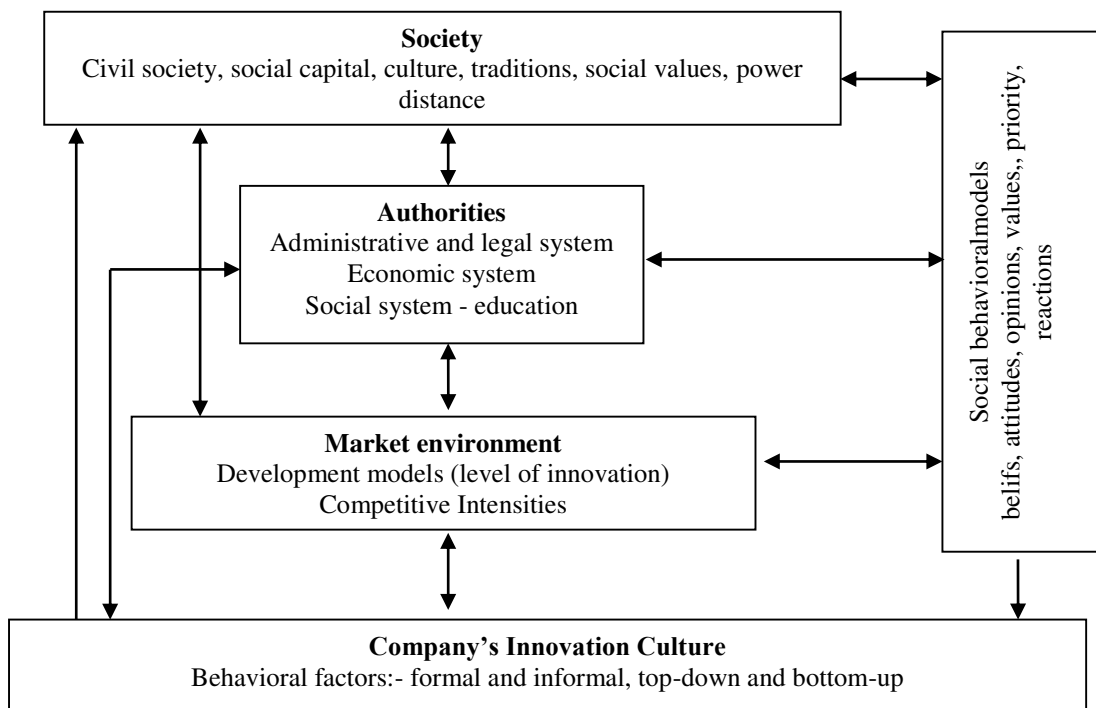


Figure 1. External determinants of creating company culture.

Source: own study.

Figure 1 shows a simplified diagram of the influence of external factors on the innovative culture of the company. A key element of the company's external environment, determining the behavior and attitudes of its employees, and therefore its innovative culture, is society in a broad sense. The state and dynamics of socio-economic development, as well as the attitudes, behavioral models, creativity and innovation of its individual groups and each citizen depend on the state of society. The state of society is reflected in such dimensions as the level of development of civil society, social values, the state of democracy, freedom of personality, social capital, culture, traditions, distance to power, tolerated and accepted norms and models of behavior. The representativeness of the government, the effectiveness and flexibility of its institutions, and the power distance depend on them.

The state of society and the activities of the authorities affect all spheres of socio-economic life, including the state and development prospects of the economy. Since innovations are an increasingly important factor in this development, the state of society indirectly determines the innovativeness of the economy.

Table 1.

Correlation of selected characteristics of society's development with the level of innovation of the economy

Indicators	Correlation with the innovation index
Civil society	0,770
Democracy Index	0,844
Government Functionality Index	0,789
Index of individual liberty and equality before the law	0,688
Education system	0,910

Sources: own study based on <https://ourworldindata.org/grapher/civil-society-participation-index?tab=table>, <https://www.datapandas.org/education-rankings-by-country>, European Innovation Scoreboard 2023.Main Report.

Table 1 presents the values of the correlation coefficient between selected characteristics of society's development and the level of economic innovation, calculated on the basis of data from 40 EU countries and the most developed countries in the world. As shown by the data presented, the quality of the education system and the level of democracy in society have the greatest impact on the level of innovation in the economy (correlation coefficients of 0.910 and 0.844, respectively). The remaining factors should also be considered significant, as evidenced by the high values of correlation coefficients (Table 1).

The influence of society on the level of innovative culture of enterprises should be considered in two ways. On the one hand, pro-innovation attitudes, creativity and innovativeness of enterprise staff, which determine the level of innovative culture, and therefore the innovativeness of enterprises, are based on behavioral models created by society. In other words, society contributes to the increase in the innovativeness of enterprises by creating pro-innovative attitudes of employees. On the other hand, society determines the effectiveness and flexibility of the functioning of government institutions, controls the provision of the rule of law, freedom and democracy, and thus ensures favorable economic conditions for innovative activity.

As the author's previous research shows, a democratic society is characterized by a short power distance, which means social control over the actions of the government and the ability to influence it. The level of democratization of a society determines its ability to effectively manage key socio-economic processes, because a democratic society is a civil society, which means the responsibility of power institutions and ensuring their sensitivity to changes in society and the economy (Oksanych, 2023).

4. Creating models of behavior within the innovative company culture

Innovative company culture and employee behavior are closely related. On the one hand, the behaviors, attitudes and beliefs of employees determine the level and effectiveness of an innovative culture, because they determine how the elements of the innovative culture will be perceived and accepted, and therefore how they will translate into an increase in the company's innovativeness. On the other hand, innovative culture creates employees' behaviors, attitudes and beliefs and "adapts" them to desired models and patterns.

Individual behavior models are determined by factors of the external environment, managers' attitudes and the innovative culture of the organization, which is manifested by the behavior of staff.

The basis of each employee's behavior are beliefs and attitudes created under the influence of the external environment, e.g. the belief in the lack of alternatives to knowledge-based economic development, the need to acquire knowledge, tolerance for different points of view, social responsibility for the consequences of one's actions, etc. However, the influence of the internal environment creates models of individual behavior that are determined by the organizational culture of the company, and in relation to innovative behavior at work (IWB) - by the innovative culture. At the same time, the impact of internal factors is secondary in nature, because models of individual behavior, created under the influence of the external environment, are the foundation of the organizational culture as a whole and the innovative culture as part of it.

According to many researchers, the creation and effectiveness of an innovative culture depend primarily on the attitudes of managers. According to the research of M. Davies and Buisine S., leaders and managers are key elements in the approach to the innovation culture of an organization. (Davies, Buisine, 2018). K. Cameron and R. Quinn emphasize that the company's managers are responsible for managing the organization's culture, and its development requires changes in the attitudes of the managers themselves (Cameron, Quinn, 2011). According to F. Lakoux, the company will not be able to move from the traditional to the self-governing type of management without the involvement of the manager (Laloux, 2015). D. Jerab and T. Mabrouk draw attention not only to the significant role of leaders' influence in creating an innovative culture, but also to its multi-aspect nature. (Jerab, Mabrouk, 2023).

However, behavioral models of managers and employees are also created under the influence of the external environment. Therefore, an indispensable condition for creating a high innovative company culture is an appropriate external environment, including the level of development of civil society, social capital, freedom and democracy.

Beliefs and models of behavior created under the influence of the external environment characterize the innovative culture of society and are the foundation and starting point for creating innovative attitudes at work (IWB). However, within the organization, through the influence of innovative culture, IWB is "clarified" to the needs of the company's development philosophy, desired models and patterns of behavior.

Creating the desired IWB in an organization requires using an appropriate mechanism for influencing the internal environment on employees' attitudes. Therefore, it is important to explain the cause-and-effect relationships between the elements of this mechanism. These relations can be presented by an algorithm based on the assumptions of A. Ellis' ABC model (Figure 2).

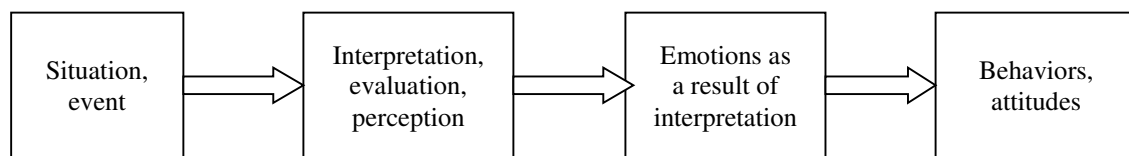


Figure 2. A.Ellis' ABC model.

Source: Own study based on Ellis, 1979, p. 151.

Table 2 presents the goals and activities of company managers within the individual components of A.Ellis' model in relation to creating an innovative company culture.

According to A.Ellis's approach, each event is first assessed and interpreted. This model is based on the belief that it is not the situations and events themselves, but their interpretations that are the source of emotions and behaviors. In relation to the sphere of work psychology, this means that factors of the internal environment create IWB indirectly.

Based on this assumption, the correct interpretation of events is crucial for creating pro-innovative behavior of an individual. It is based on the knowledge, skills, qualifications and experiences of the individual.

This means that clearly defining and understanding the event is crucial for its proper assessment. When an event is well framed and described, it is easier to identify its possible consequences and determine the best course of action. By breaking down the event into smaller parts and considering different points of view, the path to an objective interpretation becomes clearer. Additionally, a well-defined event ensures effective communication and cooperation between team members.

Table 2.*Creating IBW in the organization based on the A.Ellis model*

	Event	Interpretation	Emotions	Behavior
Determining factors	External or internal processes related to innovative activities	Knowledge, skills, qualifications, experience, forms and methods of communication	Individual features, norms and rules of the company's innovative culture	Activities, attitudes, behaviors
Purposes achieved by elements of innovation culture	Reducing negative events and mitigating their impact on staff behavior	Ensuring an objective assessment of events and their possible consequences, presenting a vision for solving problems, creating confidence and assertiveness	Providing the opportunity to express emotions and respond to events in a balanced manner	Ensuring the creation of an attitude consistent with the assumptions of the company's innovative culture
Activities	Development of event development scenarios, training and training, simulating situations in order to develop behavioral algorithms adequate to a possible event	Ensuring the flow of information, staff involvement in activities innovation and decision-making processes, cooperation and teamwork	Tests and training allowing for emotion management, cooperation and teamwork	Creating and supporting behavior models, ensuring self-control of emotions and rational behavior, adequate to the scale and importance of the event

Source: Own study based on Beck et al., 1983; Selva, 2021.

Of course, the concept of "event" includes phenomena, processes, trends, etc., which differ significantly in terms of scale, effects, areas of occurrence, and sources of origin. Some of them may be objects or elements of forecasting models, scenarios, training programs and trainings. In this case, the interpretation of the event by the individual is much easier and simpler.

According to A. Ellis's ABC model, the interpretation of an event is the source of an individual's emotions. Cognitive processes and their emotional determinants have a decisive impact on the formation of organizational culture, including the axiology of the organization, interpersonal processes, including interpersonal communication, the system of norms and rules that apply in it, the prevailing climate and the basic systems of emotions, motivation, and employee attitudes, along with the material dimension of culture and the physical structure of the organization (Cichosz, 2021). Emotions are the result of the way in which things and events that take place in the organization are interpreted. One of these reactions is a behavioral reaction (Gałuszka, 2022).

If a situation in the organization is interpreted as unfavorable or dangerous, the employee may feel uncertain or anxious. On the other hand, if a situation is interpreted as positive or beneficial, it can be a source of satisfaction or excitement. Emotional responses are shaped by thoughts, beliefs, and past experiences. Ultimately, an individual's emotional responses are a complex interaction of internal thoughts and external stimuli. Therefore, on the one hand, the innovative culture of the organization influences the individual's emotions resulting from the interpretation of the event, and on the other hand, the individual perception and interpretation of the event influences the shaping of the company's innovative culture.

A clearly marked trend of increasing interest in emotion management as an element of organizational culture in foreign (Hochschild, 2009; Altındağ, Köseadağı, 2015; Jie et al., 2020) and domestic publications (Krzyworka, 2013; Hunter et al., 2010.) results from cause-and-effect relationships between emotions, attitudes and actions, especially in the sphere of innovation. Creativity and innovation require a positive emotional environment to a much greater extent than routine work activities. The right psychological climate and friendly working conditions have a significant impact on the effects of innovative activities due to their role in creating IWB and are therefore one of the goals of the company's innovative culture (Usai, Orlando, Mazzoneli, 2019).

The role and importance of emotions as the basis for a behavioral response determine the creation of an effective emotion management system as one of the key components of innovative culture. The innovative culture of an organization in this field must be based on the use of various instruments - formal and informal, direct and indirect.

In the process of creating and developing an innovative culture, it is important to ensure monitoring of its components in order to:

- assessment of their impact on the state of innovative culture,
- assessing changes in employee behavior and attitudes in the process of introducing changes,
- identification of development trends in each of them,
- comparison of the parameters of the innovative culture with the reference (target) model,
- identification of those areas of innovative culture that need correction or intervention by managers.

An important behavioral aspect in the process of creating an innovative culture should be the attitudes and consistent approach of managers to putting its individual elements into practice. G. Pizano therefore distinguishes the need to ensure:

- tolerance for failure, but no tolerance for incompetence,
- willingness to experiment, but with high discipline,
- psychological security, but "brutal honesty",
- cooperation, but with individual responsibility
- "flat" but strong leadership (Pisano, 2019).

Since the culture of innovation is a complex and multifaceted management subject that functions based on the behaviors and attitudes of both managers and other employees, the effectiveness of its creation and development depends on the extent to which the company's management will be flexible in analyzing, assessing and correcting the behavior of staff, how consistently and assertively managers will work for its development.

5. Conclusions

The innovative culture of a company has a significant impact on increasing its innovativeness and strengthening its competitive position.

The innovative culture of a company depends largely on the attitudes and behavior of employees, especially managers. These behaviors are the result of the influence of external and internal factors. External factors are primary in nature and determine the "core" of an individual's behavior because they are based on social values, models of behavior accepted by society, judgments, opinions, culture, and priorities. Internal factors occurring at the organizational level "adapt" an individual's behavior, based on behavioral models created under the influence of external factors, to the desired patterns and models. In this way, innovative culture determines individual behavior in the field of innovative activities and ensures creativity and innovation of staff.

On the other hand, the carriers of innovative culture are the company's employees. Its level and dynamics depend on their attitudes and behavior. The more pro-innovative the "core" of an individual's behavior, the greater the extent to which the staff will not only accept the actions of managers in the field of innovative activities, but will also manifest creativity and innovation by engaging in the implementation of innovative projects and programs.

Although most scientific publications on the examined issues focus on the mechanisms of creating innovative culture and IWB, it should be noted that the level of innovative culture of an organization depends primarily on the external environment, primarily on the development of civil society, social capital, the level of freedom and democracy, which determine the effectiveness of the functioning of government institutes, the development of science and education, innovation and the development of the economy. It therefore seems that the cause-and-effect relations between the mentioned areas of socio-economic development and the creation of an innovative culture of economic units are a current and important subject of further research.

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ALIGNING PERSONAL AND ORGANIZATIONAL VALUES: A MULTIFACETED EXPLORATION OF EMPLOYEE PERSPECTIVES IN THE FIRST YEAR OF EMPLOYMENT

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Purpose: This study investigates the alignment between employees' expectations and experiences during their initial year of employment, focusing on person-organization fit (P-O fit) and values congruence. It aims to identify factors influencing employee work value preferences and explore negative experiences encountered in the early stages of employment.

Design/Methodology/Approach: Employing a mixed-methods approach, the study conducts a comprehensive literature review and surveys 300 newly employed individuals. The survey, designed to capture insights into values congruence and conflict dynamics, utilizes a structured questionnaire. Additionally, the Critical Incidents Technique (CIT) is employed to analyze specific instances of positive and negative experiences reported by respondents.

Findings: The findings reveal that while job seekers actively seek organizational values information, discussions on personal and organizational values are lacking during job interviews. Although most employees initially do not report conflicts between personal and organizational values, such conflicts are more prevalent in micro and small companies, particularly among individuals in independent or specialist roles.

Practical Implications: The study offers actionable recommendations for organizations to strengthen values alignment and mitigate conflicts, including integrating values discussions into recruitment and onboarding processes, fostering inclusive work environments, providing conflict resolution training, and regularly assessing values alignment.

Originality/Value: This study contributes to the understanding of values congruence and conflict resolution dynamics during employees' first year of employment. By employing a mixed-methods approach, it provides nuanced insights and practical implications for human resource management and organizational behavior.

Keywords: work values, person-organization fit (P-O fit), values congruence, organizational values, recruitment.

Category of paper: research paper.

1. Introduction

The study investigates the alignment and disparities between employees' expectations and actual experiences during their initial year of employment. The focus lies on exploring the concept of person-organization fit (P-O fit) and values congruence, analyzing the potential conflicts arising from discrepancies between an employee's personal values and those upheld by their employer (Priyadarshi, Premchandran, 2018).

In today's fast-paced and competitive job market, the task of attracting and retaining skilled employees poses escalating challenges (Lee, Yen, 2013). Consequently, comprehending the factors valued by employees in the workplace becomes imperative for employers striving to craft a compelling employer value proposition that resonates with the needs and aspirations of their workforce (Kollmann et al., 2020).

Through an exhaustive review of existing literature and empirical analysis, this article identifies pivotal factors influencing employee work value preferences. These include the importance of having supportive managerial figures, collaborating with trustworthy colleagues, and receiving fair compensation (Sökmen et al., 2015; Yusliza et al., 2020; Zingheim, Schuster, 2006). Additionally, the article scrutinizes the primary clusters of negative experiences encountered by employees in their inaugural year of employment.

The insights gleaned from this study carry substantial implications for various domains, including human resource management, organizational behavior, employee engagement, and retention. Employers stand to benefit from this knowledge by crafting a compelling employer value proposition that not only attracts and retains top-tier talent but also fosters a positive work culture and fosters alignment with organizational values.

The authors employed the Scopus and Web of Science databases to conduct a comprehensive literature review in the field of study. After refining the results, they meticulously analyzed the content of abstracts and utilized the VOSviewer software tool to construct and visualize bibliometric networks, revealing strong relationships among the fields examined in this article (Figure 1).



Figure 1. Co-occurrence analysis for the selected literature.

Source: own elaboration based on VOSviewer results.

A detailed exploration of specific relationships is presented in subsequent sections, where the authors elucidate critical theories and definitions linking personal and work values, values congruence, P-O fit, and the significance of the first year of employment.

2. Operationalization of the concepts used in the study

To ensure clarity and precision in the study, the authors have meticulously operationalized the key concepts under scrutiny. By delineating the operational definitions of work values, person-organization fit, and values congruence, they aimed to provide a comprehensive framework for understanding the intricate dynamics at play within the realm of organizational behavior.

Values and Work Values

Values represent fundamental components of human behavior and decision-making processes, embodying individuals' deeply ingrained beliefs and attitudes that influence their identity and behaviors in various contexts, including the workplace (Ros et al., 1999). Interdisciplinary research across psychology, sociology, and management underscores the pivotal role of values in shaping attitudes and behaviors. For instance, studies have revealed that employee values significantly impact job satisfaction, motivation, and retention (Kristof-Brown et al., 2005). Schwartz's theory of fundamental values categorizes values into ten distinct groups that exhibit relative stability across diverse cultures and demographics, encompassing self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition, benevolence, and universalism (Schwartz & Bilsky, 1990). Understanding employees' values facilitates the creation of a work environment aligned with their preferences, leading to enhanced job engagement, commitment, and performance (Figure 2).



Figure 2. Co-occurrence analysis for employees' values, organizational commitment, and work engagement.

Source: own elaboration based on VOSviewer results.

On the other hand, work values denote individuals' beliefs and attitudes concerning various work-related aspects, including job security, compensation, work-life balance, and meaningful work. These values guide employees' preferences, expectations, and behaviors in the workplace. Theoretical frameworks such as the theory of work adjustment (Dawis, 2005) and the theory of planned behavior (Ajzen, 1991) offer insights into the role of work values in shaping job satisfaction, motivation, commitment, and retention. Critical work values identified in investigated research encompass work-life balance, fair compensation, growth opportunities, meaningful work, and positive work culture (Van Vianen, 2000). Employees perceiving alignment between their work values and organizational practices are more likely to exhibit job satisfaction and commitment (Straatmann et al., 2020), contributing to organizational retention strategies (Yusliza et al., 2020).

Person-Organization Fit

Person-organization fit (P-O fit) is a pivotal concept in organizational behavior, reflecting the degree of compatibility between individuals and organizations regarding their values, goals, and personality traits. Acknowledged for its significance in recruitment, selection, and retention strategies, P-O fit correlates positively with job satisfaction, commitment, and employee performance (Cable, DeRue, 2002; Kristof, 1996).

In more recent studies, fit perceptions have also been indicated as the most potent predictor of candidate attraction concerning job and organization characteristics and the recruitment process (Uggerslev et al., 2012; Van Vianen, 2000). However, despite numerous examples of evidence supporting using P-O fit as an instrument for attracting talent, some problems continue to haze our present understanding of P-O fit experience in a job search context.

Values congruence

Values congruence refers to the alignment between an individual's values and an organization's values, fostering a sense of identification, belongingness, and positive work behaviors (Kristof-Brown et al., 2005). Extant research indicates that values congruence influences employee motivation, commitment, and job satisfaction (Kristof, 1996) (Figure 3).

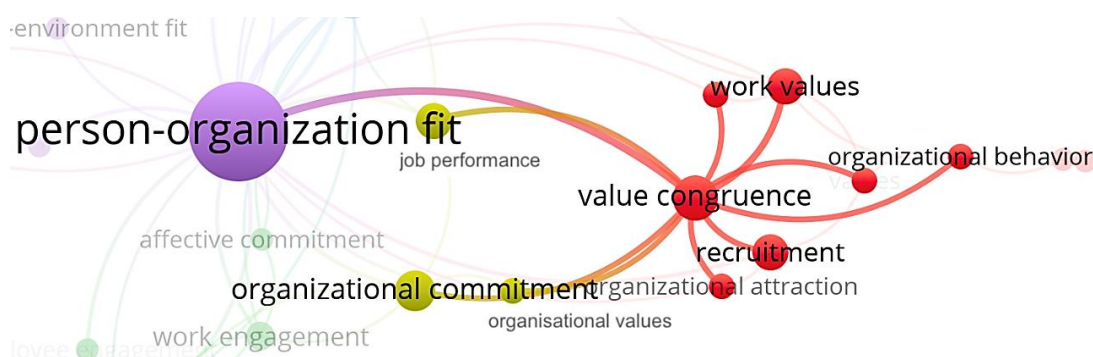


Figure 3. Co-occurrence analysis for P-O fit, values congruence, work values and organizational values.

Source: own elaboration based on VOSviewer results.

Additionally, values congruence correlates with positive work outcomes such as increased job performance and organizational attraction (Cable, Parsons, 2001; Chatman, 1991). Measurement methods for values congruence encompass self-reported measures and social network analysis, with its manifestation varying across organizational levels and being influenced by leadership, culture, and communication (Chatman, 1991).

The first year of employment holds significant implications for person-organisation fit, employee engagement, motivation and organizational commitment. Research underscores the importance of a positive onboarding experience and socialization practices during this period, contributing to higher job satisfaction, performance, and retention rates (Allen, Shanock, 2013; McCulloch, Turban, 2007; ZHU et al., 2017). Quality onboarding processes encompassing training, feedback, and mentoring facilitate employees' integration into the organization, fostering their acclimation to roles and organizational culture (Takeuchi et al., 2020).

3. Methods and Research Questions

This study adopted a comprehensive approach to investigate the interplay between personal and organizational values among employees during their first year of employment. In pursuit of this objective, four research questions were formulated, two of which pertained to the pre-employment period, while the remaining two addressed the period of employment within the respective company.

- Q1 – Do jobseekers exhibit interest in their potential employers' organizational values?
- Q2 – Do recruiters assess potential candidates based on their alignment with the organization's values?
- Q3 – Did newly employed workers encounter conflicts between personal and organizational values during their first year of employment?
- Q4 – What were the predominant areas of conflict experienced by employees?

To address the aforementioned research questions, a diagnostic survey method was employed utilizing a questionnaire survey (quantitative approach), involving the administration of surveys to a target sample comprising 300 recently employed individuals (N = 300) within new organizations. The respondents who participated in the CAWI survey were diverse in terms of gender, age, marital status, education, place of residence, employment size, work experience, frequency of job changes, industry of company operation, and job position held. The sample was selected from an internet panel provided by a research agency using screening criteria to ensure representation of the general population.

Additionally, a qualitative research procedure known as the Critical Incident Technique (CIT) was employed (Flanagan, 1954; Gremler, 2004). The critical incident technique comprises a series of procedures crafted to acquire direct observations of human behavior in

a manner that maximizes their potential usefulness in addressing practical concerns and developing overarching psychological principles. This technique delineates protocols for gathering observed incidents that hold particular significance and meet systematically established criteria. In this context, an incident refers to any observable human activity that is self-contained enough to allow for inferences and predictions about the individual carrying out the action. For an incident to be considered critical, it must occur in a situation where the purpose or intention of the action appears reasonably clear to the observer, and where the consequences of the action are distinct enough to leave little doubt about its effects. The research aimed to identify specific instances of positive and negative experiences reported by respondents. These experiences were then categorized and analyzed to identify prevalent themes and areas of conflict within the first year of employment.

The research design allowed for a comprehensive exploration of values congruence and conflict resolution dynamics, spanning both pre- and post-employment phases, thereby providing valuable insights into the factors influencing employees' values alignment and organizational fit.

4. Research results

The findings of the study revealed that a significant proportion of job seekers sought information on organizational values during the job search process, with various sources influencing their decision-making. Additionally, the study highlighted the importance of values congruence and effective onboarding processes in shaping employees' experiences and outcomes during the first year of employment.

Of the 177 individuals (59.0%) who confirmed seeking information on organizational values, many relied on personal connections for insights, with 22.4% consulting close friends or family. This underscores the significance of informal networks in shaping perceptions of organizations, as individuals glean insights into organizational culture and image through interactions within their immediate circles.

Social media platforms, notably Facebook, were another popular source, utilized by 21.7% of respondents, while 17.5% accessed dedicated websites for employer reviews and insights. In contrast, professional platforms like LinkedIn and GoldenLine were less frequently utilized, with 14% and 6.5% of respondents, respectively, turning to these channels for organizational information (Figure 4).

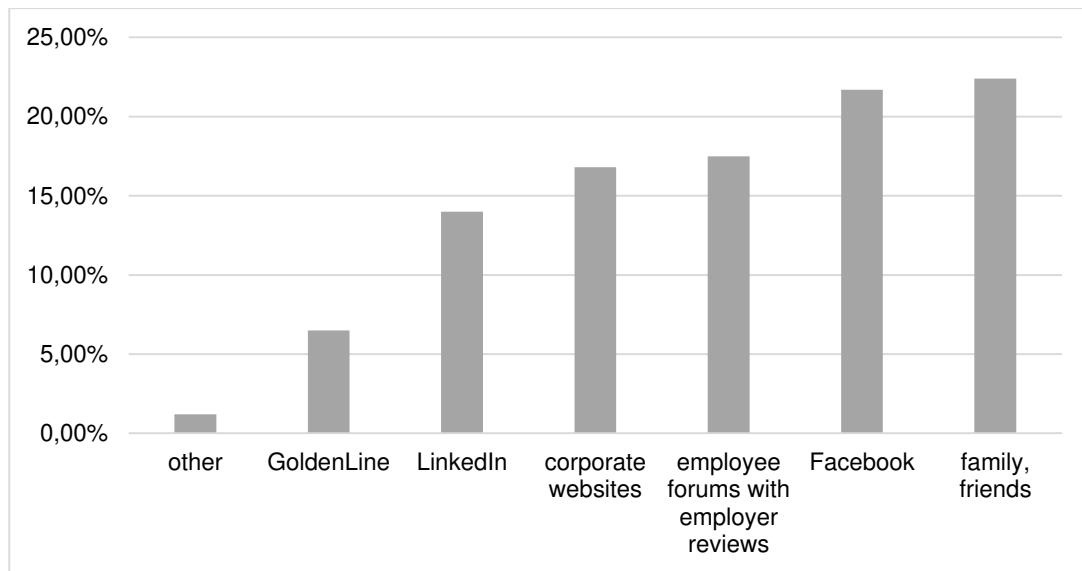


Figure 4. Sources of knowledge of organizational values.

Source: own elaboration based on analysis of CAWI survey data among employees N = 177 (only the group of people who indicated seeking content on organizational values).

Analysis of the surveyed sample's education level revealed no discernible trend in their propensity to seek organizational values information. Regardless of educational background, respondents exhibited a consistent inclination towards analyzing organizational values during the job search process. This indicates a uniform practice across various professional groups, with individuals across education levels demonstrating similar levels of engagement in seeking organizational values information (Table 1).

Table 1.

Education vs. seeking knowledge of organizational values

Age (years)	N	% of N
< 25	39	22,0
26-40	42	23,7
41-55	61	34,5
> 56	35	19,8
Total	177	100,0

Source: own elaboration based on analysis of CAWI survey data among employees N = 177 (only respondents who indicated seeking content on organizational values).

Individuals aged between 26 and 55 (78.0%) demonstrated a higher propensity for contemplating employment-related matters, while younger (22%) and older (19.8%) individuals showed less inclination towards considering organizational values during their job search (Tab. 2).

Table 2.
Age and drawing knowledge of organizational values

Level of education	N	% of N
Lower	65	36,7
Secondary	61	34,5
Higher	51	28,8
Total	177	100,0

Source: own elaboration based on analysis of CAWI survey data among employees N = 177 (only the respondents who indicated seeking content on organizational values).

The questionnaire asked employees whether personal and organizational values topics were discussed during the job interview. Surprisingly, the vast majority (91%) reported that these topics were not broached.

Subsequently, the researchers probed whether employees encountered conflicts between their personal values and their employer's organizational values within the first year of employment. While a significant portion (82.7%) indicated no such conflicts, further investigation revealed numerous examples of conflict areas (Tab. 4). Among those who reported experiencing such issues (17.3%), values incongruence was most encountered by individuals employed in micro companies with 1 to 9 employees (38.5%) and small companies with 10 to 49 employees (30.8%). Conversely, respondents in larger companies were less likely to report such challenges 17.2% for medium companies and only 13.5% for large companies (Figure 5).

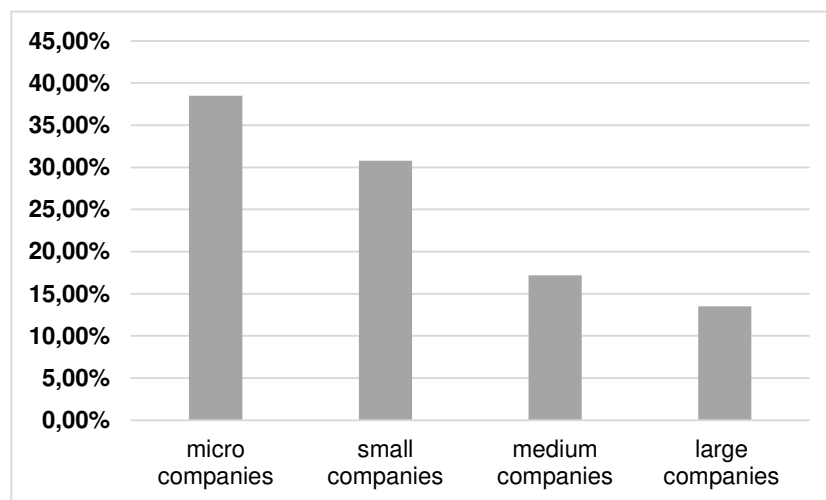


Figure 5. Company size and experience of value conflict.

Source: own elaboration based on analysis of CAWI survey data among employees N = 52.

In terms of industry, a majority worked in the logistics and transportation (25.0%) and manufacturing (20.0%) sectors, with smaller proportions in healthcare, finance, and technology (Tab. 3).

Table 3.
Industry and the experience of value conflict

Industry	N	%
commerce and distribution	6	11,5
IT	9	17,3
finance, insurance	7	13,5
logistics, transportation	10	19,2
manufacturing	10	19,2
education	5	9,6
state administration	3	5,8
health care	1	1,9
fintech	1	1,9
Total	52	100,0

Source: own elaboration based on analysis of CAWI survey data among employees N = 52.

Those most affected by conflicts in values were employees in independent and specialist roles within the company (50.0%). In contrast, such experiences were less common among rank-and-file employees (28.8%) and least prevalent among managerial positions (21.2%) (Figure 6).

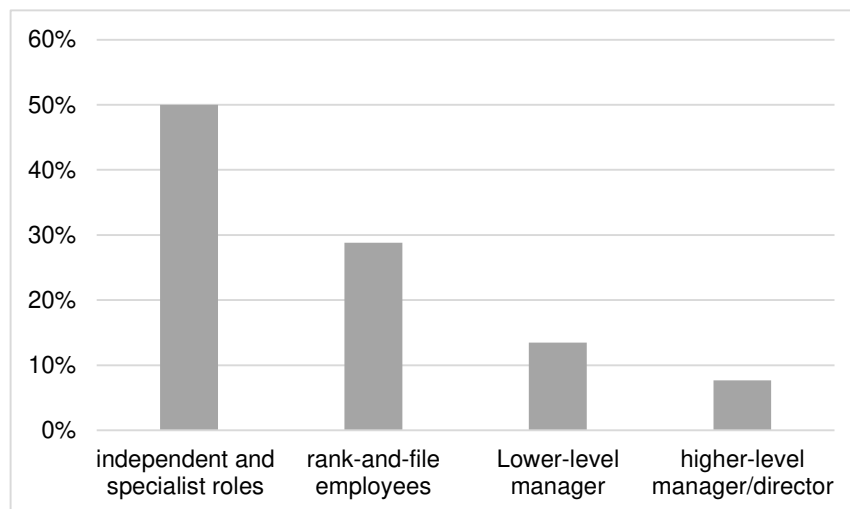


Figure 6. Occupied job position and experience of value conflict.

Source: own elaboration based on analysis of CAWI survey data among employees N = 300.

The final phase of the research employed the Critical Incident Technique (CIT)(Gremier, 2004), where participants were tasked with recounting both their most positive and negative experiences during their initial year of employment. For the scope of this article, the researchers directed their attention towards the narratives detailing the most adverse encounters. Surprisingly, nearly half of the respondents disclosed encountering negative incidents, albeit without directly attributing them to conflicts in values, as previously discussed (Tab. 4).

Table 4.*Positive and negative experiences in the first year of employment*

POSITIVE EXPERIENCES (N = 300)	
N	%
200	66,7
NEGATIVE EXPERIENCES (N = 300)	
N	%
131	43,7

Source: own elaboration based on analysis of CAWI survey data among employees N = 300.

The researchers sought to identify the prevalent themes within these negative experiences and ascertain if certain issues were more recurrent than others. Following a meticulous analysis of the responses provided by 131 participants, the researchers identified five distinct areas that emerged as particularly salient (Tab. 5).

Table 5.*Most salient areas of negative experiences in the first year of employment*

Area of conflict	No of occurrences	% N
Conflicts with the supervisor	36	41%
Conflicts with co-workers, bad atmosphere	27	30%
Lack of support during the initial period of employment/ lack of implementation in the new position	17	19%
Too much workload	13	14%
Unfairness in salary calculating/payment	9	10%

Source: own elaboration based on analysis of CAWI survey data among employees N = 131.

The authors uncovered a noteworthy trend regarding the sources from which job seekers gather information about organizational values. While informal channels such as personal connections and social media platforms like Facebook were commonly utilized, professional networking platforms such as LinkedIn and GoldenLine were less frequently accessed. This finding challenges the conventional notion that job seekers primarily rely on professional networks for such information, suggesting a broader landscape of information sources that employers should consider when crafting their employer value proposition.

Additionally, the investigation into conflicts between personal and organizational values revealed intriguing patterns across different organizational sizes and employee roles. While conflicts were more prevalent among individuals in independent or specialist positions within micro and small companies, larger organizations exhibited lower rates of values incongruence. These findings shed light on the nuanced dynamics of values alignment within organizational contexts, highlighting the importance of tailoring strategies to address values-related challenges based on organizational size and employee roles.

5. Conclusions

The study underscores the pivotal role of organizational values in the job search process and highlights potential conflicts that may emerge between personal and organizational values during employees' initial year of employment. Job seekers demonstrate a proactive approach in seeking information about organizational values, predominantly through informal channels like family and friends, as well as social media platforms such as Facebook. However, despite this proactive stance, discussions on personal and organizational values during job interviews are notably lacking, revealing a gap in the recruitment process.

Although the majority of employees did not report conflicts between personal and organizational values in their inaugural year of employment, those who did were primarily from micro and small companies, holding independent or specialist positions. This underscores the necessity for organizations, particularly smaller entities, to place greater emphasis on values alignment during recruitment and onboarding processes to preempt potential conflicts and bolster employee satisfaction and retention.

6. Practical Implications

Drawing insights from the research outcomes, a multitude of actionable recommendations arise for businesses striving to enhance values alignment and mitigate conflicts within their workplace environments. These recommendations, if diligently implemented, can significantly contribute to fostering a harmonious and values-driven organizational culture.

Firstly, integrating discussions on values into the recruitment and onboarding processes stands out as a paramount strategy. Employers should actively incorporate inquiries regarding personal and organizational values during job interviews, ensuring that prospective employees understand and resonate with the company's core values from the outset. Moreover, providing comprehensive insights into organizational values and culture during the onboarding phase is imperative. This could entail conducting orientation sessions explicitly addressing the organization's values, mission, and vision, thereby instilling a sense of alignment and commitment among new hires from the onset of their employment journey.

Secondly, promoting values alignment through inclusive work environments is pivotal. Businesses should strive to cultivate a culture that celebrates diversity of thought and perspective, fostering an environment where employees feel valued, respected, and empowered to express their authentic selves. Organizing workshops and training sessions centered on values alignment can facilitate open dialogues and promote understanding among employees, thereby strengthening the organizational fabric and promoting a shared sense of purpose.

Thirdly, providing training and support for navigating values conflicts is essential. Employers should equip both managers and employees with the necessary tools and skills to effectively address and resolve conflicts arising from values misalignment. This may involve offering conflict resolution training, establishing channels for transparent communication and feedback, and providing access to resources and support networks. By empowering employees to navigate values conflicts constructively, organizations can foster a culture of trust, collaboration, and mutual respect.

Lastly, regular assessment of values alignment among employees is imperative for organizational success. Employers should implement mechanisms to routinely evaluate employees' perceptions of values alignment and identify potential areas of discrepancy or conflict. This could involve conducting surveys, focus groups, or one-on-one interviews to solicit feedback and insights from employees regarding their alignment with organizational values. By regularly assessing values alignment, organizations can proactively address emerging issues, reinforce positive behaviors, and align strategic initiatives with the core values and aspirations of their workforce.

In summary, by adopting these key strategies—integrating values discussions into recruitment and onboarding processes, promoting values alignment through inclusive work environments, providing training and support for navigating values conflicts, and regularly assessing values alignment among employees—businesses can cultivate a harmonious and values-driven work environment that fosters employee engagement, satisfaction, and organizational success.

7. Recommendations for Further Research

For future research endeavors, a deeper exploration into the determinants influencing values congruence and conflict resolution across various organizational settings would be beneficial. Longitudinal studies tracking employees' perceptions of values alignment over time could yield valuable insights into the dynamics of Person-Organization fit (P-O fit) and its ramifications on employee attitudes and behaviors. Additionally, investigating the impact of leadership and organizational culture on fostering values alignment and alleviating conflicts would contribute to a more nuanced comprehension of this multifaceted phenomenon.

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COACHING IN ORGANIZATION – BIBLIOMETRIC ANALYSIS (CO-WORD AND CLUSTER ANALYSIS)

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Purpose: The article aims to identify the current state of knowledge about coaching in organizations by conducting a bibliometric analysis of publications in this area.

Design/methodology/approach: In the article, a partial bibliometric analysis of the research area of coaching in organizations was carried out using co-word analysis and cluster analysis techniques to identify the current state of knowledge. The data was analyzed using the Scopus bibliometric database and the VOSviewer program.

Findings: The analyses indicated that the fundamental research topics discussed are leadership, mentoring, executive coaching, management development, and leadership development. It was identified that the initial interests of coaching researchers focused on organizational changes. The latest research topics are micro-coaching and the use of AI in coaching.

Research limitations/implications: Further research should complement and extend the bibliometric analysis with other relational techniques, i.e., co-citation analysis, co-authorship analysis, bibliographic coupling, and direct citation analysis. A critical literature review should be conducted after a full bibliometric review of the publication on coaching in organizations. In subsequent studies, the analysis can also be extended to include publications in the field of social sciences.

Originality/value: In the day of searching the SCOPUS database, no bibliometric review from this area was noticed. The analysis provides an opportunity to deepen further research and partially highlight research gaps in this area. This is particularly important among national authors due to the small number of publications from this area affiliated with Polish institutions.

Keywords: coaching, organization, leadership coaching, executive coaching, bibliometric analysis, VOSviewer.

Category of the paper: Literature review.

1. Introduction

Coaching is a dyadic relationship in which the coach and the coachee cooperate to identify and achieve organizational goals and professional or personal development purposes (Sonesh et al., 2015, p. 73). In organizations, coaching focuses on activities that strengthen and motivate employees (Coimbra, Proença, 2023). Coaching also helps employees build self-awareness and learn, thus contributing to the success of an individual and an organization (Joo, 2005, p. 468).

The number of publications on coaching in organizations in the SCOPUS database indicates a growing trend of exploring this topic. However, no publication on coaching in organizations in the SCOPUS database (as of January 16, 2024) presents the current state of knowledge using the results of bibliometric analysis of this topic.

In this context, the article aims to identify the current state of knowledge about coaching in organizations by conducting a bibliometric analysis of publications in this area. Achieving this goal requires answers to the following detailed questions:

RQ1: What are the fundamental and significant research topics in organizational coaching?

RQ2: What clusters constitute publications on coaching in organizations?

RQ3: How does the structure of research topics related to organizational coaching change?

To achieve the article's aim, a review of the literature included in the SCOPUS database regarding coaching in organizations was used, which allowed the identification of a cognitive gap in the form of a lack of knowledge about the current state of research in this area, obtained using bibliometric analysis. Consequently, a bibliometric study was used. A relational technique was applied to examine the relationship between the author's keywords, and also co-word and cluster analyses were performed. VOS viewer software was used to visualize the study results. The theoretical background was prepared based on studies of the most frequently cited and newest publications (i.e., published after 2019) taken from the SCOPUS database, meeting the assumed search criteria, i.e., regarding coaching in organizations.

The first part of the article presents the theoretical background. Then, the methodology of the bibliometric research conducted was described. The next section presents and discusses the findings. The summary formulated the conclusions of the analysis, indicates the study's limitations, and outlines directions for further literature study.

2. Theoretical Background

Around 1997, coaching and mentoring emerged as part of the rising interest in management and leadership development (Vicere, 1998). Research has concluded that coaching can be a tool for individual and organizational transformation (Bowerman, Collins, 1999). The International

Coaching Federation (ICF) defines coaching as collaborating with clients in a creative, thought-provoking process designed to inspire them to maximize their professional and personal potential (International Coaching Federation, 2020). The common part of most definitions is an intimate relationship between the coach and the client to improve the client's and the organization's performance (Cannon-Bowers et al., 2023).

The most frequently researched topic is executive coaching. Executive coaching is a partnership between an individual holding a management position and a coach employed by the organization to help the manager become a more effective leader (Hannafey, Vitulano, 2013).

Many publications are also devoted to the subject of leadership coaching which concerns leadership development. It aims to help employees develop their skills and leadership abilities, thereby increasing their chances of promotion (Carter, 2023).

Supervisory coaching is a term frequently confused with executive coaching. The task of supervisory coaching is to increase the work efficiency of subordinates (Sketch, 2001).

The goal of a manager as a coach is to help employees recognize how they can work more effectively, improving their behavior or ways of working (Ladyshevsky, 2010).

Among the tools used to measure coaching effectiveness, there is a qualitative ROE approach (return on expectations) and a quantitative ROI approach (return on investment). A. Grant, believes that ROI is not a reliable measure of the results of the coaching process. He even points out that paying too much attention to financial returns can be limiting for both coaching and organization. Coaching processes focusing too much on maximizing profits can increase employee stress and anxiety (Grant, 2012). While research conducted by J. Phillips, has shown a positive return on investment in coaching (Phillips, 2022). According to the ICF, 86% of companies saw a positive return on investment in their coaching activities, and 96% of organizations accompanied by executive coaching thought they would repeat the process. This consists of measurable and immeasurable factors. Measurable include, among others, increased productivity, better efficiency, and employee engagement or sales growth. Unmeasurable factors include higher levels of emotional intelligence and self-confidence among employees and improved team and stakeholder relationships (McCullough, 2023).

A different indicator for assessing effectiveness is the return on expectations (ROE, Return on Expectations). This measurement aims to link coaching with critical indicators and desired results for the company by adjusting coaching activities to strategic goals and explaining the relationship between coaching and mission and values, on which the organizational culture is based (Nowicka et al., 2021).

Among the publications on coaching, some refer to the coaching culture (Gormley, van Nieuwerburgh, 2014) and gender in coaching in their subject (Gray, Goregaokar 2010; Gray, De Haan, Bonneywell 2019). Coaching is also used in the topic of well-being (Gardner, Moorefield, 2022).

Increasingly, in the context of leadership, the topic of emotional intelligence appears. In 2017, this topic was undertaken by researchers in the context of the impact of coaching intervention on the emotional competences of managers. A study proved the positive impact of long-term coaching on the development of emotional intelligence of leaders (Dippenaar, Schaap, 2017). However, research has not proven a link between emotional intelligence and task-oriented behaviors among leaders (Halliwell, Mitchell, Boyle, 2022).

Among the new trends in coaching is micro-coaching. Research indicates the effectiveness of positive psychological micro-coaching, a short-term intervention that builds on the coachee's strengths (Corbu et al., 2021). Strengths-based micro-coaching can help increase employee performance and engagement and positively influence employee well-being (Peláez, Coe, Salanova, 2020).

The COVID-19 pandemic has directed the interests of researchers to the issue of virtual meetings in coaching. There is a belief that virtual meetings are not attractive enough and that their participants are appropriately involved. Therefore, the critical problem is to take actions that will increase involvement in virtual meetings (Preston, Maes, 2023).

Among the current interests is the topic of AI in coaching in organizations, which first appeared in publications in 2011 (Watkins et al., 2011). The development of artificial intelligence has necessitated the need to define guidelines for the design of AI coaches who will meet international standards of ethics and coaching practice (Terblanche, 2020). In the available publications, you can find the definition of AI coaching, which defines this concept as a machine-assisted process, helping clients set professional goals and look for solutions to achieve them. Thanks to its ability to acquire extensive data, AI coaching could help individuals achieve their goals more effectively by better selecting tools, questions, or exercises (Grassmann, Schermuly, 2021). The topic of AI in coaching is fascinating due to the recent extensive use of the ChatGPT tool. Experts assessed the coaching conversations conducted by the artificial intelligence tool. They concluded that ChatGPT could conduct a conversation, generating open-ended questions and summarizing answers at a level lower than the International Coach Federation ACC standard of coaching. The author emphasizes in his article the need for organizations to consider whether the ChatGPT tool can be accredited or prohibited. The author also indicates the possibility of using artificial intelligence to support and improve coaching practice. This is the first article that raised the issue of the artificial intelligence tool Chat GPT as a potential for coaching talks (Passmore, Tee, 2023).

Coaches often work in a very complex environment, resulting in ethical dilemmas. The difficulty of dealing with emerging ethical dilemmas is due to the confidentiality that the coach must maintain. Research indicates that supervision plays a helpful role in this area. Thanks to various strategies, supervisors help solve ethical dilemmas (Ratlabala, Terblanche, 2022).

3. Research Methodology

A bibliometric review is a method of systematic literature review based on the field of science (Paul, Criado, 2020, p. 2). Bibliometric analysis uses the so-called relational technique (Benckendorff, Zehrer, 2013, p. 126).

One of the bibliometric methods is the analysis of co-words. It allows you to find answers to the following questions: a) What are the conceptual components of literature? b) What are the dynamics of the conceptual structure of the field? c) What topics relate to a specific direction of research? d) How does the studied concept evolve? (Zupic, Cater, 2014, p. 439).

A graphical bibliometric review can be developed using Viewer (Visualization of Similarities) programs such as VOSviewer, which is now commonly used for such a bibliometric review.

To identify the current state of knowledge about coaching in organizations, the questions defined in the introduction were asked.

Bibliometric studies were used to find answers to the questions. A relational technique was used to examine the relationship between the author's keywords, and an analysis of co-words (co-word analysis) and clusters (cluster analysis) was conducted.

Research publications were taken from the Scopus scientific database. The starting point was to establish strict search criteria. The query formula had to consider the leading phrases in the organization's coaching area. The following query was entered by the language formula in force in the database: TITLE-ABS-KEY („coaching”) AND („organization*” OR „organization*” OR „enterprise*” OR „compan*”).

During the preliminary search, 5,673 publications were found. Matching publications indexed in the Scopus database were filtered. In the second step, the following query string was used: TITLE-ABS-KEY („coaching”) ORAZ („organization*” LUB „organisation*” LUB „enterprise*” LUB „compan*”) ORAZ ((LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "ch") OR LIMIT-TO (DOCTYPE , "bk") OR LIMIT-TO (DOCTYPE , "cp")) AND (LIMIT-TO (SUBJAREA, "BUSI") AND (LIMIT-TO (LANGUAGE, "English")). As a result, 1,577 articles were obtained.

In the third stage, the presence of duplicates was checked. For this purpose, the Zotero bibliography manager was used. 7 Repeated publications were identified. As a result, 1570 articles were qualified for further analysis.

The literature database was obtained on 13.12.2023 and used to carry out w/w analysis. In addition, the most frequently cited and latest publications were extracted, i.e., after 2019. Further content studies were subjected to 29 articles; based on them, a theoretical background was prepared.

4. Bibliometric analysis of co-words (co-word analysis) and clusters (cluster analysis)

Essential and significant research topics in the field of coaching in organizations

In order to identify primary and significant research topics in the field of coaching in organizations, an analysis of the co-occurrence of keywords (co-word analysis) provided by the publication's authors was conducted.

The minimum number of occurrences of a copyright keyword was first limited to 2 words. Of the 3,307 keywords, 659 meet a defined threshold. For each of the 659 keywords, the total strength of co-occurrence relationships with other keywords was calculated. Keywords with the highest total strength of connections were selected. In order to verify the correctness of the identified leading keywords, an analysis was also carried out, narrowing the minimum number of instances of the author's keyword to 5 and then to 15. The results confirmed that the essential research topics in the field of coaching in organizations are leadership, mentoring, executive coaching, management development, and leadership development.

The most common keywords with the greatest strength of association are presented in Table 1.

Table 1.
Keywords with the greatest strength of connections

Keyword	Minimum number of occurrences: 5 of the 3307 keywords		Minimum number of occurrences: 15 of the 3307 keywords	
	Occurrence	Total link strength	Occurrence	Total link strength
Coaching	377	721	377	368
Leadership	112	241	112	128
Mentoring	57	149	57	101
Executive coaching	67	106	67	42
Management development	48	117	48	82
Leadership development	62	108	62	68

Source: Scopus database, VOSviewer analysis, authors' compilations, and calculations.

Clusters of publications on coaching in organizations

In order to determine which clusters form publications on coaching in organizations, an analysis of the network of keyword co-occurrences (co-word analysis) provided by the authors of the publication and cluster analysis (cluster analysis) was carried out.

Analysis of the minimum number of occurrences of the author's keywords of 5 allows you to learn information about what research topics related to coaching and other leading keywords are of interest to researchers and showed that out of 3307 keywords, 163 meet the defined threshold and form 10 clusters, including each identified leading keyword is a component of another cluster (figure 1).

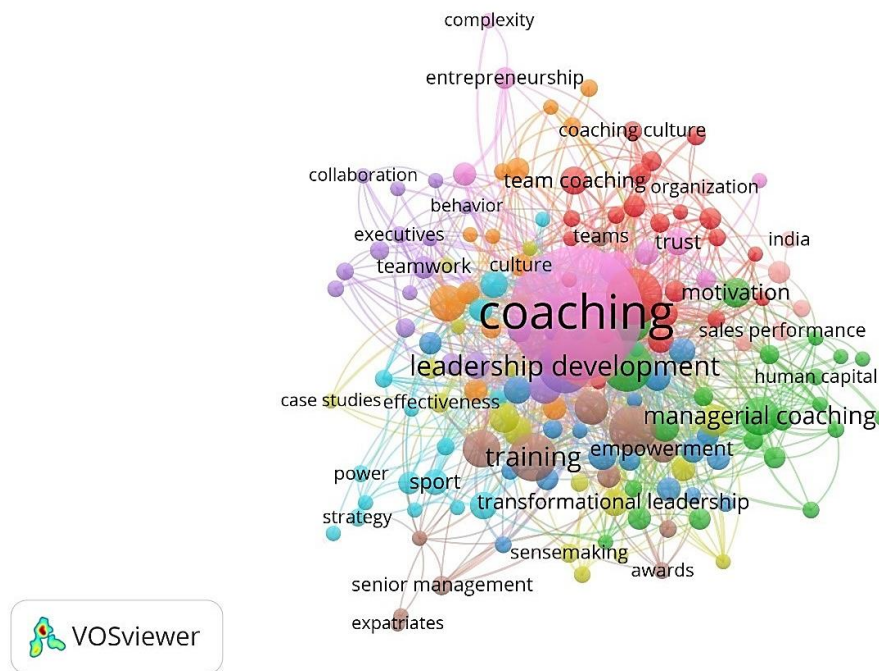


Figure 1. Co-occurrence network of author's keywords with a minimum number of occurrences: 5 of the 3307 keywords – network visualization.

Source: own analyses based on data extracted from Scopus database using VOSviewer software.

In cluster 9 (pink), the dominant theme of coaching is combined with issues related to innovation, creativity, entrepreneurship, education, and experiential learning, but also with commitment, trust, complexity, and performance. It is worth noting that structural equation modeling also appears here. The word leadership (100 connections, 241 connection strength, 112 publications) is critical in cluster 10 (salmon) and is associated with customer orientation, sales management and performance, and qualitative research in India. It is worth emphasizing that the dominant word in cluster 5 (purple) is leader development, which has 467 connections. It appears in 62 publications, and its strength of connections is 108. It seems more related to coaching than cluster 10. The remaining 17 words forming cluster 5 concern issues related to learning organization, organizational learning and development, knowledge transfer, succession and family business, cooperation and work, and team learning; it is also related to behavior and psychological safety and organizational results.

With a minimum number of copyright keywords of 5, the following clusters stand out:

- cluster 1 (red, 23 issues): The dominant keyword is executive coaching, including the most strength of connections: Human resources development (link 26, total link strength 34, events 14), but also the keywords: business coaching, organizational coaching, organizational coaching, peer coaching, team coaching, workplace coaching, coaching effectiveness, coaching culture, coaching results, coaching process, coaching process, the coaching relationship and the relatively current average year of publication: managerial coaching, emotional intelligence, self-coaching, well-being, organizational coaching (avg.pub.age, 2019);

- cluster 2 (green, 22 issues): The dominant keyword is mentoring, including the most strength of connections (link 33, total link strength 51, occurrences 32), motivation (link 28, total link strength 39, occurrences 19), Career development (link 22, total link strength 34, occurrences 18), Employee engagement (link 21, total link strength 24, occurrences 8) and the relatively current average year of publication: coach, coaching education, trust, women, gender, higher education;
- cluster3 (blue, 23 issues): The keywords that dominate are feedback (link 26, total link strength 39, occurrences 15) and Employee development (link 27, total link strength 38, occurrences 13); in this leadership coaching, individual dimensions (i.e., Authenticity, competencies, Diversity, Individual behavior, Individual performance, personality, Self-efficacy), but also ethics and the relatively current average year of publication: coaching leadership (avg.pub.age, 2020);
- cluster 4 (light green, 18 issues): The dominant keyword: Performance management (link 37, total link strength 58, occurrences 21), including the one with the greatest of connections: Human resource management (link 28, total link strength 40, occurrences 19), change management (link 27, total link strength 37, occurrences 17) and the relatively current average year of publication: engagement (avg.pub.age, 2018);
- cluster 6 (aquamarine, 17 issues): The dominant keyword: coach (link 23, total link strength 30, occurrences 16), including the most strength of connections: Evaluation (link 21, total link strength 25, occurrences 12) and the relatively current average year of publication: psychological safety (avg.pub.age, 2019);
- cluster 7 (orange, 13 issues): The dominant keyword is management (link 36, total link strength 64, occurrences 28), with the biggest strength of connections: Organizational development (link 25, total link strength 36, occurrences 12);
- cluster 8 (brown, 13 issues): The dominant keyword is Management development, with the biggest strength of connections: training (link 53, total link strength 103, occurrences 50), Organizational change (link 32, total link strength 689, occurrences 30), Organizational culture (link 30, total link strength 55, occurrences 24), empowerment (link 25, total link strength 36, occurrences 16) and the relatively current average year of publication: developmental relationship (avg.pub.age, 2019).

Structure of research topics related to coaching in organizations over the years

It is worth paying attention to the average year of other publications regarding individual keywords, which illustrates the changes in interest in topics related to coaching.

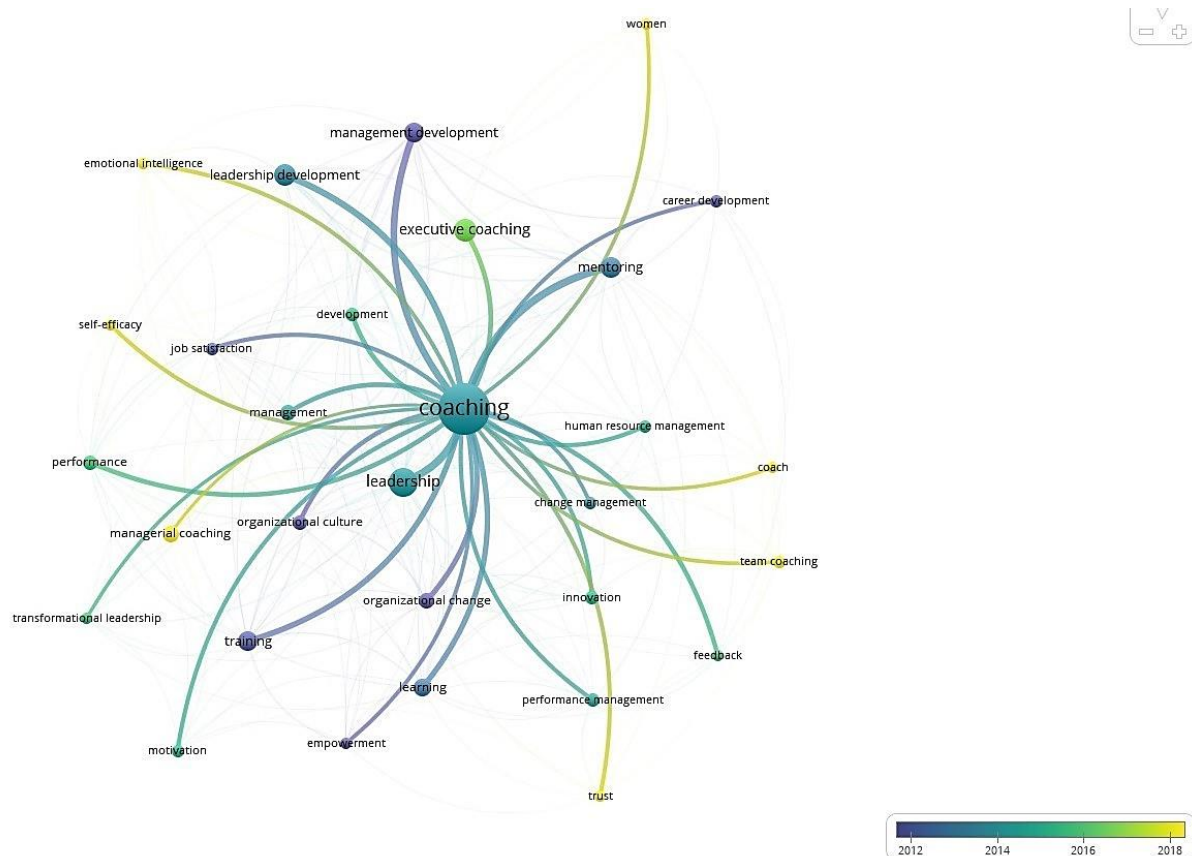


Figure 2. Co-occurrence network of author's keywords with a minimum number of occurrences: 15 of the 3307 keywords – overlay visualization.

Source: own analyses based on data extracted from Scopus database using VOSviewer software.

The oldest average year of publication refers to organizational change (avg.pub.age, 2008). This leads to the conclusion that at that time, it began to be noticed that coaching was one of the topics related to this issue. A relatively long time ago, the subject of interest of researchers in the field of coaching were also topics related to organizational culture, empowerment (avg.pub.age, 2011) and career development, job satisfaction, and training (avg.pub.age, 2012). It should be emphasized that the average year of publications containing keyword coaching is 2013, but the trend of publications on this topic has been growing since 1996.

In addition, around 2013, publications were also related to leader development and mentoring, change management, and learning. Then, the researchers' interest, in addition to leadership and management topics, was directed to performance management (avg.pub.age, 2014). Then, publications appeared more often on human resource management, motivation and feedback, and transformational leadership (avg.pub.age, 2015), and thus, related to the person in the organization. The average year of publication for the keyword executive coaching is 2016. The relatively youngest topics include emotional intelligence, self-efficacy, coach (avg.pub.age, 2017) and, managerial coaching, team coaching, trust, and women (avg.pub.age, 2018).

Therefore, it seems that it can be concluded that the interests of researchers in the field of coaching in the recent period are directed to a) so-called soft dimensions of human resources management, such as.: emotional intelligence and self-efficacy, b) the development of knowledge about managerial coaching and team coaching, c) the issue of trust (These research paths is converged with the actual interest in trust in business relationships. There are currently about 1820 documents related to trust in business relationships in the Scopus database), d) gender aspect in management, including female activity. Moreover, the most current research topics in the context of coaching are organizational coaching, developmental relationship, psychological safety (avg.pub.age, 2019), and coaching leadership (avg.pub.age, 2020).

5. Summary

Analysis of the co-occurrence network of the author's keywords showed that the beginning of interest in coaching was related to organizational change issues. Considerations related to coaching in the aspect of organizational changes are still of interest to researchers. In recent years, a combination of coaching, change and development topics has been observed. Confirmation of this position can be found, among others, in articles by Boak G., Crabbe S. (2019), Akande A., Adewuyi M., Akande T., Adetoun V. (2021), Raudenbush L., Clarke J. (2023). The term “empowerment” in the aspect of coaching does not currently arouse the interest of researchers. Publications in this area come from many years ago, e.g., Mone E, Eisinger C., Guggenheim K., Price B., Stine C. (2011), Heslin P. (1999). This may reflect a broadening of the perspective of perceiving the benefits of coaching. Research conducted over the years has proven that coaching can not only arouse a sense of self-efficacy (empowerment) (Heslin, 1999) but also can be used in managing the development of organizations because it also helps to increase the efficiency of achieving goals, solution-focused thinking, more remarkable ability to cope with change, increase leadership resilience, reduce depression, anxiety and stress, and, increased job satisfaction (Grant, 2014).

The subject matter of the results of coaching activities is the subject of numerous and current research both in the quantitative dimension (ROI return on investment) (e.g., Phillips 2022), as well as qualitative (ROE return on expectations) (e.g., 2012 Grant). Cluster 4, with the leading author's keyword management performance, includes, among others, problems of effectiveness, engagement, and competitive advantage.

Coaching in organizations is related not only to the management of the development of the organization but also to its human resources. Coaching researchers in the context of management deals with various problems, of which the most interesting currently are action learning, project management, and value.

The greatest strength of the link is between coaching and leadership. This is a topic that researchers have been interested in over the years, from the 1996 article by Davies B. through the ones with the highest number of citations, including Wageman R. (2001), Joo, B. (2005), Ely K., Boyce L., Nelson J., Hernez-Broome G., Whyman W. (2010), all the way to one of the newest Ealy P. from 2024. The co-occurrence analysis of the author's keywords showed that with a minimum number of occurrences of these words of 5 or 15, the keyword leadership co-creates a separate cluster. However, reducing the minimum number of keyword co-occurrences to 5 resulted in forming a cluster with the dominant term leadership development. Leadership development is also one of those with the greatest strength of links with coaching and seems to be more related to coaching than a cluster with the leading word leadership. Exciting issues in the field of leadership development include, for example, transformational leadership (Kirkbride, 2006), leadership identity (e.g. Aas, Vavik, 2015), leadership tools (Berg et al., 2012), or leadership coaching, relational leadership (Ladegard et al., 2014).

An essential area of coaching research is cluster 1 (minimum number of keyword co-occurrence 5) with the dominant keyword executive coaching. This cluster is characterized by the distinction of various types of coaching and its results. This may indicate a deepening of research in these topics. A particularly new topic (average year of publication 2018) in this cluster is well-being (link 19, total link strength 24, occupations 13). Interest in this problem has been intensified during the COVID-19 pandemic. Research conducted, for example, by Jarosz J. (2021), showed that coaching can effectively improve the well-being and efficiency of managers and their teams during the pandemic. The significance of well-being, however, is also noticed after the pandemic; Addison L. and Shapiro J. emphasize that leaders are expected not only to achieve financial results but also to care for the mental and physical well-being of their employees (Addison, Shapiro, 2023, p. 219).

The subject of relatively high interest in coaching researchers is mentoring. In recent years, this cluster has recorded research on gender, including women (average year of publication 2019). However, there appears to be a research gap in this area, Bonneywell S., and Gannon J. point out the need for research to allow a deeper understanding of coaching as a social process, including the effect of combining coaching approaches and the development of female leaders as part of leadership development (Bonneywell, Gannon, 2022).

The subject of research in the field of coaching is also feedback. As rightly noted by Walsh B. (2016) and Burger Z. and van Coller-Peter S. (2019), feedback mechanisms are necessary to achieve coaching results and illustrate the organization's investment in the individual's professional development. Therefore, it can be thought that exploring knowledge in this area will be further interesting.

Coaching researchers also focus on issues related to the work of a coach, including, for example, the process of teaching, learning, and practicing solution-focused coaching (Grant, 2022). Due to the pursuit of professionalization and certification in the coaching profession, it can be assumed that researchers will continue exploring this topic.

Conducting in-depth studies of the latest literature, i.e., after 2019, a new area of research exploration was also noticed, namely using artificial intelligence in coaching processes, including its latest tools, i.e., GPT Chat (Passmore, Tee, 2023). Due to the few publications so far, this topic has not been disclosed in the bibliometric analysis. However, it can be assumed that the increasingly dynamic development of artificial intelligence will also deepen research in the context of the usefulness of AI in coaching. Further research is needed to understand the impact of increasingly advanced artificial intelligence tools.

The further research should complement and extend the bibliometric analysis with other relational techniques, i.e., co-citation analysis, co-authorship analysis, bibliographic coupling, and direct citation analysis. A critical literature review should be conducted after a full bibliometric review of the publication on coaching in organizations. In subsequent studies, the analysis can also be extended to include publications in the field of social sciences.

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HRM INTERVENTIONS IN SMEs DURING THE COVID-19 PANDEMIC CRISIS

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Purpose: The purpose of this article is to present HRM interventions undertaken by SMEs during the crisis caused by the COVID-19 coronavirus. The research was conducted in 2021, following a critical moment of the crisis, which was expressed by a decrease in the incidence of the disease and the easing of restrictions introduced at the beginning of the pandemic.

Research design: The exploratory research was conducted on a sample of 200 companies. The surveyed companies were from south-eastern Poland, from the voivodeships of Silesia, Lesser Poland and Subcarpathia. Material for the analysis was obtained through semi-structured telephone interviews with their owners or managers. Descriptive statistics and a Chi-square test were used to analyze the data due to the qualitative nature of the variables.

Findings: The COVID-19 pandemic had a varied impact on the operations of the surveyed SMEs. Among the solutions introduced to cope with the pandemic challenges were reducing the scope/complexity of tasks, introducing crisis management solutions, or limiting the company's activities. In the area of people management, the examined companies made changes to their work organization, undertook activities aimed at supporting employees, and actions aimed at reducing labor costs. The measures taken were aimed, on the one hand, at ensuring the company's survival and, on the other hand, at creating conditions to maintain the current state of employment.

Research limitations/implications: The selection of 3 regions took into account the share of active SMEs in relation to the total number of SMEs in Poland. This made the research sample representative. Nevertheless, the diversity of companies belonging to the SMEs sector justifies the need for further research on both their experiences during the pandemic and its impact on the functioning of SMEs in the new post-pandemic reality.

Value: The results presented in the article contribute to the still limited knowledge of HRM in SMEs under crisis conditions, especially in the context of the COVID-19 pandemic.

Keywords: HRM, SMEs, crisis, Covid-19 pandemic.

Category of the paper: research paper.

1. Introduction

The crisis caused by the Sars-CoV-2 coronavirus pandemic became a global challenge for the world economy, the economies of individual countries, and the companies operating in them, including the small and medium-sized business sector. At this point, it should be noted that in the literature on crises that in the past were caused, among others, by natural disasters, economic, or political events, relatively less space was devoted to their impact on the functioning of small and medium-sized enterprises. Publications on the COVID-19 pandemic over the past three years have emphasized the global nature of the crisis and its impact on countries, markets, and businesses, including SMEs (Etemad, 2022). The latter faced many challenges related to people management, including remote work, organization of working time, maintaining employment, efficiency and costs of work, or the health and well-being of employees. This provided the rationale for undertaking a study aimed at showing the response of SMEs in the area of human resource management to the crisis caused by the COVID-19 pandemic. The purpose of the article is to present HRM interventions undertaken by small and medium-sized enterprises. It was based on empirical research conducted after the critical moment of the 2021 crisis. The following part of the article discusses key theoretical issues related to the crisis and the response of SMEs to crisis situations and HRM in SMEs under crisis conditions. Then, it presents the research approach used and discusses the results of the study.

2. Theoretical background and research questions

The term *crisis* is found in various scientific disciplines and practical contexts. Despite its various definitions, it can be assumed that, in general, the term *crisis* refers to an unexpected or hardly predictable extreme situation or a high-impact event (Salmazadeh, Dana, 2022, p. 39; Baba, Hafsi, Ouguenoune, 2022, p. 137). It is associated with a high intensity of problems, troubles, or threats, with implications for individuals, organizations, and governments (Knight, Cavusgil, 2022, p. 63). Sources of crises can be natural disasters, technological breakthroughs, economic, political, or health-related phenomena, as in the case of the COVID-19 pandemic. They challenge people, organizations, or other systems, and require an adequate and rapid response on their part. Crises are a subject of academic research and management practice, characterized by complexity and interdisciplinarity. The modern understanding of crisis management emphasizes that it is an ongoing management process involving the identification of expected and unexpected, predictable and unpredictable events, and then preventing or dealing with them in an effective manner (Salmazadeh, Dana, 2022, p. 39). The different approaches to crisis management described in the literature form two main streams, namely

reactive and proactive attitudes (Brzozowski, Cucculelli, 2016; Vašíčková, 2019). The reactive approach refers to actions taken during and after a crisis, while the proactive approach involves anticipating crises and preparing appropriate procedures before they occur. The crisis management process itself can include various phases, such as anticipation, prevention and preparation, containment and loss reduction, recovery, and learning (Salmazadeh, Dana, 2022, p. 42). However, it should be noted that due to the complexity and diversity of crises occurring in the modern world, it would be difficult to identify a single universal scheme of action (Tagarev, Ratchev, 2020).

The COVID-19 pandemic is an example of a crisis that appeared unexpectedly and quickly influenced the functioning of companies, industries, and national economies, becoming a global economic and social challenge. The COVID-19 crisis led, among others, to disruption or interruption of supply chains, cash flow problems, decline in demand for goods and services, partial or complete suspension of certain types of economic activity, changes in employment, introducing state support for companies adversely affected by the pandemic, changes in consumer behavior, and increased uncertainty about the future (Etemad, 2022; Knight, Cavusgil, 2022; Poór et al., 2022). It should be emphasized here that the impact of the COVID-19 pandemic crisis varied across different industries, even accelerating the development of some, while others faced difficulties. A characteristic feature of this crisis was, for example, the acceleration of digital transformation. The aforementioned consequences of crisis situations, especially the crisis caused by the COVID-19 pandemic, affected the small and medium-sized enterprise sector particularly hard, challenging their existence and survival in the market. This is a particularly important issue given that small and medium-sized businesses are the dominant form of economic activity in most countries, they are a source of entrepreneurship and innovation, they create jobs, and they are an important factor in development (Knight, Cavusgil, 2022). The COVID-19 pandemic had a negative impact on their financial liquidity, supply chains, customers and employees, and other areas of their operation. At the same time, attention is drawn to the existence of a cognitive gap in the approach to managing SMEs in crisis situations (Salmazadeh, Dana, 2022), despite recent publications on this topic in the context of the COVID-19 pandemic (Etemad, 2022; Marjanski, Sułkowski, 2021; Poór et al., 2022; Stec-Rusiecka, Warminska, 2022). As the history of global crises teaches, they pose a significant problem for small and medium-sized enterprises, which makes it reasonable to undertake research in this area. This is because there are still gaps in knowledge about how SMEs prepare for crises, how they respond to them, or how they recover from them (Eggers, 2020). It is not uncommon for SMEs to believe that managing a crisis is time- and cost-intensive, leading to the behavior of facing a crisis only after it has already occurred (Herbane, 2019). This is indicated by the analysis of the literature on the subject, which shows that the most frequently studied and described actions of SMEs during or after a crisis are characterized by reactive attitudes, while actions taken before a crisis are much less frequent, which is characteristic of proactive attitudes (Salmazadeh, Dana, 2022, p. 52).

An important area of research into the problematic behavior of SMEs in crises is employment and people management. This is due to, among others, the key role of human capital in these companies, the aforementioned limitations of SMEs in crisis conditions, and the specifics of human resource management in these companies. It should be emphasized here that despite the great internal diversity of companies classified as SMEs, they show some common characteristics, which include limited resources, a smaller number of customers and markets, centralized management, unionization of the owner and the manager, flat and flexible structures, propensity for reactive actions, informal, dynamic operating strategies, and a specific context (Pauli, 2018; Daszkiewicz, Wach, 2013). These determine human resource management practices, including those relating to crisis responses. The diversity of approaches to HRM in these companies results from the specifics of the industry, the technologies used, cultural conditions, and other factors that form the internal and external context of their operations. A characteristic feature of human resource management in SMEs is the dominant role of the owner/manager, which determines personnel decisions made in both the short and long term. The level of awareness of owners/managers about the importance of human capital and its place in the company's business model determines the approach to HRM and the practices used in this area. Another frequently cited feature of the SME approach to HRM is a lower degree of formalization and the use of simplified procedures and tools (Wapshott, Mallett, 2016; Sidor-Rządkowska, 2010). HRM processes are most often implemented in a centralized manner by owners/managers, with no or limited support from HR professionals, due to the lack of such organizational units or limited cooperation with consulting companies. HRM practices in SMEs can take the form of a specific set or single actions. The most frequently described people management practices in SMEs in the literature include recruitment and selection, training, remuneration, evaluation, motivation, and employee turnover (Sidor-Rządkowska, 2010; Wapshott, Mallett, 2016). In addition to these, we should also mention practices in such areas as labor relations, communication, health and safety, work-life balance, organizational resilience, or green HRM (Harney, Alkhalaf, 2021; Heilmann, Forsten-Astikainen, Kultalahti, 2020; O'Donohue, Torugsa, 2016). To sum up, it can be said that, in general, HRM practices in SMEs are often informal, they take place in a reactive manner, emerging from contextual conditions. However, it should be noted here that a lower degree of formalization of HR strategies, structures, and processes in SMEs does not necessarily mean a lower level of HR in these companies, and the direct influence of the owner/manager and the culture group may replace certain HR practices (Harney, Alkhalaf, 2021). Therefore, it can be assumed that different HRM in SMEs does not necessarily mean a lower level of management.

Human resource management in SMEs always takes place in a specific context, which is formed by internal and external factors that determine certain actions. The importance of context in HRM research and practice is strongly emphasized in the literature (Cooke, 2018; Poczowski, 2019; Poczowski, Pauli, 2022). Referring to the general characteristics of SMEs presented earlier, it can be said that contextual factors significantly determine the approach to

HRM in SMEs, such as the timing of the introduction or application of certain practices. Often these are certain internal or external events, such as the change of ownership, succession, hiring a professional manager, deterioration of economic performance, crisis situations, such as those related to the Covid-19 pandemic (Purgał-Popiela, Pauli, Poczowski, 2023, p. 46).

Referring to the previously presented impact of the COVID-19 pandemic on the functioning of small and medium-sized enterprises, it should be emphasized that this impact is also visible in the area of human resource management. It leads both to a reflection on the paradigm of people management as well as to the modification of practices (Poór, Tóth, Kálmán, 2024). These changes include, among others, the introduction of new work organizations under the influence of new technologies and the constraints of the crisis, support for employees in sustaining their well-being and, in general, increased awareness of the need for socially responsible people management, or the rationalization of costs by reducing employment-related expenses (Stec-Rusiecka, Warمیńska, 2022; Juchnowicz, Kinowska, 2022; Poór, Tóth, Kálmán, 2024).

The essence and the extent of the impact of the COVID-19 pandemic on resource management in SMEs, as presented above, formed the basis for the following research questions.

- RQ 1. What measures were taken in SME management as a response to the COVID-19 pandemic?*
- RQ 2. Were new forms of work organization implemented by SMEs in the crisis caused by the COVID-19 pandemic, and what were they?*
- RQ 3. Did SMEs offer any forms of support to employees struggling with the challenges of the COVID-19 pandemic, and what were they?*
- RQ 4. Were labor-cost rationalization measures implemented by SMEs, and what were they?*

3. Material and methods

The research was exploratory in nature and aimed at learning about HRM interventions undertaken by SMEs during the crisis caused by the COVID-19 pandemic. The research was carried out on a group of 200 enterprises operating in the voivodeships: Silesia, Lesser Poland, and Subcarpathia. The selection of these regions took into account the share of active SMEs in relation to the total number of SMEs in Poland. The Silesia voivodeship has 13% of all Polish SMEs, which is above the national average, the Lesser Poland voivodeship has 9.5%, which is at the level of the national average, while the Subcarpathia voivodeship has 4.8% of such companies, which is below the national average.

The survey included enterprises employing between 10 and 249 people. In 2020, the number of such companies in Poland was 63947 - the analyzed research sample is representative with a confidence level of 0.95 and an error of 7%. Basic information on the surveyed enterprises is summarized in Table 1.

Table 1.
The sample characteristics

Size	Small (10-49 employees)		Medium (50-249 employees)	
	167 (83.5%)		33 (16.5%)	
Voivodeship	Silesia		Lesser Poland	
	99 (49.5%)		68 (34%)	
Sector	Industry		Trade	
	48 (24.0%)		53 (26.5%)	
	Construction		Services	
	32 (16.0%)		123 (61.5%)	

Source: the authors.

The research was conducted in March-April 2021 using CAWI and CATI techniques. It was conducted a year after the outbreak of the COVID-19 pandemic, a time when most businesses were significantly affected by it and were forced to take action to ensure their survival or take advantage of emerging opportunities. The respondents were the owners or managers of SMEs.

Basic descriptive statistics were used in the data analysis, which made it possible to identify key actions taken by the surveyed organizations. This approach is justified due to the exploratory nature of the research. In addition, a Chi-square test was used to determine the existence of possible correlations between the activities undertaken and the market situation of the companies due to the qualitative nature of the variables.

4. Results and discussion

The companies' reactions to the pandemic

The COVID-19 pandemic had a varied impact on the operations of the SMEs surveyed, with 45% of organizations indicating a negative impact, 8% a positive impact, and 47% a neutral impact. Nevertheless, only 27% of companies made no changes in their operations (see Table 3). No changes were declared by half of the organizations for which the pandemic had a neutral impact. Among SMEs that were negatively or positively affected, only about 6-7% made no modifications.

Nearly one in four companies introduced solutions to cope with the difficulties (see Table 2). These included, among others, reducing the scope/complexity of tasks, introducing crisis management solutions, or limiting the company's activities.

Table 2.*Actions taken by SMEs in response to the Covid-19 pandemic*

Actions	n	%
No actions	54	27.0
Reducing the scope and complexity of tasks	53	26.5
Crisis management solutions	51	25.5
Limiting the company's activities	49	24.5
Monitoring the company's situation	49	24.5
Modifications to the range of products and services	41	20.5
New sales channels	30	15.0
Changes in opening hours	27	13.5
Increasing the range of products and services	23	11.0
Expansion of business activities	19	9.5
Reduction in the range of products and services	19	9.5
Increase in the scope and complexity of tasks	16	8.0
Change in business activities	7	3.5

Source: the authors.

Certain activities were undertaken by SMEs regardless of the impact of the pandemic on their operations. These activities include the introduction of mechanisms/tools for monitoring the company's situation or the introduction of modifications to the range of products/services. In both cases, the percentage of companies declaring both negative and positive impacts was similar, and these activities were also introduced in the entities declaring the neutral impact of the pandemic.

People management interventions

The vast majority of organizations (79%) made changes to their work organization as a result of the pandemic (see Table 3). The most common activities were the introduction of remote work (68.5% of companies) and making working hours more flexible (39.5% of companies). For most activities, the main reason for introducing them was to support employees. Reducing costs was mentioned most often only in relation to changing the size of the employment - this was indicated by 26 companies. Thus, it can be concluded that the surveyed SMEs felt a sense of responsibility for their employees and tried to respond in such a way as to limit the impact of the pandemic on them.

Table 3.*Actions taken in the field of work organization*

Actions	n	%	Reasons for taking action (n)		
			employee support	cost reduction	company development
Remote work	137	68.5	124	20	23
Flexible working hours/time	79	39.5	66	22	13
Change of the employment form - part-time work	35	17.5	9	26	11
Shift work	28	14.0	21	4	10
Changing employment contracts into civil law contracts	4	2.0	3	1	4
No changes in work organization	42	21.0	-	-	-

Source: the authors.

With regard to activities aimed at supporting employees (see Table 4), the most frequently mentioned was the introduction of new health and safety solutions (63.5% of companies). However, it should be pointed out that activities of this type were not solely the initiative of employers but they resulted from regulations. A very important element, on the other hand, was the provision of tools for employees to reconcile home and work responsibilities (58.5% of companies). Employers, however, were more likely to use this solution for some employees than for all of them. It should also be noted that 15.5% of companies offered courses, training, and individual meetings to build resilience to stress and 12.5% offered psychological support in the workplace. Taking such initiatives can be interpreted as a sign of growing awareness among SME owners of the importance of employee well-being.

Table 4.
Forms of employee support

Forms	n	%	Addressee (%)	
			some of the employees	all the employees
New health and safety solutions	127	63.5	4.0	59.5
Providing tools to support work-life balance	117	58.5	30.0	28.5
Training and development of skills required by new tasks	50	25.0	9.0	16.0
Training and development of resilience to stress	31	15.5	4.0	11.5
Introducing flexible bonus and benefit schemes	31	15.5	3.5	12.0
Psychological support at work	25	12.5	1.0	11.5

Source: the authors.

Activities aimed at reducing labor costs (see Table 5) targeted all employees rather than individual groups. Therefore, it can be concluded that in the face of the crisis, cost-cutting activities affected everyone to a similar degree. The most frequently mentioned measure was to reduce the number of meetings and events held at the company (75.5% of respondents), although such a response was also a result of the restrictions introduced nationwide. In addition, the surveyed SMEs were the first to give up on hiring new people (33.5% of companies), reduce rewards and bonuses (32.5%), or cut spending on additional employee benefits (32%). One in four of the surveyed organizations was forced to cut salaries (24.5%).

Table 5.
Actions taken to reduce employment costs

Actions	n	%	Addressee (%)	
			some of the employees	all the employees
Reducing the number of meetings and events	151	75.5	3.0	72.5
Employment freeze	67	33.5	6.0	27.5
Limiting rewards and bonuses	63	32.5	4.0	28.5
Limiting benefits	64	32.0	2.0	30.0
Reducing training and development budget	55	27.5	2.5	25.0
Salary reduction	49	24.5	4.5	20.0
Salary freeze	48	24.0	3.0	21.0
Eliminating expenses for additional benefits	46	23.0	0.5	22.5
Eliminating rewards and bonuses	45	22.5	2.5	20.0
Increasing overtime hours to substitute new employment	39	19.5	7.0	12.5

Cont. table 5.

Decreasing overtime hours	161	19.5	2.0	17.5
Postponing compensation for overtime hours or offering it in the form of the company's products	25	12.5	1.5	11.0
Reducing expenses for pension schemes	22	11.0	0.0	11.0

Source: the authors.

Analyzing changes in the size of employment in 2020, it can be seen that there was a reduction in 37.5% of the organizations and an increase in 36.5%. Excluding from the analysis the three extreme cases of very large employment growth, the average level of change was -0.47%, so it was close to zero.

The most common reasons for making changes in the surveyed companies included the desire to maintain liquidity (62%), to maintain the employment levels (58.5%), to safeguard employees' incomes (51%), and to maintain business relations with customers and cooperators (50%). Thus, the measures taken were aimed, on the one hand, at ensuring the company's survival and, on the other hand, at creating conditions to maintain the current state of employment.

Relationship between the actions taken and the situation of a company

Statistical analyses conducted using the Chi² test on the relationship between the interventions taken and the size of organizations (small and medium-sized organizations) did not confirm the presence of statistically significant relationships.

Considering the assessment of the company's performance against its competitors, it should be pointed out that there is a statistically significant relationship between this variable and several activities related to employee support, changes in work organization, or cost reduction (see Table 6). With regard to employee support, companies that rated themselves better than their competitors were far more likely to provide their employees with the right tools needed to do their jobs. These organizations were also more likely to make changes concerning work organization, which included increasing the employment levels, and increasing the contracting of temporary workers while reducing full-time employees, or employing temporary workers to increase the volume of production/number of services offered. In contrast, SMEs that rated their situation worse than their competitors were more likely to take cost-cutting measures including freezing salaries, reducing spending on fringe benefits, or eliminating fringe benefits.

Table 6.

Relationship between the assessment of the company's current situation against the competition and the actions taken

Actions	The company's situation compared with its competitors (%)			Chi ²
	worse	similar	better	
Providing working tools	41.2	55.2	77.4	7.16*
Salary freeze	52.9	24.0	19.4	7.38*
Limiting additional benefits	58.8	28.0	38.7	7.00*

Cont. table 6.

Eliminating additional benefits	47.1	18.4	32.3	8.33*
Increasing temporary workers and decreasing contract employees	0.0	1.6	16.0	14.30*
Increasing temporary workers to increase production/services	0.0	4.0	19.5	11.12*
Increasing employment level	41.2	28.0	51.6	6.71*

Note: *statistically significant $p < 0.05$.

Source: the authors.

The assessment of the company's future mainly influenced the taking of cost-cutting measures (see Table 7). Organizations with a negative assessment of the company's prospects were far more likely to take actions related to freezing salaries, reducing spending on fringe benefits, reducing the training budget, or reducing expenses on pension schemes. In addition, these entities more frequently took actions related to work organization involving the layoffs of employees or the reduction of employing temporary workers due to the reduction of production, and number of services, which was undoubtedly also related to cost reduction.

Table 7.

The relationship between the company's anticipated future situation and the actions taken

Actions	The company's situation – the following year (%)			Chi ²
	worse	similar	better	
Salary freeze	56.3	23.8	19.2	10.33*
Reducing expenses for additional benefits	56.3	33.3	25.3	6.47*
Training budget reduction	56.3	27.0	21.2	8.72*
Reducing expenses for pension schemes	31.3	7.9	9.1	7.86*
Layoffs of employees	50.0	39.7	21.2	9.43*
Reducing the number of temporary workers, production, and services	18.8	0.0	8.1	9.13*

Note: *statistically significant $p < 0.05$.

Source: the authors.

Considering changes in the revenue levels in 2019 and 2020, it can be seen that the organizations that recorded a decrease in revenues (46.5% of the surveyed companies) were far more likely to implement solutions aimed at **reducing costs**. These organizations more frequently *laid off employees, reduced bonuses, and blocked the hiring of new employees*. The opposite was true for the entities that declared an increase in revenues (20.5% of companies) relative to 2019 - more than half of these companies (58.5%) increased their employment levels.

Table 8.

The relationship between the company's revenue and the actions taken

Actions	Revenues compared with the previous year (%)			Chi ²
	decrease	same	increase	
Employment freeze	43.0	25.8	24.4	7.08*
Limiting prizes and bonuses	45.2	21.2	22.0	12.71*
Eliminating rewards and bonuses	31.2	13.6	17.1	7.69*
Limiting expenses for additional benefits	41.9	21.2	26.8	8.25*
Reducing training budget	40.9	15.2	17.1	15.61*
Reducing overtime hours	26.9	12.1	14.6	6.14*

Cont. table 8.

Layoffs of employees	48.4	16.7	7.3	30.88*
Increasing the employment levels	23.7	31.8	58.5	15.67*

Note: *statistically significant $p < 0.05$.

Source: the authors.

Based on the data obtained and the analyses conducted, it can be indicated that the subjective assessment of the impact of the pandemic on the company's operations was of the greatest importance for the decisions made, as statistically significant relationships were shown for 14 different measures (see Table 9). The vast majority of these were related to cost reductions. Companies that negatively assessed the impact of the crisis on their operations were far more likely to block hiring new employees, reduce bonuses and rewards, and reduce expenses on fringe benefits or employee training. In addition, more than a third of the companies in this group either froze wages or even cut them. Half of the companies that negatively assessed the impact of the pandemic made layoffs and 15.6% reduced the hiring of temporary workers and entrusted their tasks to internal employees. Companies that positively assessed the impact of the pandemic were more likely to hire temporary workers, and additional 62.5% of them increased their employment levels.

Table 9.

Relationship between the assessment of the impact of the pandemic on the company and the actions taken

Actions	The pandemic impact on the company (%)			Chi ²
	negative	neutral	positive	
Employment freeze	51.1	17.0	31.3	24.02*
Limiting rewards and bonuses	47.8	18.1	31.3	18.49*
Limiting expenses for additional benefits	43.3	21.3	31.3	10.28*
Training budget reduction	40.0	16.0	25.0	13.38*
Salary freeze	35.6	14.9	12.5	12.02*
Salary reduction	34.4	17.0	12.5	8.90*
Eliminating rewards and bonuses	33.3	12.8	18.8	11.29*
Eliminating additional benefits	32.2	13.8	25.0	8.82*
Reducing overtime hours	32.2	8.5	12.5	17.01*
Employee layoffs	50.0	10.6	25.0	34.42*
Reducing the number of temporary workers and moving tasks to full-time employees	15.6	4.3	6.3	7.04*
Increasing the number of temporary workers and decreasing the number of full-time employees	2.2	2.1	18.8	11.98*
Increasing the number of temporary workers to increase production/services	2.2	4.3	37.5	30.93*
Increasing employment level	22.2	39.4	62.5	12.63*

Note: *statistically significant $p < 0.05$.

Source: the authors.

5. Conclusions

The conducted research confirms that the COVID-19 pandemic significantly affected the operation of SMEs. Referring to the first of the formulated research questions, it can be pointed out that the changes were mainly aimed at reducing the number and complexity of tasks. Nearly one in four companies declared a reduction in the scope/complexity of tasks performed or a reduction in operations. Responses to the pandemic largely focused on employee management issues. Referring to the second question, it can be indicated that the pandemic significantly modified the way work was provided in the surveyed SMEs - 69% introduced remote work and 40% flexible working time forms. The third research question concerned the forms of support for employees during the crisis. The most frequently implemented solutions were mainly due to legal regulations and changes in the operation of companies, as they included new health and safety solutions (64% of companies) and the provision of tools for work (59%). Nearly 16% of respondents said they organized courses and training to build resilience to stress and offered psychological support in the workplace.

For the most part, the measures taken were aimed at reducing operating costs, which is related to the fourth research question. Activities implemented included, among others, a hiring freeze, reducing rewards and bonuses, reducing training budgets or suspending them. Also, the COVID-19 pandemic forced nearly one in three companies (29.5%) to reduce their workforce, although 33.5% of the surveyed entities increased their employment. These results indicate the selective impact of the crisis on the surveyed companies, with the key differentiating factor being the industry in which the company operated.

The analysis of the relationship between factors that can affect the actions undertaken indicates that the subjective assessment of the impact of the crisis on the company is of the greatest importance. Taking this variable into account made it possible to show the existence of a statistically significant relationship for 14 activities, while in relation to changes in the revenue level, this relationship was demonstrated in only eight cases. It is also noteworthy that among the important goals of the introduced changes were efforts to maintain the state of employment (58.5% of indications) and to secure the income of employees (51%). This shows that SME owners attach great importance to HR issues and take measures aimed at supporting their employees or minimizing the negative impact of the crisis on their situation.

In conclusion, it should be emphasized that the research results presented in the article contribute to the existing knowledge on HRM in SMEs under crisis conditions. Nevertheless, the diversity of companies belonging to the SME sector justifies the need for further research on both their experiences during the pandemic and its impact on the continued functioning of SMEs in the new post-pandemic reality.

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HEALTH AND HUMAN CAPITAL IN THE PERSPECTIVE OF THE ESF IN POLAND

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Purpose: Human capital is one of the most important areas of intervention of the European Union's structural funds, with particular emphasis on the European Social Fund. And although the ESF instruments, as well as numerous interpretations of human capital, are dominated by issues related to knowledge, competence and professional suitability of a person, health is also there. As it turns out, however, issues related to health and their relationship with human capital are still a relatively unexplored issue. This is also reflected in the programming of the EU's structural policy in the area of human capital.

The aim of the article is to assess and summarize nearly twenty years of Polish experience in the use of ESF funds for improving health, as an element affecting the quality and competitiveness of human capital.

Design/methodology/approach: The article presents an analysis of the literature relating to the place and importance of health for human capital and support for this area within the framework of the structural and cohesion policy of the EU, implemented by the Structural Funds, with particular emphasis on the European Social Fund. In addition, the provisions of the basic strategic documents containing the assumptions for the implementation of the cohesion policy in Poland in subsequent EU budget periods in the years 2004-2020 were analyzed.

Findings: The assessment of health support in the context of human capital, presented in the article, concerns three successive, fully completed, EU budget periods, namely 2004-2006, 2007-2013 and 2014-2020. In subsequent budget periods, the basic problem areas in this area were defined and, as part of operational programmes, adequate measures in the field of health of Poles were proposed. In general, the issue of health in the perspective of the Structural Funds referred to the infrastructural approach, which is the domain of the ERDF. However, in the analysed period, a certain evolution can be seen from an infrastructural (also systemic) approach, which is the domain of the ERDF, to a more "soft" approach in the areas of ESF intervention.

Originality/value: The article contains one of the first studies on the link between health and human capital, which are the area of ESF support in Poland in the years 2004-2020.

Keywords: EU structural funds, European Social Fund, human capital, health.

Category of the paper: research paper, viewpoint.

1. Introduction

Human capital is one of the most important areas of intervention of the European Union's structural funds, with particular emphasis on the European Social Fund. And although the ESF instruments, as well as numerous interpretations of human capital, are dominated by issues related to knowledge, competence and professional suitability of a person, health is also there.

The Structural Funds are primarily aimed at levelling the playing field and increasing the competitiveness of individual EU regions, and human capital plays a significant role in this. The aim of the article is to assess the most important areas of ESF intervention in the area of health in the context of human capital in Poland in the first 20 years of its presence in the European Union. The analysis covers three successive, fully completed, EU budget periods, namely 2004-2006, 2007-2013 and 2014-2020. For nearly two decades, a system of support and implementation of its most important priorities, defined in operational programmes and implemented by institutions equipped with appropriate competences, has been created at the national and regional level.

The article presents an analysis of the literature relating to the place and importance of health for human capital and support for this area within the framework of the structural and cohesion policy of the EU, implemented by the Structural Funds, with particular emphasis on the European Social Fund. In addition, the provisions of the basic strategic documents containing the assumptions for the implementation of the cohesion policy in Poland in subsequent EU budget periods in the years 2004-2020 were analyzed.

2. Health as an element of human capital

The assumptions of the theory of human capital and the term human capital were formulated in the 1960s and for the first few decades it was mainly identified with formal education, in particular with education and time devoted to education. Over the years, the definitional capacity of human capital has expanded to include the aspect of physical health, with the assumption that good health is a basic condition for human life and well-being. Better educated people are characterized by a higher value of life expectancy and a higher level of satisfaction, and the risk of poverty and the likelihood of behaviors dangerous to health are on average lower than among people with lower education or no education. Diseases directly affect the reduction of economic activity of a given individual on the labor market and reduce their income (Klonowska-Matynia, 2019, p. 33).

Human capital is generally identified with the amount of knowledge, skills, health and vital energy contained in every person and society as a whole, determining the ability to work, adapt and change in the environment and the possibilities of creating new solutions (Nowicka, Ciekanowski, 2019, p. 79)

The most general, but at the same time the broadest definition of human capital states that it consists of people and their skills. Human capital defined in this way therefore includes all features that affect the productivity of an individual, including both education and intelligence, as well as innate abilities and connections that also affect our performance and work effects (Drela, Malkowska, Zieziula, 2020, p. 25).

The essence of human capital is individual competitiveness based on intellectual, motivational and symbolic resources (e.g. prestige). Indicators of these resources may include: education, professional experience, migration, and – less often taken into account by researchers: abilities (measured, for example, by intelligence tests) and physical health, as well as completely ignored mental well-being (Czapiński, 2008, pp. 4-5).

Health and well-being, especially in the context of the workforce, are one of the factors shaping human capital. A healthy workforce is a key factor in increasing labour market participation and productivity and increasing competitiveness at national and regional level. Good health conditions of the society lead to greater participation in the labor market and longer working life, higher productivity, and thus can serve lower health and social care costs (Annoni, Kozowska, 2010, p. 36-37).

The quality of human capital determining the development success of a region is determined by the following features: the dynamics of the regional population, the state of health expressed, among others, by the average life expectancy and infant mortality, the level of education of the population and, one might add, the quality of this education (Drela, Malkowska, Zieziula, 2020, p. 24).

The general picture is as follows: classically understood human capital (competences) differentiates the level of wealth of individuals more than the level of wealth of societies, especially in the group of highly developed countries. It is worth being better educated, healthier, more mobile and entrepreneurial than others in order to win the individual competition in the labour market economically. However, the social sum of these advantages does not guarantee a team victory in international competition (Czapiński, 2008, p. 7).

Human capital as a productive factor not only has the ability to achieve the assumed benefits for its owner and others, but also complementarily enables and increases the productivity of other resources. Human capital resources can be increased and enriched thanks to investments in the biological and intellectual potential of humans. Investments in the creation and development of human capital should be considered, m.in. expenditures on: education and further education, scientific research, services related to health care, affecting the length, strength and vitality of people, searching for information on the economic situation of companies and career prospects, displacement of people in order to find a better job (Maniak, 2011, p. 166-167).

3. Health in the perspective of the ESF and the competitiveness of the regions

One of the most important EU policies is cohesion policy. Its aim is to promote the harmonious development of the entire territory of the European Union through activities leading to the reduction of disparities in the levels of development of its regions, and thus to the strengthening of the economic, social and territorial cohesion of the Community. Thanks to the appropriate targeting of the activities implemented under the cohesion policy with the financial support of the Structural Funds and the Cohesion Fund, regions characterized by a lower level of development have a chance to make up for the development backlog and significantly accelerate the processes aimed at achieving convergence with other regions and countries of the Community (Poteralski, 2011a, p. 346).

Polish's accession to the European Union in 2004 was a breakthrough moment for the socio-economic reality, both for the entire country and its individual regions. One of the most important means of increasing the cohesion of Polish regions with the regions of the Community has become the Structural Funds, including in particular the European Social Fund (ESF) and the European Regional Development Fund (ERDF) (Poteralski, 2023, p. 127).

The European Social Fund (ESF), along with the European Regional Development Fund (ERDF), is one of the two most important structural funds of the European Union. The main areas to be supported by the fund are the labour market, the fight against poverty and the quality of human capital. In the era of intensive struggle against the problem of unemployment, issues such as improving managerial qualifications and ensuring high quality of management in both public institutions and business entities were pushed into the background (Poteralski, 2021, p. 89-90).

One of the most important goals of integration is to even out economic differences between the old members of the European Union and the countries newly admitted or aspiring to join the Union. The process of reducing differences was to take place through the Community Cohesion Policy and Regional Policy, whose most important tool of action was to be financial assistance provided for in the structural funds (Świrski- Czałbowska, 2007, p. 92).

Stimulating the growth of the region's competitiveness takes place through appropriate activities aimed at improving the quality of life in a given area, especially activities in such areas as environmental protection, education, safety and public health, as well as through activities stimulating economic activity – the development of SMEs, or creating an appropriate investment climate. Supporting small and medium-sized enterprises is considered to be one of the best ways to activate less developed regions (Stachowiak, Pyciński, 2001, pp. 11-13).

The importance of the role of human and social capital in the process of economic growth and building a competitive region is indicated by the results of numerous empirical studies. In the light of this research, it is the differences in the resources of endogenous factors

(including human and social capital) that determine the continuing differences in the levels of development of countries and regions. One of the fundamental tasks of regional policy is to stimulate the internal (endogenous) resources of the region (Drela, Malkowska, Zieziula, 2020, pp. 24-25).

The best equipment in human capital (saturation with highly qualified personnel) allows leading countries to be at the forefront in creating directions for the development of modern technology and civilization. The reduction in investment in people, manifested, among other things, in the reduction of expenditure on the national education system, on science and health care, allows us to express concern that the implemented economic policy lacks economic imagination and lack of responsibility for the future position of the Polish nation in the European and world family (Domański, 2000, pp. 39, 44).

The European Social Fund, which is the EU's main instrument for supporting and enhancing the competitiveness of human capital, therefore also provides for health-oriented initiatives to shape and enhance the quality of human capital in the Community's regions.

4. Health as an area of ESF intervention in Poland in 2004-2020

The use of funds under the EU structural funds in subsequent budget perspectives required the creation and agreement with the European Commission of a number of strategic and programme documents, both at the Community level as well as at the national and regional level. However, it can be assumed that in Polish conditions, the most important strategic documents at the national level were, respectively:

- in the years 2004-2006: the National Development Plan for the years 2004-2006 (NDP),
- in the years 2007-2013: the National Strategic Reference Framework (NCS- National Cohesion Strategy),
- in the years 2014-2020: Partnership Agreement (PA).

These documents were a synthetic approach to problem areas, defined priorities and areas of support, indicated operational programs, tools and institutions that were responsible for planning, implementing and managing these programs. Each of these documents formulates the main objective and specific objectives, supporting the achievement of the assumptions of cohesion policy support for the forecast budget period. These assumptions were the resultant of other strategic documents, setting out the directions and priorities of development for the coming years, both at the Community, as well as at the national and regional level. They were also the subject of negotiations between the Polish authorities and the European Commission (Poteralski, 2023a, pp. 172-173).

Table 1 presents the most important problem areas in the field of health in Poland in subsequent EU budget periods in the years 2004-2020 and, in synthetic terms, the scope of intervention of the structural funds, with particular emphasis on the ESF.

Table 1.

Problem areas in the field of health and the scope of ESF interventions indicated in the programming documents in the years 2004-2020

Financial perspective 2004-2006
<p>The main problem areas concerning health:</p> <ul style="list-style-type: none"> • lack of references to health and more broadly to human capital in general in NDP 2004-2006, • macroeconomic analyses, focusing on social issues such as: unemployment, age structure of the population, economic activity, unemployment, stratification of society (including poverty) and the risk of social exclusion. No references to health.
<p>Defined challenges for cohesion policy, including ESF interventions:</p> <ul style="list-style-type: none"> • Priority 2 of the NDP: Human Resources and Employment Development (HRD SOP: Sectoral Operational Programme Human Resources Development). No references to health. • Priority 5 of the NDP: Strengthening the development potential and regions and counteracting the marginalisation of certain areas (IROP: Integrated Regional Development Operational Programme, co-financed by both the ESF and the ERDF). No references to health. • in the area of labour resources, reference to their competitiveness, shaped by the general level of education and its structure, convergent with the structure of demand for labour, the ability to operate in e-communities, high professional and spatial mobility; ambition, activity, resourcefulness and honesty in the profession. No references to health.
Financial perspective 2007-2013
<p>The main problem areas concerning health:</p> <ul style="list-style-type: none"> • population health as one of the key factors of productivity and economic growth and an important determinant of the overall quality of life, • the need to take significant action in the field of health care infrastructure, reducing inequalities in access to health care medical infrastructure and increasing efficiency in health care systems through investments in ICT (information and communication technologies), knowledge and innovation, • problems related to the aging of the population, worse health of Poles, compared to the EU, as the cause of low employment rates of older people and professional absenteeism.
<p>Defined challenges for cohesion policy, including ESF interventions:</p> <ul style="list-style-type: none"> • Objective 2: Improving the quality of human capital and increasing social cohesion (Human Capital OP: Human Capital Operational Programme). • Objective 3: Construction and modernization of technical and social infrastructure, of fundamental importance for the growth of Polish competitiveness, aimed at activities in the field of health care, education and preservation of cultural heritage; (compliance with the following Community Strategic Guidelines: "attracting more people to the labour market and prolonging the labour market and modernising social security systems"; "supporting the maintenance of a good level of health of workers"; • more effective health policies to reduce absenteeism and early retirement, • development of a knowledge-based economy requiring increased investment in human capital, • supporting active ageing and early exit from work, • creating a modern health care system based on preventing health hazards through the health and safety of employees and filling gaps in the health infrastructure – especially in the context of the quality and availability of the services offered, • as a result of computerization of m.in. public services, implementation of e-economy, e-government, e-health and e-education, • support in maintaining a healthy workforce, which is a prerequisite for economic development; improving the civil protection and rescue system, including medical, prevention, primary and specialist medical care, and strengthening the promotion of a healthy lifestyle, • improving the knowledge and skills of medical staff, investing in health promotion and disease prevention; This, combined with ensuring access to health services, is intended to allow for early diagnosis of risks, reducing absenteeism and, in the long term, prolonging active participation in society; Raising workers' awareness of OSH should have a direct impact on productivity and competitiveness.

Cont. table 1.

Financial perspective 2014-2020
<p>The main problem areas concerning health:</p> <ul style="list-style-type: none"> • the persistently particularly low participation of older people in the labour market, • diseases of the skeletal system and the circulatory system, which are among the most common causes of problems on the labour market, including sickness absenteeism, • high percentage of unmet health needs due to long waiting times for the service, • inequalities and deficiencies in health care infrastructure as a serious barrier to access to health services.
<p>Defined challenges for cohesion policy, including ESF interventions:</p> <ul style="list-style-type: none"> • Thematic objective 2: "Enhancing the accessibility, use and quality of ICT" (ERDF). <ul style="list-style-type: none"> • Priority 2c: "Strengthening ICT applications for e-government, e-learning, e-inclusion, e-culture and e-health (ERDF). • Thematic objective 8: "Promoting sustainable and quality employment and supporting labour mobility" (ESF, ERDF). <ul style="list-style-type: none"> • Priority 8vi: "Active and healthy ageing" (ESF). • Thematic objective 9: "Promoting social inclusion and combating poverty" (ESF, ERDF). <ul style="list-style-type: none"> • Priority 9a: (ERDF) investments in health and social infrastructure that contribute to national, regional and local development, reducing health inequalities, promoting social inclusion through better access to social, cultural and recreational services, and transitioning from institutional to community-based services. • Priority 9iv: (ESF) facilitating access to affordable, sustainable and high-quality services, including health care and social services of general interest. • the need to significantly improve health conditions and promote active ageing among older people, • enabling the formation of proper habits in the field of healthy lifestyle, including physical activity (as an element of increasing the attractiveness of learning (education), but also an important element of health prevention), • professional activation of the unemployed, improvement of the adaptability of economically active people and enterprises, and improvement of the health of the labour force in order to increase the pool of labour resources, • counteracting professional inactivity caused by health through prevention, development of medical infrastructure and rehabilitation, as a necessity, especially in the process of prolonging the professional activity of older people.

Source: own elaboration based on: Polska. Narodowy Plan Rozwoju 2004-2006, Dokument przyjęty przez Radę Ministrów w dniu 14 stycznia 2003, Warszawa: styczeń 2003; Polska. Narodowe Strategiczne Ramy Odniesienia 2007-2013 wspierające wzrost gospodarczy i zatrudnienie, Ministerstwo Rozwoju Regionalnego, Warszawa 2007; Programowanie Perspektywy Finansowej 2014-2020. Umowa Partnerstwa, Ministerstwo Rozwoju, Warszawa 2015.

The data presented in Table 1 show that a strong emphasis on health issues, as an area of ESF intervention and their expected impact on the quality of human capital, was placed only in the last two EU financial perspectives. However, there is no doubt that health was mainly the subject of infrastructure support from the ERDF. In terms of ESF interventions, this support was generally complementary, and its importance in support programmes increased slightly in subsequent financial perspectives.

5. Conclusion

The experience of Poland and its regions in the use of EU structural funds includes 3 periods in which cohesion policy was planned and managed at the national and regional level. One of its elements was the involvement of the European Social Fund in improving the quality of

human capital from the level of individuals, through the regional dimension, to the national level.

Health was also one of the areas of support under the Structural Funds. In subsequent budget periods, the basic problem areas in this area were defined and, as part of operational programmes, adequate measures in the field of health of Poles were proposed. In general, the issue of health in the perspective of the Structural Funds referred to the infrastructural approach, which is the domain of the ERDF.

However, in the analysed period, one can see a certain evolution from the infrastructural (also systemic) approach, which is the domain of the ERDF, to a more "soft" approach in the areas of ESF intervention, which was also manifested by the perception of relationships not only between health and the quality of human capital, but also other spheres of socio-economic reality. It seems that this approach will be the biggest challenge for the EU's structural policy in the next financial perspectives, and the complementarity between the areas of ESF and ERDF support in the field of health will be an extremely important research problem for science.

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EMPLOYMENT INSECURITY AS AN EXAMPLE OF PSYCHOSOCIAL RISK AT WORK – ANALYSIS OF GENDER DIFFERENCES

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Purpose: The aim of the article is to identify the feelings related to the development of automation, robotization and artificial intelligence, taking into account potential gender differences in the examined area.

Design/methodology/approach: The goal was achieved by using theoretical analysis of the problem and empirical research. Empirical research was conducted in 2023 using an own survey in the Greater Poland Voivodeship among employees of various industries (n = 189).

Findings: There are no significant differences between genders in feelings towards the development of artificial intelligence in the work environment. The results of the analysis of our own research did not confirm the fears and anxieties reported in the literature on the subject.

Research limitations/implications: Due to the pilot study being conducted, certain limitations may be the small sample and the specificity of the industry and positions held (the study was conducted primarily on a group of so-called knowledge workers and administrative employees).

Practical implications: Women feel a greater need for legal regulations regarding artificial intelligence than men, and they also show a more positive attitude towards the development of technology and artificial intelligence. It is worth using these conclusions when planning the implementation of new technologies in the company.

Social implications: AI technology is developing at an unprecedented pace, opening up unlimited possibilities for people and significantly impacting their personal and professional lives. The lack of significant gender differences in the approach to modern technologies allows us to refute some gender stereotypes.

Originality/value: While the issue of psychosocial occupational risks has been the subject of many studies and analyzes for years, the problem of gender differences in the discussed area constitutes a significant research gap.

Keywords: stress, AI, gender, job insecurity, automation, diversity management, sustainable working conditions.

Category of the paper: Research paper.

1. Introduction

In recent years, there has been a significant evolution in the work environment, which is related to the organization and management of work processes. Due to the changes, new risk factors have arisen in the work environment and, as a result, significant challenges for the employer the potential to cause psychological, social and physical harm (Mościcka, 2010; Sadłowska-Wrzesińska et al., 2017). These threats most often manifest themselves through psychophysiological mechanisms of stress. Experiencing excessive or chronic stress at work is associated with a number of negative consequences for employees in the form of health problems, including disorders in social and professional functioning (Sadłowska-Wrzesińska et al., 2016). Psychosocial risk factors are more often seen as one of the key challenges that must be faced by policymakers.

Job insecurity is an example of psychosocial risk and one of the main sources of work-related stress. This unfavourable phenomenon has intensified in recent years in a global perspective in every segment of the economy. The feeling of job insecurity is associated with expectations regarding the durability of work and concerns about its future, but also with a sense of threat to the stability of work performed. The European Agency for Safety and Health at Work indicates that 7 out of 10 respondents cite job insecurity as a source of work-related stress (OSHA).

Employment uncertainty is significantly influenced by external factors related to the unprecedented turbulence of political, social and economic phenomena (including the Covid-19 pandemic, economic crisis, war in Ukraine), but also by the very intensive development of technology in the segment of robotics, automation and artificial intelligence. According to the European Agency for Safety and Health at Work and based on reports from the World Health Organization stress levels are expected to increase dramatically as new technologies spread and globalization accelerates. It should be assumed that the consequence will be an increase in the number of psychosocial threats. Employment uncertainty is significantly influenced by external factors related to the unprecedented turbulence of political, social and economic phenomena (including the Covid-19 pandemic, economic crisis, war in Ukraine), but also by the very intensive development of technology in the segment of robotics, automation and artificial intelligence. According to the European Agency for Safety and Health at Work and based on reports from the World Health Organization stress levels are expected to increase dramatically as new technologies spread and globalization accelerates. It should be assumed that the consequence will be an increase in the number of psychosocial threats.

Organization stress levels are expected to increase dramatically as new technologies spread and globalization accelerates. It should be assumed that the consequence will be an increase in the number of psychosocial threats. While the issue of psychosocial occupational risks has been the subject of many studies and analyzes for years, the problem of gender differences in the discussed area constitutes a significant research gap.

The aim of the article is to identify feelings related to the development of AI among employees, taking into account potential gender differences in the researched area. The following hypothesis for the research problem was adopted in the article: "There are significant differences between genders in feelings towards the development of AI in the work environment". The article consists of 3 chapters, an introduction and a conclusion. The theoretical part discusses job insecurity in the context of the development of AI. The research part presents the results of the own research on the identification of sentiments, along with statistical elaboration. The third chapter contains a discussion of the research results.

2. Job insecurity

Paper Professional work is one of the most important forms of activity in life, creating multidirectional opportunities to meet material, social and developmental needs. However, for many employees it is also a source of negative emotional burdens, contributing to a decrease in psychophysical well-being. Modern organizations face a formidable challenge in the form of global competition, rapidly changing customer expectations and pressure to increase profits and reduce costs. One way to reduce costs is to limit the number of employees employed under full-time employment contracts and to give preference to civil law contracts that do not provide solid protection in the form of rights under the Labour Code. It can be observed that professional careers associated with one company are increasingly being replaced by a set of short-term employment episodes with different employers, which may further increase the feeling of economic instability. Such actions result in the widespread occurrence of job insecurity, understood as "the perceived threat of job loss and concerns related to this threat" (Witte, 2005). In recent years, this phenomenon has been the subject of research by scientists from research centres around the world (Chojnacki, 2015; Zyl et al., 2013; Schreurs et al., 2010; Huang et al., 2013; Cheng, Chan, 2008; Debus et al., 2014; Mauno, Kinnunen, 2002; Cuyper et al., 2014), the research results of which clearly indicate the negative consequences of this phenomenon for both employees and the organizations that employ them. In Poland, research on job uncertainty is not yet very common (Chojnacki, 2015).

Greenhalgh and Rosenblatt were among the first to be interested in the issue of job uncertainty (Greenhalgh, Rosenblatt, 2010). The authors built a model and defined job insecurity as "the perceived powerlessness to maintain desired continuity in a threatened employment situation" (Greenhalgh, Rosenblatt, 2010). The above definition assumes that this phenomenon includes two main elements: threat and helplessness.

An employee may feel powerless as a result of: lack of union protection or performing job duties not covered by a contract, unclear expectations, working in an environment in which there is a lack of participation and unfair treatment, as well as working in an organization where

there are no clear procedures for dismissing employees. (Greenhalgh, Rosenblatt, 2010; Chojnacki, 2015).

In the long term, job uncertainty increases psychosomatic symptoms (e.g. fatigue, lack of appetite, insomnia) and somatic disorders (balance disorders, increased heart rate, sleep problems). The long-term effects of uncertainty intensify the symptoms, which in turn leads to a deterioration of employee well-being and an increase in stress levels (manifested by anxiety, depression, annoyance). Employees working under conditions of severe and repeated stress are more likely to get sick, are less productive, make more mistakes, and are more likely to take sick leave or take days off (Hultén et al., 2023). Moreover, many of them lose interest in work, are less willing to engage in daily duties, and in extreme cases, resign and leave the organization. As a result of stress, there may be various types of conflicts with the environment, both at work and outside of work. From the point of view of occupational safety, stressed people are more likely to have accidents at work (Michie, 2002). The social costs incurred by an employee as a result of feeling stressed include burnout, emotional exhaustion, depersonalization, and a sense of lower self-esteem (Tennant, 2001; Chirico, 2016; Rothmann, 2008). The consequences of job uncertainty for organizations include an increased number of accidents at work, costs of severance pay, employee replacements, recruitment and selection, working time lost due to employee absenteeism, as well as lower quality and efficiency. In long term, such a situation may lead to an increase in the prices of services or products of companies suffering measurable economic losses (Sęk et al., 2011).

3. Employment uncertainty – results of own research

The research was conducted in 2023 using our own survey in the Wielkopolskie Voivodeship. The authors focused on the issue of gender differences (Sadłowska-Wrzesińska, Nejman, 2020) in relation to stress resulting from job insecurity. This issue seems to be exceptionally interesting and important from the point of view of work organization and diversity management in the organization.

Respondents (n = 189) are employees of various industries. Approximately 80% of respondents are not afraid that artificial intelligence will soon replace them at work. Also, approximately 80% of respondents claim that their jobs will not be replaced by AI. Nearly 90% of respondents believe that a robot would not perform their professional job better. 90% of respondents do not know people who have lost their jobs due to the implementation of AI, and over 50% claim that they do not notice any acceleration in the development of automation in their organizations. In turn, over 60% of respondents would like the development of technology to be regulated by law, in order to protect current jobs. The interpretation of the results shows that women (more often than men) indicated stress as a feeling caused by the

development of automation and artificial intelligence. The tables present the results of the statistical analysis performed in the Statistica program.

Table 1.

Chi-square statistical analysis for gender and position held

Statistics	Chi-square	df	p
Pearson's Chi ²	2,441733	df = 1	p = 0.11815
Chi ² NW	2,331768	df = 1	p = 0.12676
Yates's Chi ²	1,840974	df = 1	p = 0.17484
exact Fisher, 1-sided			p = 0.08934
2-sided			p = 0.14923
McNemar's Chi ² (A/D)	74,67461	df = 1	p = 0.00000
(B/C)	4,196721	df = 1	p = 0.04050
Fi for 2 x 2 tables	0,1142690		
Correlation tetrachoric	0,2079579		
Contingency coefficient	0,1135302		

Source: own study based on research results.

The results indicated that the variables such as gender and managerial position, as well as gender and other positions held, are not dependent. Therefore, the statistical analysis indicated that there is no relationship between gender and the position held. The vast majority of respondents have no concerns that the development of automation, robotization and artificial intelligence will result in, among others, a threat to the respondents' workplace, replacing the respondents at work, or that they will perform a better job than the respondents. Only 17% of surveyed men and 10% of surveyed women have such concerns. The vast majority of respondents have a negative attitude towards the uncontrolled development of artificial intelligence. Only 12% believe that the development of automation, robotization and artificial intelligence will result in, among others, shorter working week, improved working conditions, improved quality of life, improved living conditions. For this purpose, the expected number was tested, which was >5 , so the Chi-square test was used (Tab. 2).

Table 2.

The Chi-square statistical analysis for gender and attitude towards the development of automation, robotization and artificial intelligence

Statistics	Chi-square	df	p
Pearson's Chi ²	0,3784446	df = 2	p = 0.82760
Chi ² NW	0,3766340	df = 2	p = 0.82835
Fi	0,0447477		
Contingency coefficient	0,0447029		
V Craméra	0,0447477		

Source: own study based on research results.

Detailed statistical analysis through application of Chi-square indicated that there is no relationship between gender and the attitude towards the uncontrolled development of artificial intelligence ($p = 0.82760$). The vast majority of respondents (85% of men and 78% of women) support the development of automation.

Table 3.

Chi-square statistical analysis for gender and development of automation, robotization and artificial intelligence

Statistics	Chi-square	df	p
Pearson's Chi ²	1,493102	df = 1	p = 0.22174
Chi ² NW	1,567685	df = 1	p = 0.21054
Yates's Chi ²	1,044785	df = 1	p = 0.30671
exact Fisher, 1-sided			p = 0.15313
2-sided			p = 0.31746
McNemar's Chi ² (A/D)	3,324675	df = 1	p = 0.06825
(B/C)	80,58036	df = 1	p = 0.00000
Fi for 2 x 2 tables	0,0888820		
Correlation tetrachoric	0,1750345		
Contingency coefficient	0,0885330		

Source: own study based on research results.

A detailed statistical analysis showed that there is no relationship between gender and support for the development of automation, robotization and artificial intelligence. Variables such as gender and support for the development of automation, robotization and artificial intelligence are not dependent on the position held. Half of the respondents have negative feelings about artificial intelligence, such as fear, anxiety, apprehension, doubt, stress and helplessness. 37% of respondents positive, such as hope, joy and curiosity.

Table 4.

The Chi-square statistical analysis for gender and feelings related with the development of automation and artificial intelligence

Statistics	Chi-square	df	p
Pearson's Chi ²	14,90581	df = 2	p = 0.00058
Chi ² NW	14,62555	df = 2	p = 0.000067
Fi	0,2808322		
Contingency coefficient	0,2703728		
V Craméra	0,2808322		

Source: own study based on research results.

When applying the Chi-square test, the statistical significance for the variables such as gender and feelings associated with the development of automation and artificial intelligence. This result indicates the existence of a relationship between the studied variables. In further statistical analysis the Mann-Whitney U test was performed (Tab. 5).

Table 5.

Mann-Whitney U test

Variable	Mann-Whitney U test Relative to a variable: Gender The marked results are significant with p < 0.05000						
	Sum of ranks men	Sum of ranks women	U	Z	p	Z correct	p
A robot would do my professional job better than I could	5491,500	12463,50	3418,500	0,77868	0,436166	0,87019	0,384196

Cont. table 5.

Technology development should be regulated by law	4318,000	13637,00	2778,000	-2,65368	0,007962	-2,75602	0,005851
Positive feelings regarding the development of automation, robotization and artificial intelligence	6599,000	11356,00	2311,000	4,02077	0,000058	4,69037	0,000003
Negative feelings regarding the development of automation, robotization and artificial intelligence	4999,500	12955,50	3459,500	-0,65866	0,510113	-0,67844	0,497496
Fear that in the future humans will not be able to control AI	5055,500	12899,50	3515,500	-0,49473	0,620792	-0,51195	0,608689

Source: own study based on research results.

Results for the question that technology development should be regulated by law $p = 0.007962$. In turn, the results for the question related to positive feelings are $p = 0.000058$. There is a relationship, i.e. differences in the experience of positive feelings and legal relations between women and men. Women are characterized by a higher level of the analysed variable in terms of the question regarding legal regulations, with the average rank amounting to 13,637.00, while for positive feelings it is 11,356.00. The results are presented graphically in Figures 1 and 2.

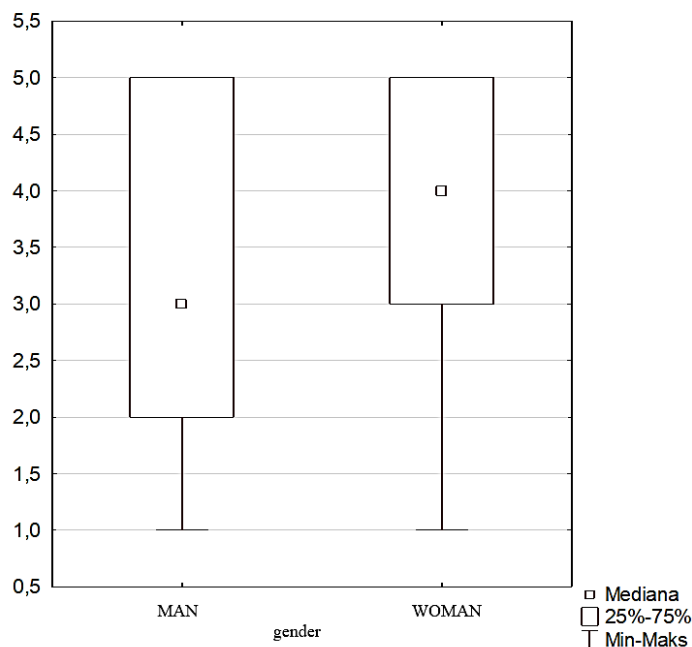


Figure 1. Technology development should be regulated by law - comparison of research results by gender.

Source: own study based on research results.

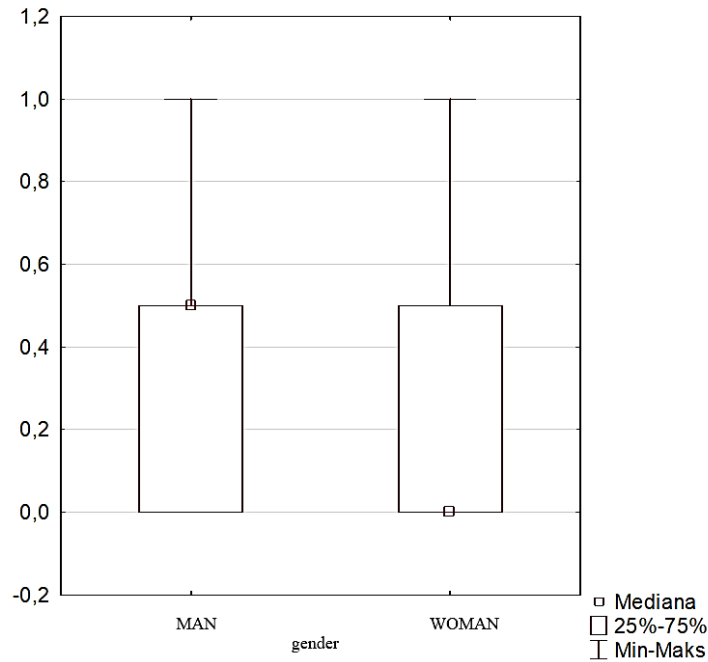


Figure 2. Positive feelings – comparison of test results by gender.

Source: own study based on research results.

In order to graphically represent the dependent variable gender, the median, minimum m, maximum m, lower quartile and upper quartile were established for both women and men. The results are presented in Tab. 5 and 6.

Table 6.
Men and Women

Variable	Gender	N important	Median	Minimum	Maximum	Bottom Quartile	Top Quartile
A robot would do my job better than me	M	55	1,000000	1,000000	4,000000	1,000000	2,000000
	W	134	1,000000	1,000000	5,000000	1,000000	2,000000
Technology development should be regulated by law	M	55	3,000000	1,000000	5,000000	2,000000	5,000000
	W	134	4,000000	1,000000	5,000000	3,000000	5,000000
Positive feelings regarding the development of automation, robotization and artificial intelligence	M	55	0,500000	0,000000	1,000000	0,000000	0,500000
	W	134	0,000000	0,000000	1,000000	0,000000	0,500000
Negative feelings regarding the development of automation, robotization and artificial intelligence	M	55	0,111111	0,000000	0,666667	0,000000	0,222222
	W	134	0,111111	0,000000	0,666667	0,000000	0,222222
I am afraid that in the future humans will not be able to control AI	M	55	4,000000	1,000000	5,000000	2,000000	4,000000
	W	134	4,000000	1,000000	5,000000	3,000000	5,000000

Source: own study based on research results.

The higher the lower quartile, the more respondents answered the following questions: *A robot would do my professional job better than I could; Technology development should be regulated by law; Positive feelings regarding the development of automation, robotization and artificial intelligence; Negative feelings regarding the development of automation, robotization and artificial intelligence; I am afraid that in the future humans will not be able to control AI.*

There are differences in the answers to these questions between women and men for the questions: *Technology development should be regulated by law*. Both the median and the lower quartile are higher and are different for women and men. And for the question: *Positive feelings regarding the development of automation, robotization and artificial intelligence occur in the median between the responses of women and men*.

4. Discussion of research results

The topic of gender is constantly discussed in many scientific publications. Generally, concepts related to the relationship between gender and the importance of a person's mental structure are analyzed, such as: personality and gender, discrepancies in competences, needs, temperament and emotional processes. Physiological differences between the sexes are responsible for the distinct occurrence of symptoms and reactions to anxiety and mental disorders (Becker et al., 2005, Sadłowska-Wrzesińska et al., 2016; Sadłowska-Wrzesińska, Nejman, 2020). It is also known from the latest research that gender affects activities such as: remembering, feeling emotions and even the ability to cope with stress (Kroczyński, 2021). Emotional processes have a much greater impact on the differentiation of male-female behaviour, because women are more emotional than men (Koraszczyńska, 2002; EUR-Lex, 2023). Perhaps this is due to the fact that *work is increasingly important for women. Over 70 percent of surveyed Polish women believe that they do something important for others, a similar percentage consider themselves experts in their profession* (GWPW, 2022). Women value stability and think about changing jobs less often than men (42% women and 37% men *Women, despite their great commitment to their careers, do not feel adequately rewarded for their work* (Kantar Poland). *Women* are stressed much more often than men and have different reasons for anxiety. 74% surveyed women are stressed at least once a week, including as many as 22% every day. Women are twice as likely to experience stress as men. This is due to more responsibilities - trying to reconcile professional life with duties at home. 20% women reported that trying to maintain a healthy work-life balance (People at Work, 2022) was the origin of stress.

That although more people support the development of artificial intelligence than being in opposition to it, these are mainly men with high levels of education and income (Franken, Mauritz, 2021; Women in Digital Scoreboard, 2021; Gomes, 2022). Women have lower knowledge about artificial intelligence than men. Moreover, research and development of artificial intelligence is primarily in the hands of men - only less than 25% of employees in the AI sector are women. According to the results obtained, every third Polish woman declares that she uses AI privately or in her professional work (37%). Better educated women, living in larger cities, but also younger and with less work experience are more likely to see the benefits of

using AI, and only 40% of women share the opinion that AI will increase productivity. 75% of women believe that AI will not have a positive impact on work-life balance through more effective use of working time (Woźniak-Jęchorek et al., 2023). Almost one in two women using AI report a lack of transparency and find the understanding of AI algorithms difficult. More than half of women fear that the use of artificial intelligence may result in the loss of personal skills and interpersonal relationships (56%), limit the ability to perform creative work (53%) and increase the level of unemployment by automating routine activities (50%). Every fifth woman believes that the use of AI may result in lower salaries and may worsen their professional status. So, despite experts' assurances about the benefits of automation and the development of artificial intelligence, employees are not fully convinced that this will be a beneficial situation for them (Workplace, 2023; Gmyrek et al., 2023).

With regard to stress caused by the use of new technologies and the uncontrolled development of AI, a pilot study conducted by the authors on a selected group of respondents did not confirm the increased feeling of job insecurity. It can be assumed that *in recent years* job uncertainty has been determined to a greater extent by global factors, rather than organizational factors. One of the phenomena that significantly impacted the labour market was the COVID-19 pandemic (CBOS, 2020). Society was affected by the effects of the pandemic in the form of global inflation, which was further compounded by the war in Ukraine and the conflict of the world's main economies with Russia, while in the background these phenomena were accompanied by the dynamic development AI. Hawking *stated that the development of full artificial intelligence could mean the end of the human race* (Hawking, 2014). Jeff Bezos claimed that we are in the middle of a "renaissance" and "golden age" when it comes to the topics of machine learning and artificial intelligence (Bezos, 2017). Dharmesh Shah believes that robots and artificial intelligence will improve our work and *safety* (BBC, 2018). Businessmen, investors and AI experts, including: Elon Musk, in a letter published by the Future of Life Institute, appealed to stop the development of AI systems, stimulating a global discussion on the directions and scope of the impact of AI, also in relation to the ethos of human work (Rozwój AI, 2023).

It is assumed in the analysis conducted by Pricewaterhouse Coopers that over the next 20 years in Great Britain, artificial intelligence and related technologies may eliminate as many jobs (approx. 7 million) as they generate (approx. 7.2 million), i.e. bring an increase of approximately 200,000 positions. The analysis also indicates that professional, scientific and technical services will have net growth of 16%, while education will grow by 6%. Meanwhile, the transport, storage and public administration sectors will see a decline of 22% and 18%, respectively (10 professions that AI can replace, 2020). The research conducted by Citrix (CRR) also indicates that robotization will not replace people at work, but will make them more engaged, effective and innovative. Over 77% of respondents claim that in 2035 artificial intelligence will significantly accelerate decision-making processes and increase employee productivity. In turn, research conducted in 2022 by Apifonica.com shows that 9 out of 10

respondents declare that thanks to the implemented voicebots, their work has become easier. As a result, robotization helps them because they can focus on more demanding, creative tasks. Meanwhile, all (100%) of the surveyed managers and 87.5% of lower-level managers in companies where robotization has been implemented believe that it is impossible for intelligent voice assistants to replace them (Will robotization take away jobs). Based on the above, it can be concluded that in the last few years the phenomenon of job uncertainty has been multidimensional. Starting with the global COVID-19 pandemic, through global inflation, economic conflicts, political tensions, the war in Ukraine, the concept of "uncertainty" began to accompany people every day, testing the resilience of both individuals and organizations, and even entire countries. However, the conducted pilot study did not confirm concerns about the need to change jobs, lose a job or need to retrain.

5. Summary

Artificial intelligence appears as a revolution that can introduce a completely new paradigm. AI technology is developing at an unprecedented pace, opening up unlimited possibilities for people and significantly impacting their personal and professional lives.

The aim of the article was achieved - feelings towards the development of AI were identified. Interesting results were obtained in some AI topics - e.g. women feel a greater need for legal regulations regarding artificial intelligence than men, and they also show a more positive attitude towards the development of technology and artificial intelligence. However, the hypothesis was not confirmed - there are no significant differences between genders in feelings towards the development of artificial intelligence in the work environment. The results of the analysis of our own research did not confirm the fears and anxieties reported in the literature on the subject. According to the authors, this could have been influenced by, among others, small sample and specific nature of the industry and positions held (the study was conducted primarily on a group of so-called knowledge workers and administrative employees). This encourages the authors to expand the research as quickly as possible on a larger scale and, in the next step, to analyze the responses of respondents representing various industries and various job positions.

The past has shown that technological breakthroughs always bring new opportunities and open the door to previously unknown career development paths. The awareness of changes, flexibility and readiness to learn new skills is important. The feeling of uncertainty, which is currently a common phenomenon, may lose its negative connotations over time.

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SELF-REFLECTION IN LEADERSHIP: DOES THIS DISTINGUISH A GOOD LEADER FROM A BAD ONE?

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Purpose: Self-reflection competence is recognized as a key leadership skill that leads to learning from one's own experiences, drawing conclusions, and shaping one's actions in the future with a sense of job satisfaction. At the same time, research in the field of leadership is insufficient on this topic. Therefore, this article aims to determine the significance of the self-reflection competence of a leader for organizational commitment, well-being, and organizational performance, which can be a measure of good leadership.

Design/methodology/approach: The research was conducted among 200 managers of Polish enterprises from October 2022 to January 2023. In this study, the online questionnaire and convenience sampling were used.

Findings: The analysis results indicate a positive and significant impact of self-reflection competence on well-being, commitment, and organizational results, contributing to the development of a comprehensive approach to leadership.

Research limitations: Firstly, the research sample is not large. Secondly, the study used a self-reflection competence scale that included general statements about reflection. It was not asked how often the leader practices reflection and whether it concerns positive or negative aspects.

Practical implications: Leaders in organizations should remember to practice reflections, which should not be an activity only in exceptional circumstances, but rather a part of the routine of everyday professional duties. Leaders should also engage employees in reflection practices, as collective reflection brings value to the organization.

Originality/value: The significance of self-reflection competency contributes to theory and practice toward a comprehensive approach to leadership.

Keywords: self-reflection, leadership, well-being, commitment, performance.

Category of the paper: research paper.

1. Introduction

Many researchers have considered reflection an important part of every learning process (Kolba, 1984; Schon, 1983; Senge, 1999). It is a critical thinking process about our behavior, attitudes, beliefs, and values. People learn through experience, which leads to reflection on that experience and the development of new insights or conclusions that shape subsequent actions in the future. However, a man does not learn from experience but learns from reflection on this experience. Therefore, reflection is an integral part of the learning cycle, both in personal and professional life. Reflection allows us to look inward to clarify personal values and beliefs, and outward to understand how they connect to the greater whole. Critical reflection can broaden perspectives and lead to a more holistic understanding of complex and ambiguous situations (Densten, Gray, 2001; Kayes, 2002). Currently, when the individual's autonomy in terms of their development is increasing and at the same time there is unlimited access to information and its ambiguity, reflection takes on particular importance. Reflective practice has its followers not only among learning theorists but also among leadership researchers.

Goleman et al. (2002) argued that individual learning that uses reflective questions is an effective strategy for developing emotional intelligence and, finally, leadership competencies. Self-reflection is conducting a dialogue with oneself (van Loon, van Dijk, 2015). Research indicates that self-reflection allows leaders to better cope with emotional reactions (Nesbit, 2012), exposes leader potential, and improves leadership effectiveness (Lanaj, Foulk, Erez, 2019).

However, research shows that reflecting on one's actions is not obvious or easy for leaders (Smith, 2001). Some senior leaders believe that taking time to reflect on what has already been done can be a waste of time (Patricia, Castelli, 2016). Moreover, many leaders may experience negative emotions when they begin to analyze not only what they managed to do, but also what they failed to do (Womac, 2020). A study by Olsen and Burk (2014) indicated that people are more likely to focus on negative aspects resulting from reflection, which can further lead to anxiety and stress (Steele, Day, 2018). Therefore, it seems the leaders would like to avoid self-analysis of their actions, which may lead to negative perceptions and emotions.

Despite much research on reflection, there are few studies about leadership, especially in the case of Polish leaders. Moreover, there is no unambiguous research in this area. Thus, this topic is crucial because determining the significance of a leader's self-reflection can contribute to theory and practice toward a comprehensive approach to leadership. Therefore, this article attempts to determine the meaning of self-reflection competencies for leaders in the context of organizational commitment, well-being, and organizational performance, which can be a measure of effective leadership.

The following article is structured as follows. The first chapter reviews the literature on self-reflection and its significance for leadership in the context of organizational performance, employee engagement, and well-being, along with hypothesis development. The next chapter describes the methodology of the study. The following chapters of the article present the research results and discussion. The article ends with a summary, research conclusions, theoretical and practical implications, and research limitations.

2. Theoretical framework and hypotheses

2.1. Definition of reflection and self-reflection

According to the Cambridge Dictionary, reflection is “serious and careful thought” (<https://dictionary.cambridge...>, 2024). It is thinking about feelings, reactions, and motives for action, and their impact on what to do or to think in a given situation. Reflection allows not only the description of a person's way of thinking but also the description of how an individual constructs his or her experiences. These experiences are shaped based on the thoughts, feelings, actions, and relationships with others that occur in a specific context. Chudy (2006) combines reflection with the ability to evaluate decisions made and one's behavior. It can lead to a change in the ways of thinking and acting, and even a change in perceiving reality (Mezirow, 2009). Therefore, reflection allows an individual to oppose routine and formulaic nature. This is because the source of reflection is the individual's doubts arising from facing a difficult experience. Reflection is therefore related to the practice of learning. A specific experience can stimulate an individual's reflection, and the result of this process will be learning. However, it is important to remember that experience alone is not a sufficient learning factor. A necessary condition for learning from experience is reflection on that experience.

According to the Dictionary of the Polish Language, reflection is "thinking more deeply about something, triggered by a strong experience"; it is “a thought or utterance that is the result of such reflection” (<https://sjp.pwn...>, 2024). Reflection is usually understood as the ability to take the role of an observer to one's thoughts, beliefs, and feelings. Reflection "largely determines the mental, moral, and technical-practical level of a person" (Chudy, 2006, p. 72). Self-reflection, on the other hand, is defined in the same way, except that it refers to reflecting on oneself. Synonyms of this word are self-analysis, self-evaluation, or self-criticism, which involve reflecting on what happened, wondering why it happened, and drawing conclusions about what could have happened (Womack, 2020). However, it should be remembered that reflection on events is not only a summary of actions performed and not performed but also a reflection on the reasons (sources) of those situations. Self-reflection is also self-awareness understood as awareness of one's thoughts and emotions as well as actions taken and the

resulting successes and failures. Reflection is based on the subjective consideration of knowledge and a critical analysis of its essence (Karaś, 2021). A manifestation of this may be self-actualization, which contributes to correcting actions based on mistakes made (Novikov, Chkhartishvili, 2014). Reflection is an inherent attribute of learning, observing, and taking a broad view of the problem, as well as noticing and taking into account the different contexts.

Reflection is defined as the heart of key competencies (Perkowska-Klejman, 2018). The justification for this statement is that reflective thinking is the basis of human action. This allows an individual own thinking, experiences, actions, and practices to fit into different contexts. Reflection is a metacognitive skill that requires creativity and the ability to think critically.

A model of reflective practice that includes the mentioned aspects: reflection, self-awareness, and critical thinking is summarized in Table 1. Reflection enables the application of theory in practice and the search for new and better solutions. Self-awareness, which is also a component of emotional intelligence, gives an individual the ability to recognize his or her emotions and actions, use intuition to make decisions, or make accurate self-assessments (Goleman, Boyatzis, McKee, 2002). Finally, critical thinking is noticing differences and making decisions thanks to the ability to recognize other people's positions and arguments, reliably analyze opposing evidence, and present own views (Negri, 2018).

Table 1.
Elements of reflection practices

Element	Reflection	Self-awareness	Critical thinking
Source	Existential phenomenology and critical theory	Phenomenology	Skepticism and critical theory
Characteristics	Intellectual effort, consideration	Being aware of one's own emotions, thoughts, needs, possibilities, abilities, limitations, and actions	Criticism of culture and society, recognition and criticism of assumptions resulting from context, search and discovery of alternatives, reflective skepticism

Source: Perkowska-Klejman, 2018.

2.2. Self-reflection competence and effective leadership

The effectiveness of leaders depends on their competencies (Kragt, Guenter, 2018; Sturm, Vera, Crossan, 2017). Competent leaders can better overcome their limitations and are more effective in the workplace (Kozłmiński, 2015). Employees who positively evaluate their leader's competencies perform their tasks better, feel higher job satisfaction, are more motivated, and actively support cooperation and communication between all organizational participants (Osborn et al., 2002; Waldman et al., 2004).

One of the most important competencies of leaders is self-reflection understood as the ability to analyze past experiences and draw conclusions from them (George, 2015; Kozłmiński 2015). Self-reflection has been recognized as one of the key competencies needed by effective leaders, especially in the face of an increasingly complex and multicultural workplace (Roberts,

2008) additionally characterized by the complexity and speed of information flow (Carter et al., 2015; Baltaci, Balci, 2017). In an organizational context, reflection refers to considering how work-related issues affect an individual's ability to achieve positive outcomes. Self-reflection competencies are considered crucial because they consolidate other interdependent skills, such as critical thinking, creativity, initiative, and the ability to solve problems, assess risk, make decisions, or manage emotions (Perkowska-Klejman, 2018). Various leadership theories emphasize the importance of self-reflection and self-awareness, especially the concepts of authentic, servant, and transformational leadership (Berge, Erzikova, 2022).

Self-reflective competencies are related to a leader's ability to analyze successes and failures and draw conclusions from them. Reflecting on both failures and successes allows individuals to think more systematically and gain a deeper, more complex understanding of their experiences. Luthans and Avolio (2003) argue that self-reflective competencies create important positive psychological capabilities and build the self-awareness of effective leaders. Self-reflective leaders use introspection to evaluate themselves which causes higher awareness of their strengths and weaknesses (Hinojosa et al., 2014). Effective leaders reflect on their past experiences and seek relevant, different insights before making decisions (Göker, Bozkus, 2017). They are also able to create transparent and honest relationships with others and can overcome emotional limitations. Reflective leaders view learning as a lifelong process and tend to balance the practice of "talking" with "asking" and often rely on the collective intelligence capabilities of the teams in their organizations.

Many studies point to the positive aspects of self-reflection. Self-reflection skills improve performance by enabling people to learn from their past experiences (Anseel, Lievens, Schollaert, 2009; Ashford, DeRue 2012), take personal responsibility for their past achievements (Ellis et al. 2006), and feel more confident about achieving their goals (Di Stefano et al., 2014). Moreover, leaders do not need to spend much time on reflection to get benefits. Spending just only a part of the day analyzing work experiences is enough to improve performance (Di Stefano et al., 2014). Additionally, leaders who practice reflection are more aware of their strengths and weaknesses, which makes them more productive (Womack, 2020) and committed to leading and supporting others (Park, Millora, 2012). Self-reflection practices are also a way to develop a leadership role (Steele, Day, 2018) and even self-confidence (Odom, Boyd, Williams, 2012). Practicing reflexivity means being aware of your actions and results, which results in increased effectiveness at work, which manifests itself in good organizational performance. Based on the above arguments, the following hypothesis is proposed:

H1: A leader's self-reflection competence is positively related to organizational performance.

2.3. Self-reflection and organizational commitment

Leadership development is a group process. Leaders develop through work-based “passive learning” with reflection occurring at the individual and collective levels (Raelin, 2006). Leaders are constantly learning, adapting to a changing environment, and creating new leadership styles that fit employees and the environment. Therefore, reflection is not only an individual process but also a collective one (Göker, Bozkuş, 2017). It involves conducting a dialogue with yourself and others. Through reflection, the need for changes in action or behavior is recognized. Reflection seems to be an important element of a leader's everyday life, which influences decisions about managing people and setting directions for the organization's activities. In this context, reflexivity should not be treated as a separate technique to be used occasionally, but as an integral part of leading.

This is confirmed by research results that indicate that reflexivity is a mediating factor between a leader's information search and team performance and innovation (Wang et al., 2020). Another study indicates that team reflexivity positively affects affective commitment and subsequently employee innovativeness (Wang, Cui, Cai, 2022). Employees who reflect on positive events at the end of the working day experience a greater sense of meaning in work and greater engagement in the routine of work tasks and responsibilities the next day (Sonnetag et al., 2021). Fritz and Sonnetag (2005) found that positive reflection on work during the weekend increased work engagement and reduced burnout after the weekend. Based on the results of the above research, the following hypothesis was proposed:

H2: A leader's self-reflection competence is positively related to organizational commitment.

2.4. Self-reflection and well-being

Research shows that the practice of self-reflection contributes to well-being. Reflecting on the positive aspects of their job helps employees feel positive about their work (Fritz, Sonnetag 2006). Employees who reflect, focusing on positive situations that happened to them at work, report fewer health problems, both physical and mental (Bono et al., 2013), have more positive emotions (Sonnetag, Grant, 2012), and better mood the next day (Meier, Cho, Dumani, 2016), and they are also able to recover from occupational stress (Fritz, Sonnetag, 2006).

Moreover, reflection practice in free time also positively affects the level of well-being. People who reflect mainly on the positive (rather than negative) aspects of their work during their free time experience greater vigor and less exhaustion (Casper, Tremmel, Sonnetag, 2019). Thinking about negative aspects of work causes exhaustion and discouragement (Fritz, Sonnetag 2006).

Numerous literature reviews and meta-analyses show that leadership is crucial to employee well-being (Harms et al., 2017; Inceoglu et al., 2018; Teetzen et al., 2022; Montano et al., 2017). Most of the research was conducted among employees. However, there is a lack of research

conducted among leaders. Therefore, it seems important to verify whether leaders' self-reflection can also contribute to improving their well-being.

H3: A leader's self-reflection competence is positively related to a sense of well-being.

3. Research methods

The research was conducted among 200 managers of Polish enterprises from October 2022 to January 2023. In this study, the online questionnaire was used with Google Forms. The link to the questionnaire with the invitation and information about voluntary participation was sent by mail to respondents. A non-random sampling method was used (convenience sampling). The selection of respondents involved selecting research participants based on their availability and willingness to participate in the study. The majority of respondents were women (55%). The largest group of leaders were people aged 36-50 (54%), aged 25-35 (35%), and the smallest group were leaders over 50 (6%) and under 25 (5%). The vast majority of leaders had higher education (71%), and almost all of the rest had secondary education (26%). Just under half of the respondents (42%) had less than 5 years of leadership experience; half of the respondents (50%) had experienced between 6 to 15 years; the rest of the respondents (8%) were over 15 years of age. The dominant industry was services (63%), then production (22%), and trade (16%). The respondents were representatives of leaders of enterprises of various sizes - from micro (10%), through small (34%) and medium-sized (28%), to large companies (29%).

The following four measurement constructs were used in this research. To measure self-reflection competencies, a tool proposed by Koźmiński (2022) was used with five statements (e.g. "I draw accurate conclusions from past experiences"). Fry's (2003) scale was used to measure organizational performance with four statements (e.g., "My department is very effective in obtaining maximum efficiency from available resources"). Organizational commitment was measured using a scale from Mulka et al. (2006) with three statements (e.g., "I feel that this is "my" organization and that I am not just an employee of it"). To examine well-being, the scale proposed by Fry, Vitucci, and Cedillo (2005) was used with two constructs: meaning work with four statements (e.g. "The work I do is very important to me") and being appreciated with four statements (e.g. "I feel appreciated as an employee"). The study used a five-point Likert scale.

Descriptive statistics, Spearman's rank correlation analysis between variables, and structural equation modeling were used for the analysis to indicate the relationships (strength and direction) between individual variables. IBM SPSS Statistics was used for modeling.

4. Research results

First, the reliability and validity of the scales used in the study were estimated. Although the used scales were positively verified, it is worth assessing the measurement model in the context of a given research sample. The parameters of convergent validity measured by average variance extracted (AVE) were as follows: self-reflection competencies (AVE = 0.640); well-being (AVE = 0.610); organizational commitment (AVE = 0.686); organizational results (AVE = 0.715) with values higher than required, i.e. 0.5 (Na-Nan, 2020). Reliability was assessed using Cronbach's alpha coefficient: self-reflection competence ($\alpha = 0.858$); well-being ($\alpha = 0.879$); organizational commitment ($\alpha = 0.760$) and organizational results ($\alpha = 0.866$). A Cronbach's alpha was considered to indicate a satisfactory degree of internal consistency on the level of at least 0.60 (Griethuijsen et al., 2014). Next, composite reliability (CR) was estimated, which reached values above 0.7 (Hair, Ringle, Sarstedt, 2013): self-reflective competence (CR = 0.899); well-being (CR = 0.904); organizational commitment (CR = 0.867); organizational results (CR = 0.909). Therefore, it can be concluded that the measures used in the study are characterized by satisfactory indicators, which means a good fit of the variables to the examined constructs.

Construct validity was estimated to assess the relationships between variables. Table 2 presents Spearman's rank correlations between leader self-reflection competencies, well-being, organizational commitment, and organizational performance. Spearman's rank coefficients should be in the range of 0.4-0.9, which indicates proper correlations between the variables (Akoglu, 2018). The results indicate that self-reflection has significant positive correlations with the measured variables. The highest positive correlation was found between the leader's self-reflection and well-being ($r = 0.709$, $p > 0.01$), self-reflection and organizational performance ($r = 0.643$, $p > 0.01$). The appropriate correlation was also noted between self-reflection and organizational commitment ($r = 0.536$, $p > 0.05$). The average value of the studied variables was also calculated. Leaders rated their self-reflection competencies the highest (mean 4.36), next well-being (4.32), organizational performance (4.17), and organizational commitment (4.15).

Table 2.
Correlations between the studied variables

Variables	Mean	1	2	3	4
1. Self-reflection	4.36	1	-	-	-
2. Well-being	4.32	0.709**	1	-	-
3. Organizational commitment	4.15	0.536*	0.641**	1	-
4. Organizational performance	4.17	0.643**	0.677**	0.635*	1

Note(s): * $p > 0.05$, ** $p > 0.01$

Source: own collaboration.

Fig. 1 presents the relationships between the studied variables. The model indicates cause-and-effect relationships between hidden variables and their observable indicators. The fit measures of the theoretical model to the data indicate a good fit: the ratio of chi-square to the degree of freedom (χ^2/df) is 2.504, RMSEA – 0.067, CFI – 0.906, IFI – 0.907. The results of model parameter estimation indicate that at the significance level of 0.01, all parameters are statistically significant. Positive relationships exist between leader self-reflection competencies and organizational results ($\beta = 0.88$, $p < 0.01$), which confirms hypothesis 1. Self-reflection also correlates with organizational commitment ($\beta = 0.77$, $p < 0.01$), which confirms hypothesis H2. There is a positive and significant impact of self-reflection on well-being ($\beta = 0.97$, $p < 0.01$), positively verifying hypothesis H3.

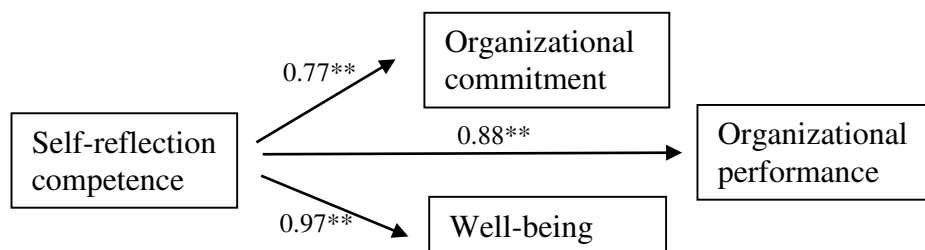


Figure 1. Model of the relationship between the studied variables.

Note(s): ** $p > 0.01$.

Source: own collaboration.

5. Discussion

The research results confirm theoretical considerations on the significance of self-reflection as a key competence of a leader, which may influence the effectiveness measured by organizational performance. The results confirm the existing research on the topic among employees (Di Stefano et al., 2014), but above all, they enrich research in the field of leadership. According to previous research, self-reflection competence is important for a leader (Kozłmiński, 2002) and improves effectiveness (Lanaj, Foulk, Erez, 2019; Womack, 2020). Moreover, the research results also support the assumptions about the impact of the ability to practice self-reflection on organizational commitment in line with previous research (Sonnentag et al., 2021; Fritz, Sonnentag, 2005). This is important because recent analyses indicate the positive impact of leaders also on employee engagement and performance (Donkor, Dongmei, Sekyere, 2021; Daghmi, 2024). This research also confirms that self-reflection does indeed have a positive impact on well-being about work, providing a sense of meaning in work and being appreciated at work. Moreover, this research focused on self-reflection in general, without distinguishing between positive or negative reflection (focusing on positive or negative aspects of work).

Despite this, the research results indicate a positive impact of self-reflection on the well-being of leaders. Additionally, other studies present a positive impact of well-being on organizational performance (Samul, Wangmo, 2021; Rufeng, Nan, Jianqiang, 2023). Thus, the practice of self-reflection is important for a leader's sense of work engagement and well-being, as well as organizational performance, which may lead to the conclusion that self-reflection is what distinguishes a good leader from a bad one.

6. Summary

This research indicates a positive impact of the leader's self-reflection competence on a sense of well-being and commitment, as well as on organizational performance. The analysis results have several theoretical and practical implications. In a theoretical context, they complete the literature on this subject by confirming previous research about the significance of reflection in professional life. As mentioned at the beginning of the article, reflection is an everyday practice that allows everyone to learn from their experiences and develop their potential by analyzing their actions, behaviors, and motives. However, it seems to have become a somewhat forgotten practice in the tough business world. Moreover, this research shows that self-reflection has measurable effects in the form of well-being, a positive attitude to work, increased commitment, and better results. This research also adds to existing research in the field of leadership. The vast majority of scientific studies concern research conducted among employees, excluding the group of employees in managerial positions. Managers in organizations have an impact not only on their work but also on the work of their subordinates and entire teams. Therefore, the research results also have practical implications. Leaders in organizations should remember to practice reflections, which should not be an activity only in exceptional circumstances, but rather a part of the routine of everyday professional duties. Additionally, the leader should engage employees in the reflection practice, as collective reflection also brings value to the organization.

This study has several limitations. First, the research sample is not large. Although it is sufficient to conduct analyses and draw conclusions, they cannot be generalized to the entire population of leaders. Second, the study used a self-reflection competence scale that included general statements about reflection. However, it was not asked how often the leader practices reflection and whether it concerns positive or negative aspects. However, in the context of the results obtained, it does not seem to be that important.

Based on the study, further research directions were indicated. It is worth exploring the aspects of the limitations of the study. First of all, research on reflection should be expanded to shed light on whether only positive self-reflection has a better impact on well-being, commitment, and performance. Reflection on positive and good experiences has a positive

impact on our emotions, but this does not mean that we draw the right lessons from these experiences and the right conclusions for future actions. We usually analyze negative events in detail, considering their causes and possibilities of avoiding them in the future, so we can learn more. Therefore, it would be worth analyzing this thread, as well as the time spent on self-reflection practice - whether it should be a daily or time-to-time routine or used only in exceptional events. Another direction of research should also concern the impact of the leader's self-reflection competencies and collective reflection on the well-being, commitment, and organizational performance of employees. Analyzing the relationship between these variables would contribute to research on a comprehensive approach to leadership.

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STUDY OF SELECTED DETERMINANTS OF THE FURTHER ENVIRONMENT ON THE DEVELOPMENT OF CREATIVITY IN THE ORGANIZATION

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Purpose: In recent years there has been a fundamental change in the approach to the issue of creativity in management. Therefore, a special role is seen in factors of the downstream environment as important determinants of organizational development. The main research problem, which is also the subject of the study, was to find out the relationship between the creative life orientations of the respondents and their relationship with the factors of the further environment determining the development of the organization. And the main goal of the research was: using scientific procedures and appropriate methodology, to learn about the external factors of the environment of creativity development determining the activities of the organization.

Design/methodology/approach: The article reviews research on the impact of cognitive, theoretical and methodological issues, as well as empirical issues using Cudowska's (2014) survey questionnaire for determining respondents' life orientations and selected factors of the further environment.

Findings: The results of this study illustrate the role of the determinants of the downstream environment and its impact on the development of creativity in organizations.

Research limitations/implications: Despite the author's efforts to produce the article at the highest possible quality level, a few basic limitations should be mentioned. First, there is a geographical limitation. The article uses empirical data from a survey conducted in the West Pomeranian region and focused on people (working students) representing creative life orientations. The second limitation concerns the survey method. A third limitation is the one-time nature of the study conducted.

Originality/value: As a result of the literature and empirical research, the boundaries of existing knowledge on the impact of downstream environment factors on the development of organizations, including creativity, the importance of creativity as a resource was pointed out, especially when this factor is the main source of value creation, the factors stimulating and limiting the downstream environment for the development of creativity in the organization were identified, and areas of support were identified that should be of interest to managers at the national level, or locally.

Keywords: creativity, creative organization, further environment, life orientations, creative life orientations.

Category of the paper: Research paper.

1. Introduction

The modern educational process is undergoing constant evolution, driven by the process of human capital development. Today it is considered that creativity is one of the most important factors in the development of human capital. The quality of professional competence in human capital creativity is determined by knowledge and the ability to acquire it from various sources. Therefore, the subject of this article is the study of selected determinants of the environment further on the development of creativity in the activities of organizations. The main research problem, which is also the subject of the study, was to find out the relationship between the creative life orientations of the respondents and their relationship with the factors of the downstream environment determining the development of the organization. Taking this into account to show a certain scientific area and subject it to analysis, the article distinguished two streams. The first, which is cognitive in nature, focused on the analysis of the literature on the subject, which allowed to critically evaluate it and shaped the research framework. The research conducted focused on concepts related to the development of various concepts of creative human capital, including creative life orientations and their impact on the development of organizations. The second strand, the study, focused on the conducted research on determining selected determinants of the environment of further creativity for development at the organizational level. The main objective of the research was: using scientific procedures and appropriate methodology, to learn about the external factors of the environment of creativity development determining the activities of the organization. The following article is literary and empirical in nature, based on various methods of data processing and systematization. To a large extent, methods of analysis of economic phenomena have been implemented: descriptive, qualitative (comparisons), quantitative, and sociological research methods (primary and secondary). The article concludes with conclusions resulting from theoretical considerations and conducted research.

2. Creative life orientations of human capital and its relevance to organizations

Attempting to present the historical process of the formation of the concept of human capital and its usefulness in the development of science is difficult and ambiguous. However, it cannot be said directly that there were none. The large number of definitions created and their multifaceted use make it difficult to unequivocally indicate the moment from which the use of the term as a determinant of specific economic values dates. Economists have dealt with the problem of man and his capabilities, taking into account various economic issues,

unfortunately, often treating it as a marginal phenomenon. Reviewing the source literature, it can be noted that over the centuries the terminology relating to the concept of human capital or its components was somewhat different. The terms used were, for example: "labor force", "human labor", "qualified labor", "spiritual capital", "living capital", "economic value of people", etc. (Wronowska, 2005). Subsequently, many researchers have studied human capital in various dimensions.

For example, Nelson (1985) pointed out that "human capital is the tacit knowledge of an organization's employees," since tacit knowledge can come from a variety of sources. Human capital, too, can be defined as tacit knowledge and communication skills, which can then be transformed into important resources for the organization (Ryu, Shim, 2020). Takeshity (2016) defines human capital as the result of formal education, experience and practical learning that takes place on the job and through non-formal education. Of the many human capital factors, education and experience have been found to be the strongest predictors of career development (Bhopal, 2020). Brooking and Motta (1996) classified this concept exhaustively and concluded that knowledge, creativity, competence and experience of employees are important dimensions of human capital.

Given the above, it can be said that human capital is a dynamic and constantly changing scientific phenomenon. Changing economic structure has a significant impact on the composition of human capital. On the other hand, the structure of human capital creates conditions for the development and growth of organizations. It creates new means of production or new sources of added value, but also risks (Laužikas, Miliūtė, 2020). Unger et al. (2011) present convincing evidence that human capital has a positive impact on the growth, profitability and size of organizations. Human capital, too, can provide an organization with modern and superior solutions. It is a source of innovation and strategic renewal (Tapsell, 1998; Zhuang, Ren, 2013). Through its effective use, an entity's processes, behaviors and operations can be redefined. Human capital can also be considered an important enabler of an organization's competitiveness (Jiang, Messersmith, 2018), as human capital can be characterized by determining skills, talent and know-how (Mubarik et al., 2020).

Human capital-as indicated above-is a determinant of intellectual capital, which in particular influences the level and extent of creativity in an organization. It is the quality of this parameter that depends on the amount of creative works produced, which are then transformed into a commercial good, becoming an innovation. The article presents the concept of division of human capital, which distinguishes two categories of this capital, i.e. human capital described as creatively active, i.e. represented by people with creative life orientations, and human capital so-called passive creatively represented by people with conservative life orientations. According to the author, creatively active human capital is that represented by people with creative life orientations. The concept of creative life orientations was developed by A. Cudowska (2014). The article assumes that the meaning scope of creative life orientations is very capacious, and at the same time diverse. The assumption of diversity does not treat it

disjunctively, but conjunctively, representing a kind of unity in diversity. In addition, it is assumed that "the creation of life orientation is carried out by experiencing reality, taking an axiologically saturated ethical stance towards it. Life orientation in its creative dimension is particularly diverse and dynamic, and can form and develop throughout a person's life. The more so because in modern societies we are dealing with many varieties of creation, adequately to the diversity of areas and dimensions of individual functioning" (Cudowska, 2014). 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 the issue and points to further assumptions made in the work.

Concluding the concept of creative life orientations, A. Cudowska (2014) derives from philosophical and psychological concepts of the creative process. In addition, she refers to the axiological perspective of an individual's life orientation. The concept assumes that the understanding of the integrative and interactional view of the creative process is an important source for TOZ in the empirical dimension (Nęcka, 1995). According to her, "the interaction partners here are: The goal, i.e., what a person wants to achieve that is new and valuable, and the trial structures, i.e., the ideas and any products produced in response to the requirements of the goal." In constructing the concept of creative life orientations, it was placed by also referring to the philosophy of M. Bakhtin, in which a person creatively perceiving himself and his world, functions in an open, "polyphonic" borderland space.

To sum up in this context, life orientation is thus the product of many factors: life experiences, the extent and type of knowledge, motivation, action skills, the individual's personality type, cognitive style, evaluative-value attitudes and, finally, environmental factors. Accordingly, life orientations can be modified as a result of an individual's acquisition of life dispositions.

3. The impact of the downstream environment on the development of the creative organization

The conditions of the environment fundamentally affect the development opportunities for creativity in an organization. The accelerated pace of rapid change, which characterized the last decade of the 20th and the beginning of the 21st centuries, requires a detailed control of the transformations of the environment, which takes into account the impact of many changes of both macro and microeconomic nature with a significant diversification of impact. In a market economy, the scope of activity of organizations focused on creative activities is a configuration of the variables of the environment (the following authors have written about the determinants of functioning by example: Burke, Litwin, 1992; Schneider et al., 1996; Amabile, 1982, 1983,

1988, 1992, 1994, 1996, 1998; Kuenzi, Schminke, 2009; Bratnicka, 2015; Bratnicka-Mysliwiec, 2019; Setiawan, Aprillia, 2022).

The environment of such an entity can be understood as a set of constantly changing factors and processes with which it is forced to interact. It can be assumed that any entity owes its existence to the market environment and the changes taking place (Hadrian, 2006). A creative organization must become an entity capable of change, continuous development, entering new paths, generating process and product innovations, new management concepts and marketing strategies, as well as organizing the entire value creation chain, including international value creation (Penc, 2003). Accordingly, the success of such an entity is determined by the requirements imposed on it by its external environment.

The further environment of an organization and especially one implementing creative activities and its impact is a complex cognitive process. Its recognition consists in reflecting subjective and individual phenomena occurring in this environment. It is assumed that the entity does not act only on the basis of *ex post* information, but *ex ante* information is equally important for it. Creative organizations are a specific type of entity that develops in favorable and characteristic external conditions.

In terms of the further environment, it is the state's economic policy that determines the emergence of many phenomena that modify the behavior of entities operating in the market economy. Its quality, measured by its effectiveness and pro-efficiency results, is determined by two universal properties: specific solutions in terms of detailed instruments of influence and stability over time of once adopted hierarchy of goals and ways of achieving them, stability of macroeconomic policy of the processes of the real sphere (Hauser et al., 1998). It is worth noting that the smooth adaptation of creative organizations to the changing environment makes them increasingly competitive, and therefore more efficient, faster, more effective and cheaper to operate, since the speed of response to emerging turbulence reduces the costs to be incurred.

It should be borne in mind that creative organizations, as units serving the environment, are at the same time in the midst of this environment. Their development is therefore determined by important elements of the environment, starting with political conditions and ending with ecological conditions. All elements of the so-called "downstream environment" can create either an opportunity or a threat for the entities.

4. Material and methods

The theoretical considerations were verified by empirical analysis carried out according to the following research sequences, the results of the study regarding the obtained responses from the survey questionnaire were taken into account sequentially. The analysis began (stage I) with the elaboration of the obtained data. This was followed by verification of the stated objective

(stage II) and a comparative analysis with the theoretical part of the obtained material. Stage III presented the final conclusions and implications of how to influence the determinants of the downstream environment so that it supports the development of the organization.

The research was conducted in the West Pomeranian region of Poland - in the spring of 2022. The selection of the research sample was purposive. In order to verify, a self-report survey was applied using the author's questionnaire, which was used in the article (the questionnaire consisted of two parts - the first part was Cudowska's (2014) questionnaire and the second author's questionnaire, in which the determinants of the further environment that can affect the development of creativity were selected. Then, after defining the sampling frame, i.e. a set of items in the statistical population for: verifying the formulated objective, the research sample was drawn. A total of 643 respondents were selected, from which a group of 392 knowledge workers-students representing creative life orientations (CrLO) was then selected, and the opinions of these very people are presented in the empirical part. The selection of people representing creative life orientations was possible because Cudowska's (2014) verification questionnaire on life orientations was used. A set of 48 questions by Cudowska (2014) was used to calculate the CrLO (creative life orientations) index, with answer versions: Y - yes, N - no, NW - don't know, or A - fits me, a - fits me a little, b - doesn't fit me a little, B - doesn't fit me. Points were assigned for each answer given, 1, 2, 3 (in the T N NW version) or 0, 1, 2, 3 (in the A a b B version), respectively. The sum of the points obtained in each category (as shown in the table below), then the sum of the points for the categories (+) gave the CrLO value and the sum of the points for the categories (-) gave the CoLO value. The CrLO-CoLO value was used in the statistical analysis. A difference value greater than or equal to zero (≥ 0) indicated a person with a CrLO advantage, while a value less than zero (< 0) indicated a person with a CoLO advantage (see: Table 1).

Table 1.
CrLO-CoLO

CrLO*		CoLO**	
Category	Numbers of questions	Category	Numbers of questions
(Ns+)**	1, 6, 15, 16, 32, 35	(Ns-)	5, 11, 18, 26, 37, 42
(Nc+)**	4, 12, 24, 33, 34, 41	(Nc-)	8, 13, 23, 28, 39, 47
(F+)**	7, 9, 19, 21, 27, 30	(F-)	3, 14, 25, 38, 45, 46
(Cv+)**	2, 10, 22, 36, 44, 48	(Cv-)	17, 20, 29, 31, 40, 43

*Creative life orientations – CrLO.

**Conservative life orientations- CoLO.

***New situations" – Ns.

****New creations" – Nc.

*****Flexibility and originality of thinking" – F.

*****Creativity as the value" – Cv.

Source: Cudowska, 2014.

The selected group also included people employed in creative organizations engaged in creative activities (which included advertising, architecture, fashion design and design, computer software, cultural institutions, art and antiques trade, media and higher education). Another classification criterion in the study group was the continuous acquisition of knowledge. This decision was based on the fact that studies allow continuous acquisition of new knowledge and development of creativity. Knowledge and creativity are mutual stimulators and complementary components (this claim was based on the literature on people with high knowledge absorption abilities, as it is this ability that allows generating new creative ideas – Cohen, Levinthal, 1990; Choi, Thompson, 2005). Due to accessibility, the respondents were a group of people from the West Pomeranian region studying at the same university. This fact did not affect their responses, but facilitated the control and evaluation of the study population.

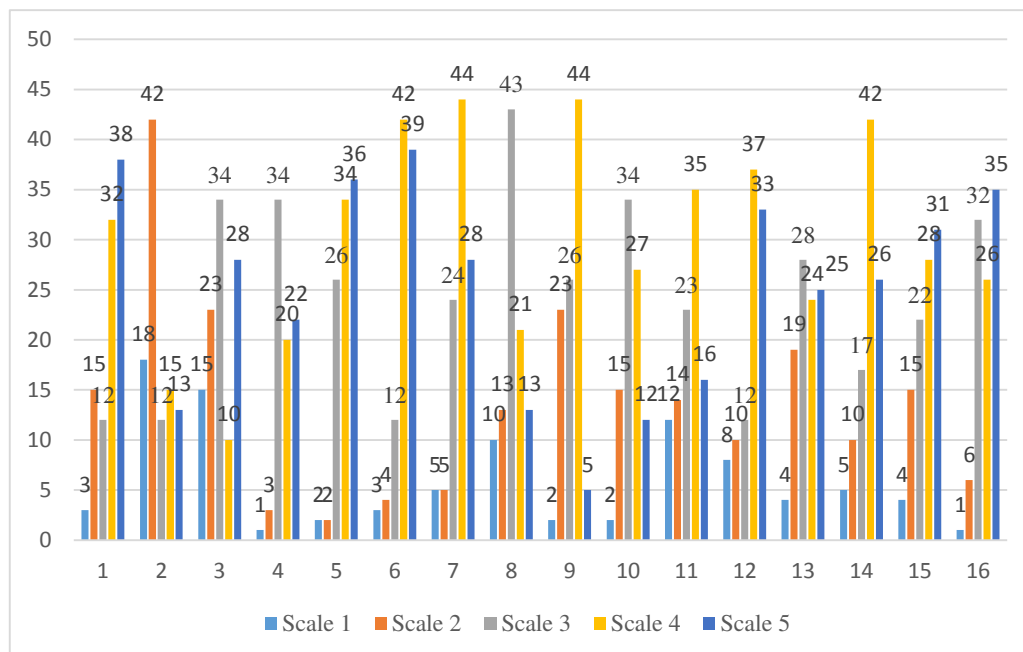
This size met the minimum sample size criterion and allowed for a lower error rate. Respondents up to 25 years of age accounted for 77% of the surveyed group, and those between 26 and 40 years of age accounted for almost 23%. The majority of respondents had work experience of 1 to 5 years (209 people), 56 people indicated 6 to 10 years of work activity, and the remaining group of participants had worked for more than 10 years. Respondents worked in organizations of different employment sizes. 37% of respondents worked in organizations with up to 50 employees 14% of survey participants were professionally affiliated with organizations with 51 to 250 employees, and the remaining participants were employed in businesses with more than 250 employees or did not answer the question. Women accounted for nearly 40% of the survey participants. 75% of respondents were from urban areas, the rest from rural areas.

5. Empirical verification of selected determinants of the downstream environment affecting the development of creativity in the organization's activities

Environmental conditions significantly affect the opportunities for creativity growth in an organization. The beginning of the 21st century is characterized by an accelerated pace of rapid change, which requires a detailed analysis of the changing environment. They take into account the impact of multiple changes of both macro- and micro-economic nature and significantly differentiated impact. In a market economy, the scope of any human action is due to the configuration of the variables of the environment. It can be assumed that every entity, group or individual owes its existence to the market environment and its changes. Therefore, the pursuit of competitive advantage forces the state to create favorable conditions at both the central and territorial levels. These factors can be categorized according to their extent in the external

(national, regional) and internal (organizational or individual groups) environment. At the same time, it should be noted that the determinants at the national level will primarily condition the development of the creative sector, within which creative groups operate. These determinants will have an indirect effect on the development of creative groups. However, the direct role in significantly conditioning the development of groups will be played by the internal determinants outlined below.

According to this breakdown, the determinants of the further environment, which indirectly condition the development of creativity in the organization, according to the responses of the respondents, mainly include (Figure 1): the nationwide process of stimulating the development of business entities based on creative activity and knowledge development; legal and economic constraints in stimulating academic and business cooperation, especially in the area of development activities; the lack of orientation of the academic community to the real needs of the economy in order to ensure greater use of the achievements of science in economic practice; the lack of real, nationwide and coordinated efforts to improve the education system at all levels and dissemination and education (the need to acquire and accumulate new knowledge), which is an important source of creative ideas; limited and poorly implemented restructuring of traditional industries - lack of implementation of necessary structural reforms in the economic system; lack of a coherent system of distribution of information about the law and available aid programs, as well as a system of training and counseling; still present limited awareness of entrepreneurs about the role of creativity in the economy; limited initiative activities promoting and disseminating creative attitudes in society and the economy; limiting supra-regional and international cooperation between institutions engaged in creative activities. The above-mentioned determinants, as a result of the study, provide important information for those who manage a country or region. It is known that the promotion and support of certain attitudes and the creation of economy-wide (and other) conditions promote or inhibit the development of creativity. Modern promotion of competition through innovation is possible to achieve in a period of long-term measures to strengthen those areas that favor these processes. The study made it possible to identify which are the most important urgent to rethink and modify the activities in selected areas, so that Poland can become a country with an increased innovation laterality.



1. nationwide process of stimulating the development of business entities based on creative activities and knowledge development; 2. limited access to external sources of financing for promotional investments of creativity; 3. uncoordinated technical and technological development of the economy, resulting from the uneven growth of investment in R&D; 4. uneven development of information society and knowledge economy in the country; 5. legal and economic constraints in stimulating academic and business cooperation; 6. lack of orientation of the academic community to the real needs of the economy; 7. lack of real, nationwide and coordinated efforts to improve the education system at all levels, as well as dissemination and education 8. failure to recognize the actual role of the development of creative industries, services/products; 9. limited and poorly implemented restructuring of traditional industries; 10. lack of a modern (comprehensive and effective) system of communication and information exchange between regional actors of the creative sector; 11. lack of a coherent system of distribution of information about the law and available aid programs, as well as a system of training and counseling; 12. lack of education in the field of entrepreneurial creativity; 13. lack of a system of research and identification of technological and innovative needs and requirements of entrepreneurial actors; 14. still present limited awareness of entrepreneurs on the role of creativity in the economy; 15. limited initiative activities promoting and disseminating creative attitudes in society and the economy; 16. limited supra-regional and international cooperation among institutions engaged in creative activities.

Figure 1. Determinants of the environment further influencing the development of creativity in the organization's activities - opinions of persons representing CrLO - in % (points from 1 - this determinant does not influence the development of creativity in the organization; to 5 - it has a significant influence on the development of the organization).

Source: own research.

When considering the socio-cultural conditions that stimulate the development of creative organizations, according to the respondents, the following projects should be noted (responses were ranked according to the scale of importance of the answers obtained in the survey):

1. reducing stereotypes of thinking and perceiving others and their differences,
2. improvement of the education system at all levels, promotion of education, development of a model of continuous learning, as well as creative thinking and problem solving,
3. orientation of the regional environment (change of mental model) to the needs of the economy,

4. promotion and stimulation of creative attitudes in society by involving well-known personalities and people who are widely liked and appreciated in the propagation of these ideas,
5. effective use of society's creative potential and support for its development,
6. tolerance for diversity and otherness,
7. freedom of expression,
8. dissemination of modern methods of communication and popularization of creative content,
9. transformation of national consciousness elimination of stereotypes, illusions and prejudices to build a society open to change,
10. creation of a new, effective creative culture geared toward development, especially in poverty-stricken enclaves.

In addition, according to respondents, in terms of the impact of factors of a formal and legal nature, it is necessary to introduce: 1. an integrated strategy to support educational processes aimed at the development of creative potential, 2. a stable political system, oriented to the implementation of systemic development based on creativity, 3. increasing the effectiveness of the institutional structure, by promoting educational and creative attitudes in the economy and society, 4. a coherent policy for the development of national and regional creative organizations, assuming an increase in the number of such economic entities.

6. Discussion and further research

The subject of exploration discussed in this article concerned the preferences of respondents representing creative life orientations with regard to the determinants of the environment further into the development of creativity in the organization. The research conducted was fragmentary in nature, although a significant group of respondents was surveyed, nevertheless, in the author's opinion, this does not entitle her to make clear-cut summaries or excessive generalizations. Attempts made so far to empirically look at the issue of creative life orientations of the respondents and the way the representatives of these life orientations look at the factors of the further environment supporting or not the development of the organization served, in the author's opinion, not only to learn about the phenomenon, but also to get a closer look at creativity and its development in the organization, as a peculiarly human form of socio-economic life. There is a lack of such studies in the literature hence it is very difficult to relate the results obtained to other studies made in this field. Therefore, it seems that the analysis of these issues is of paramount importance in view of the volatility and dynamics of the modern world, its complexity and complexity. In light of the analyses conducted, it turned out to be particularly important that in terms of the determinants of the further environment, a special

role is played by the processes of stimulating and encouraging creativity in organizations in the education system (especially in terms of economic socialization, mentioned in his studies Roland-Levy, 2004 after Krzeminska, 2010), in terms of reforms in the economic system, including limited initiative activities to promote and disseminate creative attitudes in society and the economy; limiting supra-regional and international cooperation between institutions engaged in creative activities. Also, the reduction of stereotypes in thinking and perceiving others and their differences plays an important role in the process of developing creativity. This is an important determinant of the right culture conducive to creativity is adequate social support. Such support for activities should be important in terms of four aspects: diversity of community members, mutual openness of thoughts and ideas, encouragement of constructive ideas and shared responsibility for society (Amabile, 1988; Amabile, 1996; Hennessey, 2003 after Franková, 2011; Koch et al., 2023).

The analyses made make it possible to conclude that the results obtained clarify many contentious issues and shed new light on the research carried out in this field. However, it should be emphasized that they require deepening and further analysis to clarify the phenomenon. With this, they become a field for discussion and development of scientific discourse in the presented empirical spaces of the work. In addition, taking into account the results of the research, decision-makers at the national as well as local level can take long-term measures at various levels to shape an appropriate pattern of determinants of the influence of the downstream environment, which will promote the development of creative life orientations and creative organizations. According to the results of the author's research, support activities should be focused especially on the appropriate also the process of economic socialization; the development of economic knowledge (society from an early age should be educated acquiring this kind of knowledge); social competencies and aspirations, thereby motivation (in society should be rewarded appropriate competencies and appropriate aspirations especially aimed at the development of creativity) pro-social contacts and entrepreneurial attitudes); the right foundations for achieving material success, education and the creation of the right climate for creativity at the national as well as local level.

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**EVALUATING OF JOB CRAFTING INTERVENTION
FOR EMPLOYEE'S WELLBEING SUPPORT –
A CASE STUDY OF ADMINISTRATIVE EMPLOYEES
AT A HIGHER EDUCATION INSTITUTION**

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Purpose: The aim of this article is to evaluate the effectiveness of an intervention designed to enhance motivation and competencies in job crafting, and to identify selected factors that may influence the outcomes. The study examined the extent to which participation in a one-day workshop would enhance levels of task crafting, relational crafting, and cognitive crafting, as well as verifying whether employees' engagement would increase, and perceived work-related stress would decrease.

Design/methodology/approach: A quasi-experimental procedure was used to achieve a goal. The procedure includes several stages, one of which was participation in a one-day workshop. Sample size of the intervention group (with workshop) was $n = 23$ of administrative employees from a private higher education institution, and control group $n = 21$ employees from the same organisation with comparable job characteristics.

Findings: The results showed that the level of job crafting is related to individual characteristics such as self-efficacy and proactive attitude. In contrast, it does not depend on job characteristics such as autonomy and skill variety. In the conducted studies, no positive effects of the workshop on employee well-being were confirmed; however, it was noted that the workshop might act as a buffer protecting against a decline in well-being due to organizational factors.

Research limitations/implications: The limitations of the research result from both the small size of the research sample and the narrow specialization of the surveyed employees. There is a need for research on other professional groups and in other sectors.

Practical implications: Due to the pilot nature of the study and the limitations of the study mentioned above - no practical implications are identified.

Originality/value: The research represents the first attempt in Poland to verify effects of the organizational intervention related to job crafting among administrative university employees.

Keywords: job crafting, well-being, engagement, stress, organisational intervention.

Category of the paper: Research paper.

1. Introduction

The past decade, particularly the experiences of the pandemic period, has led to a significant increase in managers' awareness of the necessity of ensuring employee well-being. Current social and economic conditions (described as the BANI world - B rittle, A nxious, N on-linear, I ncomprehensible) create a situation where implementing initiatives aimed at improving employee well-being requires research to identify the key factors determining the effectiveness of such actions. To address the current challenges faced by organisations, it is worth turning to the body of knowledge in positive psychology, which encompasses a range of research problems related to building a positive workplace (Luthans, Youssef, 2007). Among these, significant attention is given to considerations of the sense of meaning in work (Rosso et al., 2010).

It is noteworthy that, although the discussion on the role of perceiving one's work as important and meaningful is not new in the field of human resource management (it emerged in the 1970s, particularly due to the seminal works on the Job Characteristics Model by Hackman and Oldham (1976)), the continuation of this thought can be found in the concept of job crafting. Job crafting, as a method to enhance the sense of meaning in work, essentially aligns with the classical understanding of the importance of tasks assigned to employees for their attitudes and well-being. However, it simultaneously shifts the perspective of HR practice from an organisational (where the responsibility primarily rested with the organisation and managers) to an individual one (where the significance of intrinsic motivation and employee proactivity is emphasised).

Therefore, the question arises as to whether, and if so, to what extent, these activities can be taught to employees, and to what extent an increase in knowledge and self-awareness translates into positive outcomes in terms of perceived stress and engagement. The aim of this article is to evaluate the effectiveness of interventions that enhance motivation and competencies in job crafting, as well as to identify selected factors that may influence the outcomes achieved. The realisation of this aim involved a quasi-experimental study conducted on a group of administrative employees at a private higher education institution (HEI). Such a research design not only contributes to understanding the significance of the job crafting concept for building employee well-being but also helps to reduce the knowledge gap observed in the area of implementing and measuring the effects of organisational interventions in the health domain (Basińska-Zych, Springer, 2021).

2. Theoretical background

To date, quite a number of studies on the meaning at work have identified a variety of its predictors, both those of an individual nature, e.g. job fit, sense of coherence, need for autonomy or self-efficacy (Martela et al., 2021; Schnell et al., 2013; Scroggins, 2008), and those of an organisational nature, e.g. work flexibility or the implementation of CSR concepts in organisation strategy (Akdoğan et al., 2016; Jena et al., 2019). Additionally, meaning of work has been describe as a significant predictor of numerous positive organisational attitudes, such as commitment, turnover intention, engagement, job satisfaction, and even life satisfaction in general (Allan et al., 2019; Rosso et al., 2010). Thus, it can be considered a key component of employee well-being.

The relevance of work meaning, both for the employee and the employer, is undeniable; however, the methods of enhancing the work meaning still require analysis. One of the suggested methods that help employees find meaning in their work is job crafting (JC), a concept introduced into the human resource management literature in the early 21st century by Wrzesniewski and Dutton (2001). JC not only enhances the meaning of work (Berg et al., 2008; Wrzesniewski, Dutton, 2001), but also subsequently increased engagement, satisfaction and work performance (Tims et al., 2015).

In the research on JC, two approaches can be distinguished. The first, mentioned above, identifies three aspects of JC: task crafting, relational crafting, and cognitive crafting (Rosso et al., 2010). The second approach conceptualised JC as an element of the Job Demands-Resources model (Van Wingerden et al., 2017). Both concepts are consistent in understanding its essence but approach the structuring of the process differently. In both approaches, organisational interventions based on JC have been verified as effective, regardless of the character of the tasks performed, and can benefit both clerical staff (Demerouti et al., 2020; Tims et al., 2013) and highly qualified specialists (Sakuraya et al., 2015). A broad meta-analysis published by Rudolph and colleagues (2017) identified key correlates of JC utilisation; however, examples of studies on the effects of using this concept among Polish employees are very few (Łądka-Barańska & Puchalska-Kamińska, 2022), making it reasonable to undertake research embedded in the Polish cultural context.

The ability to craft one's job is not uniform across all employees and depends on the nature of their tasks, particularly their complexity and the autonomy that allows employees to utilise various personal resources at work (Wingerden, Powel, 2018). Additionally, the use of JC also depends on individual factors. Among these, self-efficacy is notable, as this trait determines the perception of one's ability to achieve success (Bandura, 1993), as well as a proactive attitude, which enables individuals to adapt to changing environments and contribute to self-development (Bańka, 2015).

Therefore, the following hypothesis was formulated:

H1: The higher the (a) perceived task complexity, (b) perceived job autonomy, and the higher the (c) level of self-efficacy and (d) proactive attitude, the more frequently employees engage in job crafting activities.

Given that the concept of JC largely relies on the intrinsic motivation of the employee and knowledge of their personal resources (Wrzesniewski, Dutton, 2001), the potential of using workshop techniques to encourage employees to increase their interest in JC was recognised, leading to the formulation of the next hypothesis:

H2: Participation in the workshop increases the level of job crafting in terms of (a) task crafting, (b) relational crafting, and (c) cognitive crafting.

Simultaneously, considering that JC is a significant element allowing employees to better utilise organisational resources to cope with job demands (Bakker, Demerouti, 2017; van Wingerden et al., 2017), contributing to positive motivational and health-related outcomes, it was assumed:

H3: Participation in the workshop will (a) reduce stress and (b) increase engagement.

3. Methods

3.1. Research subject

The subjects of the research were, the administrative staff of the HEIs are, next to the research and teaching staff, a group that co-creates the activities of the HEIs. Their tasks include organising and supporting teaching and research activities carried out at universities. Among the motivations for taking up work at universities, administrative employees indicate: the social prestige of the university, the possibility of realising interesting projects and tasks, stability of employment, the ease of combining work with private life, and a good atmosphere at work (Anielska et al., 2020). Among the key characteristics of this work environment, the following are indicated: a low level of wages in relation to work in similar positions (e.g. customer service or specialist positions in corporations), the predominance of non-wage motivation (e.g. subsidised education, language courses), a relatively low level of control, the lack of comprehensive solutions in the sphere of employee evaluation and development, and the great importance of informal social ties that facilitate functioning in a hierarchical environment (Anielska et al., 2020). While academics employed in non-public universities assess the organisational culture as a market culture, in the perception of administrative employees it is hierarchical in nature (Cieciora et al., 2021), indicating the different vectors of the requirements of the work environment in relation to these two groups. A hierarchical culture oriented towards subordination to procedures and maximisation of efficiency, together with the increasing

professionalization of administrative positions related to the demands placed on universities, makes administrative employees feel undervalued in university structures. It is worth noting that despite being subject to numerous procedures, the work of this group allows for a degree of autonomy, enabling them to engage in job crafting activities. Additionally, the organisation under study declares values such as openness – understood as sensitivity to expectations and needs, alertness to signals of change, adaptability, and a willingness to collaborate and engage in dialogue. These conditions make the chosen university environment suitable for conducting a controlled organisational intervention in job crafting.

3.2. Research procedure

The study was conducted using a quasi-experimental design. The research procedure received positive approval from the ethics committee of the WSB DSW Merito Scientific Federation and included the following steps:

- (1) Invitation to Participate: An invitation to participate in the project was sent to administrative employees (excluding managers) in the surveyed HEIs (November 2023). In this phase, participants were informed about the study's purpose and process, as well as its voluntary nature. Participants were asked to consent to participate by checking a box on the registration page. Out of 95 employees in these positions, 44 agreed to participate.
- (2) Initial Diagnosis (Pre-test): All individuals who signed up for the project completed psychometric questionnaires (November 2023). To assess the level of job crafting, the Polish version of The Job Crafting Questionnaire (Kasprzak et al., 2017; Slemp, Vella-Brodrick, 2013) was used. The level of perceived stress at work was measured using the PSwP scale (Chirkowska-Smolak, Grobelny, 2016), engagement was assessed using the UWES scale (Schaufeli, Bakker, 2003), proactive career behaviours were measured with the Proactive Career Behaviours Scale (Bańka, 2016), job self-efficacy was assessed using the SVOSES scale (Baka, Grala, 2022), and perceived autonomy and task complexity were measured with selected scales from the Job Characteristics Questionnaire, following two independent translations.
- (3) Division of Employees into Two Groups: Participants were divided into two groups: the intervention group, which participated in the workshops, and the control group.
- (4) Workshop Implementation: Workshops for the intervention group were conducted at the end of November and early December 2023, divided into two subgroups ($n_{i1} = 11$ and $n_{i2} = 12$ participants). The workshops lasted 6 hours and focused mainly on analysing the possibilities of adding meaning to tasks that might be perceived as burdensome obligations, increasing the employees' self-awareness regarding their potential, enhancing their sense of autonomy in planning and performing their duties, and developing action plans related to the physical work environment (e.g., identifying training needs, finding tasks where employees can use more of their resources), relationships (e.g., ideas for acts of kindness towards colleagues, sharing experiences),

and changes in thinking about their work (recognising and appreciating their role within the organisation in a broader context: purpose and meaning).

- (5) Measurement of Final Effects (Post-test): The effects were measured using psychometric questionnaires (job crafting, stress level, and engagement). In the intervention group, this measurement was taken twice: one week after the workshop (December 2023) and two months after the workshop (February 2024). In the control group, the measurement was taken only two months after the workshop (February 2024).

3.3. Research sample

The research sample consisted of 44 administrative employees of a higher education institution, including 2 men and 42 women, reflecting the typical employment structure within this group. The average age of the participants was 37 years, and the average tenure at the organisation was 7.8 years.

4. Results

In order to verify the first hypothesis indicating a relationship between job characteristics (autonomy and skills variety) and individual characteristics (self-efficacy and proactive attitude), a linear regression model was used in which the dependent variable was the overall level of job crafting. Analyses was made based on pre-test results taken at time T_0 (Table 1). Significant predictors of job crafting were self-efficacy ($\beta = 0.46$ $p < 0.01$) and proactive attitude ($\beta = 0.43$ $p < 0.01$), the other predictors were found to be insignificant. The model is a good fit to the data $F(2,42) = 24.75$ and explains 55% of the variance ($R^2 = 0.55$). These results support the hypothesis 1 only for its parts c and d.

Table 1.

Mean, standard deviation and Pearson's correlation coefficients for the variables at time t_0 ($n = 44$)

	M	SD	1	2	3	4	5	6	7	8	9
1-JC tasks	20,5	5,4	1								
2-JC thinking	21,3	5,2	0,393**	1							
3-JC relations	19,9	5,3	0,368*	0,187	1						
4-JC general	61,7	11,7	0,801**	,707**	,705**	1	,				
5-autonomy	3,6	0,8	0,238	,362*	0,185	,353*	1				
6-skills variety	3,7	0,9	0,372*	0,296	0,103	,349*	,432**	1			
7-self-efficiency	25,7	5,3	0,544**	,435**	,395**	,621**	,556**	0,283	1		
8-proactivity	40,1	10,3	0,597**	,330*	,396**	,600**	0,040	0,091	,365*	1	
9-engagement	3,7	1,0	0,449**	,500**	,300*	,563**	,315*	,329*	,491**	,318*	1
10-stress	17,5	8,1	0,000	-0,108	-0,170	-0,124	-,341*	0,044	-0,272	-0,027	-,392**

M – mean SD – standard deviation; * p value 0.005 ** p value <0,01.

To verify Hypothesis 2, analyses were conducted to examine changes in job crafting (JC) within the intervention group across three time points: t_0 , t_1 , and t_2 (Table 2). Subsequently, differences between the intervention and control groups in JC changes from t_0 to t_2 were compared (Table 3). It is important to note that prior to analysing the significance of differences between the intervention and control groups, it was established that there were no significant differences in JC between the groups at t_0 . In this analysis, JC levels within the intervention group were assessed at three distinct time points. The mean and standard deviation were calculated, and paired T-tests were performed to determine the significance of changes in JC over time.

Table 2.

Mean, Standard Deviation of JC Scores in the Intervention Group, and T-Test Results for Dependent Samples ($n_i = 23$) at t_0 , t_1 , and t_2

	t_0		t_1		t_2		Δt_1-t_0	p	d	Δt_2-t_0	p	d
	M	SD	M	SD	M	SD						
1-JC tasks	18,9	6,3	19,2	5,3	16,6	6,9	0,38	0,31	0,11	-2,57	0,058	-0,34
2-JC thinking	20,7	5,5	21,5	5,5	18,0	7,9	0,86	0,09	0,30	-3,04	0,016	-0,48
3-JC relations	19,8	5,3	20,0	5,9	18,4	6,5	0,29	0,35	0,08	-1,39	0,114	-0,26
4-JC general	59,3	12,7	60,8	12,1	53,0	19,8	1,52	0,14	0,24	-7,00	0,026	-0,43

M – mean, SD – standard deviation.

One week after the workshop, participants had slightly higher levels in terms of JC, but the differences were not statistically significant. After two months, the results decreased significantly, and the extent to which JC was used decreased significantly, especially in terms of thinking about work. Being aware of the complexity of organisational processes that may be relevant to the activities undertaken by employees, in order to assess the role of the workshop, the significance of the differences in the extent to which participants from both groups changed in terms of JC was compared.

Table 3.

Changes in the level of JC in the intervention ($n = 23$) and control ($n = 21$) groups between time t_2 and t_0 , Student's t-test result for independent variables

	M(t_2) – M(t_0)		p-value	d Cohen
	Intervention group	Control group		
1-JC tasks	-2.57	-6.43	0.03	0.58
2-JC thinking	-3.04	-7.10	0.02	0.62
3-JC relations	-1.39	-2.43	0.26	0.20
4-JC general	-7.00	-15.95	0.03	0.58

As in the intervention group, decreases in JC were also observed in the control group, but it should be emphasised: that in the case of the control group, these decreases were significantly higher than those observed in the intervention group. Thus, although there is no basis to support hypothesis 2 given the results obtained, at the same time a ‘buffering’ effect of the intervention can be observed to protect against a decrease in JC.

The third hypothesis was the effect of participation in the workshop on the employee's level of engagement and stress. This was verified by assessing the difference between the change in levels of engagement and perceived stress at work (Table 4).

Table 4.

Changes in the level of engagement and stress in the intervention ($n = 23$) and control group ($n = 21$) between time t_2 and t_0 , Student's t -test result for independent variables

	$M(t_2) - M(t_0)$		p-value	d Cohen
	Intervention group	Control group		
engagement	0.36	0.01	0.11	0.36
stress	4.39	5.48	0.65	-0.14

The intervention group experienced increased stress and engagement between November 2023 (t_0) and February 2024 (t_2), while the control group only experienced increased stress. For both variables, the differences between groups were statistically insignificant, which does not support hypothesis 3.

5. Conclusions

The project was a pilot study and was the first quasi-experimental attempt to put into practice an organisational intervention aimed at increasing the level of JC by university administrative staff. The results partially supported H1 (points c and d) and showed that the level of job crafting is related to individual characteristics such as self-efficacy and proactive attitude. In contrast, it does not depend on job characteristics such as autonomy and skill variety. However, it should be borne in mind that the employees participating in the study got hired in very similar positions, hence both variables had relatively low variation. Thus, although the research indicates the greater importance of individual factors over job description factors, given the pilot nature of the study, the discussion in this regard should still be considered open. In the case of intervention outcomes, the analysis of the results did not support hypothesis 2, but this situation is more complex. After minor positive changes in JC immediately after the workshop, there was a decrease in JC after 2 months however significantly greater in the control group. The conclusion that emerges from this analysis indicates that there were external factors in the work environment that significantly discouraged employees from undertaking JC. Interviews conducted with managers in February 2024 revealed that during the project, employees were informed about the amount of their pay raises. These raises were anticipated by the employees; however, their magnitude did not meet their expectations, given the country's economic context (including the government-announced increase in the minimum wage and the inflation rate). It can therefore be assumed that the measurement at time t_2 (February 2024)

captured fresh disappointment with the level of raises, including a sense of relative income deprivation (Dudek, 2013).

The second observation concerns the fact that those who participated in the workshop experienced this decline to a lesser extent. It can thus be presumed that the workshop played a role in maintaining the level of job commitment (JC) despite unfavourable organisational conditions. Although there is no basis for accepting hypothesis 3, a connection between JC and the level of engagement can still be observed, including the significance of the workshop in sustaining this engagement. No such relationship was observed in the case of perceived stress.

In summary, it should be emphasised that research into the possibilities afforded to employees and their organisations by conducting JC workshops should continue. The obtained results, although not providing unequivocal answers in many areas, nonetheless reveal the potential inherent in both JC and the significance of organisational interventions. It should also be remembered that a significant limitation of the conducted research is the specific occupational group that was studied. Therefore, it is necessary not only to verify the obtained results among employees of other universities but also in different types of organisations. This would allow an assessment of the extent to which organisational interventions in the form of workshops can be helpful in building well-being, independent of organisational culture and the nature of the work performed.

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THE IMPACT OF MACROERGONOMIC FACTORS ON ORGANIZATIONAL RISK IN PRODUCTION SYSTEMS – PRELIMINARY ANALYSIS OF THE RELATIONSHIP

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Purpose: The aim was to indicate to decision-makers the factors that should be given the most attention so that the level of macroergonomics is as high as possible, while reducing the level of organizational risk.

Design/methodology/approach: The article presents the concept and functions of macroergonomics, as well as organizational risk. A literature review was performed in an attempt to identify the areas of influence of these elements as precisely as possible. Then, an attempt was made to conduct a preliminary analysis of the connections between both factors in the organization's activities, with particular emphasis on the production system.

Findings: As a result of the analyses, organizational preparation of production was considered an important element. At the same time, when analyzing impacts, the level of sustainability seems to be an often influencing element. These factors have an inversely proportional impact on organizational risk. At the same time, the impact of the organization's vision and mission on proactive organizational risk management was identified.

Research limitations/implications: The research is a preliminary analysis. It is necessary to continue to identify influence factors and the connections between factors, as well as to assess their strength and time perspective of influence.

Practical implications: Macroergonomics, as well as risk management, are an important aspect in the conscious management of the production system. The article presents the concept and functions of macroergonomics, as well as organizational risk. The results of the study will allow for a broader view of business management issues and support for appropriate areas of influence.

Social implications: Conducted research at a further stage may support the implementation of macroergonomics in work systems by influencing the identified impact factors. Thus, they can support the proper design of production systems that take into account the human factor and its specificity.

Originality/value: Searching for connections between macroergonomics and organizational risk in production systems.

Keywords: macroergonomics, organizational risk, production systems, network thinking methodology.

Category of the paper: Research and conceptual paper.

1. Introduction

The modern situation of enterprises focused on global competition makes it necessary to proactively manage business risk in order to prevent undesirable situations and at the same time take advantage of the opportunities arising from the changing reality. At the same time, an aging society and the need to compete for the best employees. The ergonomics of a single workstation may not be enough, hence the need to look at the production system as a whole, which must be not only functional and harmonized with each other, but also optimal and synergistic (Wyrwicka, 2003). Hence, at the organizational level we should talk about macroergonomics.

At the same time, it should not be forgotten that the introduction of both ergonomics and a risk management system generates costs in the company. Therefore, the authors decided to analyze the relationships between these issues, looking for factors that may influence each other in a direct proportional (+) or inverse proportional (-) way. This may allow you to identify elements that will allow for better implementation and/or support of both issues within the operation of production systems.

Also from the point of view of meeting legal and normative requirements, both ergonomics and risk management are activities that are indicated not only in legal regulations (e.g. in the Labor Code - ergonomics, in CSRD - risk management and the social area, which may also concern care for the health and life of employees). Therefore, these activities should be treated as a long-term investment that allows you to obtain not only image-related benefits, but above all financial ones - resulting from a more conscious and efficient management of available resources (Dragun).

2. Production systems and its influences

The production system is defined as separate elements within production activities that interact with each other and may be in relationship with the environment (Bertalanffy, 1984, p. 68). It is considered to be purposeful and organized in the material, information and energy spheres. Moreover, it is exploited by humans for the production of specific material products in order to meet the needs of consumers (Kawecka-Endler, 2004; Stasiuk-Piekarska et al., 2020). Mazurczak believed that it is "static and dynamic combinations of teams transforming inputs (processes, work items, means of work, information) into outputs", which are in the form of a material (products) or immaterial form (services, information) (Mazurczak, 2002, p. 7). Moreover, Lis and Fertsch emphasize that production systems are an entity within which appropriate labor resources are grouped, such as: machines, devices, tools or installations, and human resources - labor, for the purposes of transforming objects at work in the form of

input materials, into products that are output elements (Lis, 1982; Fertsch et al., 2011). The aim of the above is to meet the customer's needs in a satisfactory manner (not always to the highest degree) (Józefowska).

The Nadler work system model can also be a description of the production system which includes (after: Rzeszotarska-Wyrwicka, 1995):

- tasks resulting from the function or purpose for which the system was created;
- input elements such as: work items, information, media, disposable tools, auxiliary materials;
- employees - as entities that often undertake activities on their own or activate passive elements of the system;
- a work process (e.g. production) that enables the transformation of input elements into output elements, this may involve the use of know-how or the selection of the optimal technology in terms of the adopted criteria;
- means of work such as: infrastructure and permanent equipment;
- output elements, including products, waste, feedback;
- interactions with the environment - closer (working conditions) and further (other departments, suppliers, cooperators, recipients...).

All elements of the production system interact with each other. It is worth noting that the production system is an open system because it is influenced by external factors. From the point of view of risk management in production systems, they are an important element because managers do not always have influence on them or are able to eliminate the effects of their impact (Stasiuk, Werner, 2012). Figure 1 shows the production system model adopted for the purposes of this work.

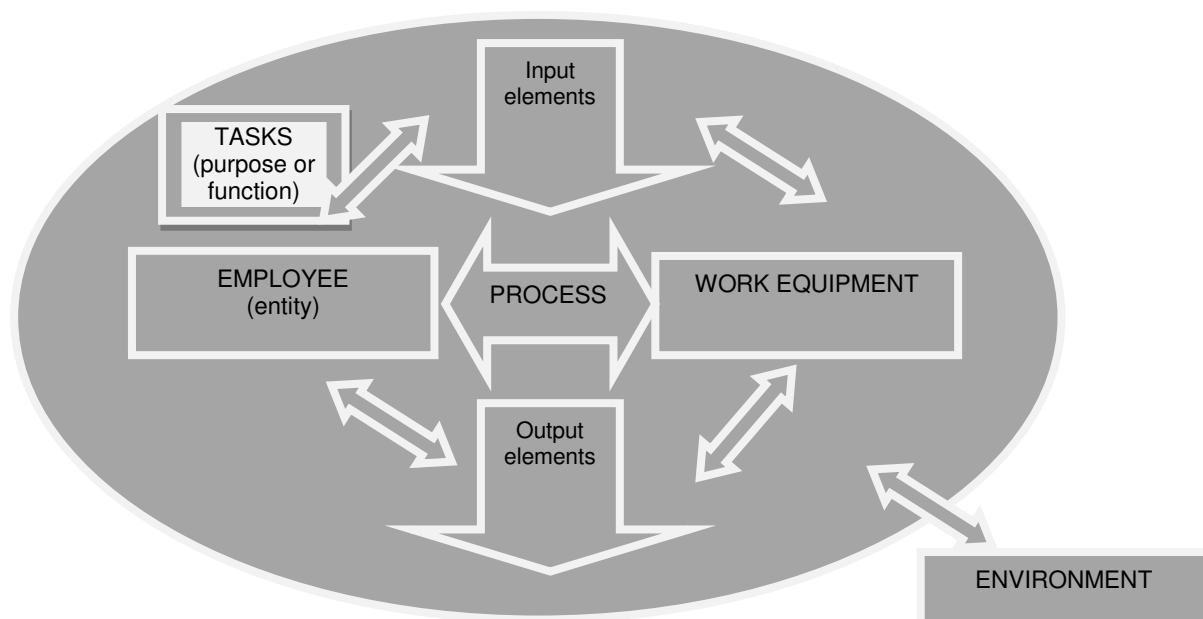


Figure 1. Production system according to Nadler's concept (1967).

Source: Rzeszotarska-Wyrwicka, 1995, p. 7.

Analyzing subsequent impacts on the production system, one also notices the impact of organizational and production conditions affecting the production structure, as well as the control system and the methods, technologies and information systems used in its operation (Senger, 1998). In terms of the tasks performed, the elements of the system create its structure reflecting the way they are divided, as well as the deliberately established relationships between them - it should be strived for it to display the features of an organized whole (i.e. functionality, optimality, harmony and synergy). It should also be noted that the conditions organizational and production factors constitute an element determining the level of work safety, and to a narrower extent, work ergonomics - both of an individual workstation (microergonomics) and in the context of the entire production system - macroergonomics.

H.W. Hendrick distinguished three stages of the development of ergonomics. He is the creator of the term macroergonomics - this phrase was first used in the article *Macroergonomics: A Concept whose Time has Come* (1987). Three stages of ergonomics are described there - the first two concern microergonomics, and the third - called "macroergonomic design". An industrial enterprise was considered the object of design. It is treated as a system whose internal structure and internal structure depend on the external environment. It is assumed that "it is impossible to prepare a good microergonomic design and at the same time achieve high system efficiency without taking into account the macroergonomic dimension" (Jasiak, 2016). As part of macroergonomics, attention was drawn to the need to assess the organization from top to bottom, a systemic approach to enterprises, also to system design (Hendrick, Kleiner, 2001; Jasiak, 2016). This principle is consistent with the praxeological approach to the system that one cannot design an organization without seeing it as a whole. It is also important from the point of view of risk management of the organization's activities. Kleiner is of the opinion that by "building upon systems ergonomics, macroergonomics provides specific and refined methodologies and tools linked to an underlying theory for work system analysis and design such as *Macroergonomic Analysis of Structure and macroergonomic analysis and design*" (Kleiner, 2023).

The most important factors that contributed to the need to isolate the concept of macroergonomics include:

- development of new technologies and increase in automation,
- aging of society in industrialized countries,
- psychological changes in the workforce,
- increase in global competition,
- limited area of microergonomics and resulting disputes regarding ergonomics (Jasiak, 2016).

Therefore, macroergonomics was created as an extension of the scope of microergonomics so that it is possible to analyze and improve a multi-object system (e.g. an organization or a production system), within which both the internal structure and internal relations depend on the external environment. As part of macroergonomic design, the entire system is analyzed, with particular emphasis on the workstations used, the people participating in it, as well as the relationships between them and with the system's environment. It seems important that it covers the entire relationship between humans and technology. They have an impact not only in the work environment, but also on the morphophysiological, social and mental sphere of man. (Jasiak, Misztal, 2004, after: Jasiak, 1983). This is especially important now, when human-collaborative robot interactions occur more and more frequently in the production system (Faccio et al., 2023).

3. Organizational risk

In various types of organizations, attention is paid more and more often and more consciously to the aspect of risk management. Referring to the definition of risk, it can be concluded that risk is present in every area of life as a result of the lack of certainty of events regarding the future. Historical references to risk date back to 1725, when R. Cantillon introduced the concept of risk and uncertainty in the context of economic thought. However, it was only in 1921 that Knight pointed out the impact of risk on the world of classical economics (Klimczak, 2008; Bochenek, 2012). It is worth noting that in 1974 Galbraith drew attention to the tasks of organizations, which involve processing information about uncertainties in the environment and taking actions to deal with them. This is referred to as the theory of organizational information processing (TOIP) (Tian, Xin Xu, 2015). The same author also expressed the opinion (1974) that the economy is taken over by large corporations, controlled by management experts who create the so-called technostructure. Its aim is to build and consolidate power, not only for profit, but mainly to ensure the continuity of operations and security of the organization (Miroński, 2007).

When analyzing risk - or, more broadly, when undertaking risk management, attention should be paid to the need to distinguish the concept of risk from uncertainty. In his considerations, Hubbard pointed out that uncertainty is related to the lack of complete certainty. It can be defined as the existence of more than one possibility and the outcomes and/or states, effects/values are unknown. Differently- Risk is also a state of uncertainty - however, due to the effects that may be associated with a specific loss, disaster or other undesirable outcomes, risk measurement will allow for the identification of a set of possibilities, where each eventuality has a calculated probability and size of losses (this is related to the probability distribution) (Hubbard, 2011). Therefore, the authors believe that risk should be considered a recognized and measured uncertainty.

Referring to the company's activities, the closest thing to its daily, ongoing activities is operational risk. It also allows you to determine to what extent the company is prepared organizationally and materially to achieve its goals (Zawiła-Niedźwiecki, 2010, pp. 153-154). Importantly, it should be remembered that when managing risk, one takes into account threats that may turn into disruptions and should mainly be analyzed in terms of not whether they will occur, but when.

However, the interaction of different levels of management (and its phases) seems to be important, most often resulting in events visible at the level of everyday, ongoing activity, hence the need to separate the concept of organizational risk (Stasiuk-Piekarska, 2017). By undertaking the process of organizing resource allocation and composing the workload, one strives to achieve the goals of the production system. However, this is related to many factors that should be treated as a generator of possible disruptions. As the rapidly changing reality has shown in recent years, in order to achieve the intended effects (or complete the assigned tasks), it is necessary to take actions to counteract disruptions or eliminate their effects in the operation of the production system. Hence the assumption that organizational risk is often associated with delays in the production system, as deficiencies in the praxiological features of the organized whole. The described concept of organizational risk is related to the creation of: structures enabling the delegation of tasks, authorizations and responsibilities, as well as the preparation of processes (also in the context of the achievements of work methods, time related to labor intensity, durability and timeliness, as well as space and information for management). It is also related to the existence of threats and disruptions that result from the lack of coordination of the operation of elements and/or functionality, optimality, harmony and synergy of the entire system. It is assumed that organizational risk can be expressed as "the product of the frequency, the dimension of consequences and the probability of occurrence of a negative event related to the rationalization of demand and composing resources necessary to produce the final product". It should also be emphasized that it is concurrent with operational risk and involves establishing basic dependencies regarding the current (short-term) activity of the production system in space and time. When analyzing the causes of failures, errors and disruptions, it is recognized that some of them will be the result of improper assignment of tasks or improperly created processes. They will occur as a result of lack of coordination in the production system. Therefore, organizational risk is related to the occurrence of disruptions related to the rationalization of demand and the composition of resources necessary to produce the final product, and additionally it is a factor that in some way reflects the operation of the production system. Organizational risk, as mentioned previously, applies to all levels of system functioning, being a broader concept than operational risk (Stasiuk-Piekarska, 2017). These considerations are presented in Figure 2.

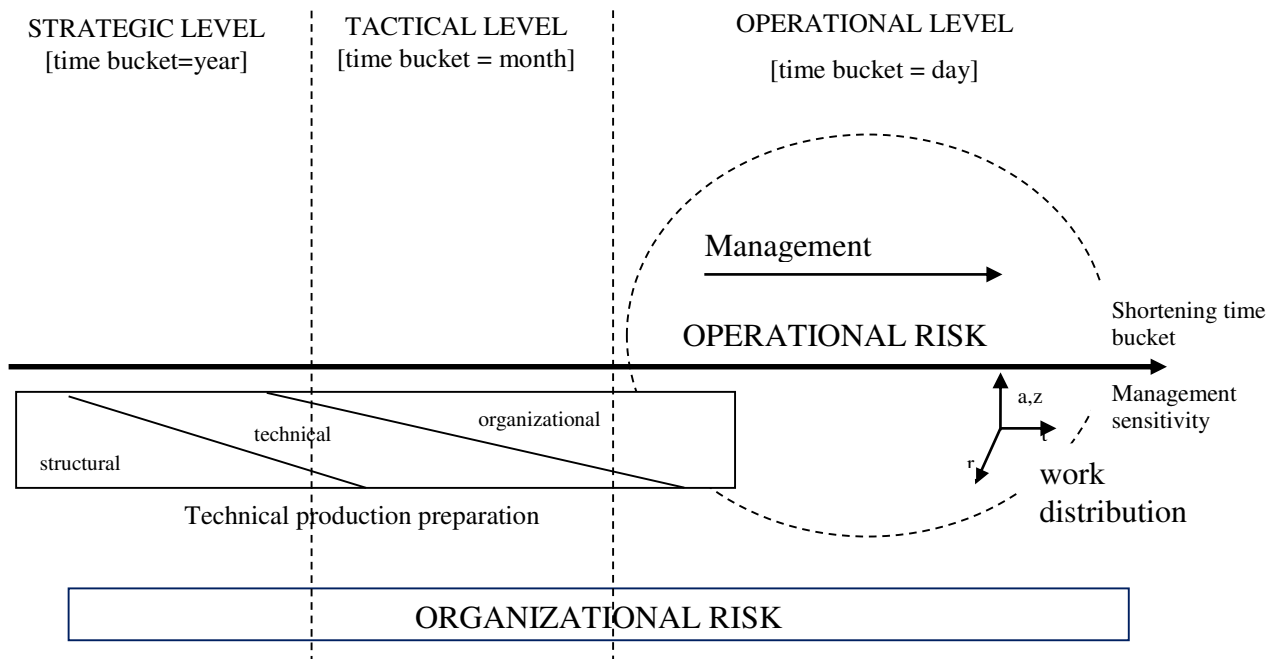


Figure 2. Organizational risk in the operation of the production system.

Source: Stasiuk-Piekarska, 2017, p. 86.

As shown in the figure, organizational risk is also related to the technical preparation of production as well as management sensitivities. Its conditions arise at the strategic and tactical level, but its existence is authenticated at the operational level. Similarly, the situation regarding macroergonomics, which mainly concerns the lowest level of management, but is created by all its levels.

Risk is also a state of uncertainty - however, due to the effects that may be associated with a specific loss, disaster or other undesirable outcomes, risk measurement will allow for the identification of a set of possibilities, where each eventuality has a calculated probability and size of losses (this is related to the probability distribution) (Hubbard, 2011). Therefore, the authors believe that risk should be considered a recognized and measured uncertainty.

Referring to the company's activities, the closest thing to its daily, ongoing activities is operational risk. It also allows you to determine to what extent the company is prepared organizationally and materially to achieve its goals (Zawiła-Niedźwiecki, 2010). Importantly, it should be remembered that when managing risk, one takes into account threats that may turn into disruptions and should mainly be analyzed in terms of not whether they will occur, but when. We should also not forget about the increasingly stronger impact of the ideas of sustainable development and occupational health and safety, which emphasize taking into account the role of the human employee in the production system (Pačaiová et al., 2024).

4. Macroergonomic influence factors in the context of organizational risk

To analyze the impact of factors of influence between macroergonomics and organizational risk, a scheme was created covering the connections of the above-mentioned spheres with each other. It should be emphasized that the previously mentioned work system, which is the production system, should be considered as a sociotechnical system. It includes the technology used in the organization, the human resources system, and the external environment. From the point of view of macroergonomics, technology - as an element determining the structure of the work system - can be analyzed according to:

- production method or production technology,
- actions that individuals take in relation to an object in order to change it, or to a knowledge-based technology,
- degree of automation.

The description of the above elements allows for the creation of the main model defining the relationship between technology and organizational design (Jasiak, 2016). In manufacturing enterprises, where a strong interaction between technology, organization and the human factor is identified, Computer-Integrated Manufacturing, Organization and People (CIMOP) may be helpful, serving for the IT integration of the above areas for design purposes (Karwoski, Kantola, Rodric, 2002). This method allows for support in cognitive processes in the field of change management in the work environment, among others: assessing the effectiveness of changes through simpler identification of problems, motivation to implement changes or description of the work system model (Mrugalska, Sławińska, 2014).

Looking for factors that link macroergonomics and organizational risk, the authors decided to use a simplified map of network thinking. The network thinking map was developed on the basis of the network thinking methodology (more: Piekarczyk, Zimniewicz, 2010). It is presented in Figure 3.

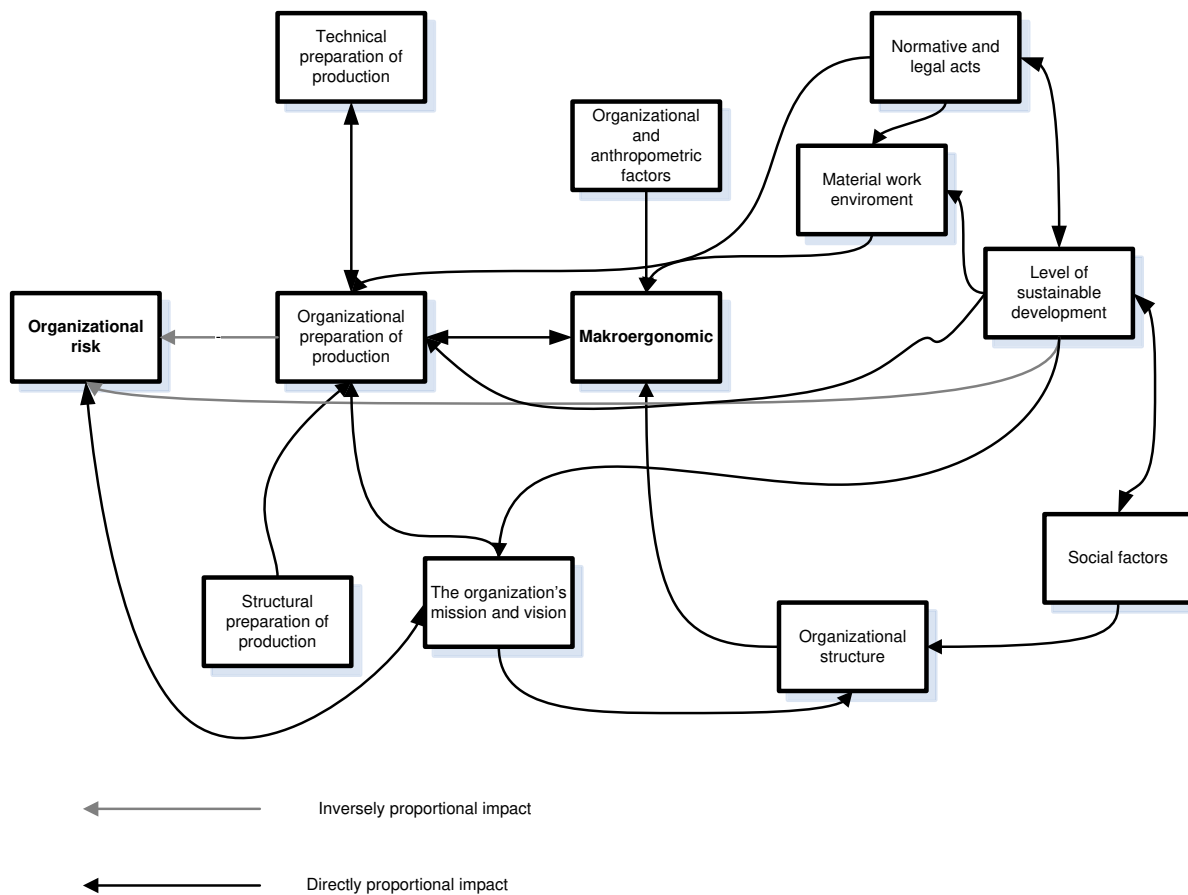


Figure 3. Preliminary analysis of the connections between macroergonomics and organizational risk.

Source: own study.

Analyzing the connections between the factors, 12 factors were identified, deliberately omitting those related to the adopted business strategy, industry or size of the organization, as elements that translate into the mission and vision of the organization, technical, construction and organizational preparation of production. It was assumed that the impact may be directly proportional (black arrow) or inversely proportional (gray arrow), unidirectional or bidirectional. Since this is a preliminary analysis, not all elements and connections can be included, but it should be noted that an important element subject to frequent influence is the organizational preparation of production. At the same time, when analyzing the influences, the level of sustainable development seems to be an often influencing element - as a factor that is strongly supported by international standards and legal acts. Both of the above-mentioned factors have an inversely proportional impact on organizational risk (the higher the level of sustainable development, the lower the level of organizational risk, also the higher the level of organizational production preparation, the lower the level of organizational risk). At the same time, the impact of the organization's vision and mission should be emphasized - it can be assumed that proactive organizational risk management will have a positive impact on the decisions that will be made in setting the course of action for the entire organization. Conversely, the way and conscious (or less conscious) setting of the mission and vision in the

company may influence the level of organizational risk. When drawing conclusions about macroergonomics, we can also note that its level depends on many factors, however, it was assumed that the main connection and possibility of influencing organizational risk is the factor related to organizing the production process (which is, in a sense, a catalyst for other factors in the analyzed issue).

5. Summary

In the context of current activities aimed at structuring ISO management standards and the resulting need to manage risk (understood both as opportunities and threats - according to the principle that unused opportunities take revenge), as well as legal solutions leading to the implementation of the ESG standard in the field of sustainable activities, it is noted that not only risk management is important, but also care for the employee's well-being.

Macroergonomics is a field that studies various types of interactions between an employee and the entire organizational context for the purpose of creating a work environment that will promote employee health, productivity and satisfaction. By analyzing organizational structures, organizational culture, decision-making processes and other elements, it can have a positive impact on reducing the level of organizational risk. This is done by improving interpersonal relations, taking into account organizational aspects at all levels of management, with particular emphasis on the operational level, as well as improving the economic aspects of processes. It is assumed that conscious influence on both spheres can reduce the number of errors in implemented processes, which may ultimately translate into a higher degree of competitiveness of enterprises.

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IDENTIFICATION OF ACADEMIC TEACHER COMPETENCIES USING CRITICAL INCIDENT TECHNIQUE

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Purpose: the aim of this study is to show the possibility of using the critical incident technique (CIT) to identify the competence needs of academic teachers.

Methodology: Interviews with academic teachers using the CIT allowed us to confirm the importance of substantive and methodological competencies.

Findings: It has been shown that CIT provides the opportunity to identify the competencies of an academic teacher while also indicating the importance of personal and psychological competencies.

Research limitations: the CIT only allows for qualitative research to be conducted. Pointing to the limitations of the conducted research, it is worth mentioning the number of respondents, the lack of the differentiation of the respondents due to seniority or the positions that they held. To confirm the obtained results, it would be worthwhile to conduct research in a quantitative model on a much larger sample of subjects. The results of such an analysis could be verified by a list of competencies of academic teachers that is established using the CIT. Quantitative analysis is a future direction of research.

Practical implications: the analysis of the obtained empirical material emphasized the importance of the psychological competencies of academic teachers. The results of the research indicated possible competence gaps of academic staffs related to their abilities to cope with difficult situations that resulted from work at a university. In the light of the obtained results, it is necessary to consider the possibilities of developing a group of psychological competencies so that activities that support teachers in this area can be implemented at the organizational and university levels. Such support would strengthen the future teachers' abilities to react positively in difficult situations and would also act as an intervention in the event of a situation that exceeds the employees' abilities to cope independently. The importance of a clear system of procedures is also important here; this would support academic teachers – especially in crisis situations.

Originality/value: the results of the research indicated the usefulness of the CIT in diagnosing the competencies of academic teachers. The article shows the importance of psychological competencies for the role of an academic teacher. The article is addressed to both academic staffs and university authorities.

Keywords: critical incident technique, academic teacher, competencies, psychological competencies.

Category of the paper: Research paper.

1. Introduction

An academic teacher must usually reconcile two roles in his/her work. On the one hand, he/she is required to be a good teacher, and on the other hand, a good scientist. In addition, recent years have brought dynamic and difficult changes in the environment, which also affect the work at universities. The pandemic period forced everyone to isolate, which resulted in the sudden need to conduct classes remotely; also, the outbreak of war in Ukraine caused an influx of immigrants (including students with significant emotional baggage). It is obvious that this instability of the modern world (fear for the future) has not been without impact on the mental conditions of students. All of this (including the generational and legislative changes in the requirements for academic teachers) has also had an impact on the work of an academic teacher. Undoubtedly, substantive and methodological competencies are the basis of a teacher's work, but the question of whether these significant changes in the environment have affected the competence needs of teachers has also become important.

The aim of this study is to show the possibility of using the critical incident technique (CIT) to identify the competence needs of academic teachers. In pursuit of this goal, the following research questions were posed:

- Does CIT provide the possibility of identifying the competencies of an academic teacher?
- To what deficiencies in their own competencies do academic teachers' pay attention?

2. Competencies of academic teachers – theoretical introduction

In the scientific literature, a whole range of definitions of competence can be found; however, most authors point to three main components (knowledge, practical skills, and specific personality traits) that are expected in the profession of a teacher (Czerepaniak-Walczak, 1997; Olczak, 2009; Żeber-Dzikowska, Wysocka-Kunisz, Muchacki, Bernatova, 2014; Szydłowska, 2016; Śliwa, 2017). The most problematic component of teaching competence seems to be the one that refers to a teacher's attitude or psychological predispositions to perform professional work.

In the literature, competencies are divided into different types or areas. The most common division includes substantive competencies (which concern the issues of the subject that is taught) and didactic and methodological competencies (which concern the teacher's and students' skills, i.e. methods and techniques of teaching and learning). The third type is educational competencies (which concern the various ways of influencing pupils); these include communication skills, networking, the problem-solving skills of a given developmental age, etc. (Taraszekiewicz, 2001).

A slightly different division of teacher competencies was presented by Denek (2008); it distinguished praxeological, communicative, collaborative, and creative competencies. On the other hand, Kwaśnica (2003) divided the teacher's competencies into two groups: methodological competencies (i.e. the ability to act according to the rules that define the optimal order of pedagogical activities), and implementation competencies (i.e. the ability to choose means and create conditions that are conducive to achieving goals). Oleksyn (2014) distinguished the key competencies of an academic teacher as well as those competencies that are called second-order competencies (which are equally important in the work of a teacher). The key competencies include up-to-date knowledge in the fields to which employees devote themselves: creativity and innovation, the effectiveness of activities and the ability to achieve goals, and pedagogical competencies (i.e. the ability to methodically and interestingly transfer knowledge and interest in the subject, encourage students and learners to independent research, the use of sources, learning, and self-development, knowledge of the methodology of scientific research, and constantly improved research skills). On the other hand, second-class competencies include analytical skills, insight and inquisitiveness, diligence and perseverance, efficiency in acquiring and processing information, communicativeness, the ability to cooperate (more and more often in interdisciplinary teams), good knowledge of foreign languages, ethical conduct, care for one's health and psychophysical form, and resistance to stress. Maciejowska (2018) divided the teacher's competencies into those that are related to general didactics and subject methodology, social (interpersonal) competencies, personal competencies, and digital (systemic) competencies. The result of the analysis of teachers' competencies perceived as "dimensions of professional teaching competencies" (Stahr, 2009) was the five-element structure of competencies by Sajdak (2015). According to this, the dimensions of the competencies of an academic teacher were didactic competencies (related to general didactics), methodological competencies (related to subject didactics), social competencies (related to the development of interpersonal skills), systemic competencies (related to procedures at a given university), and personal competencies (related to self-awareness in the role of an academic teacher).

Muchacki and Bernatova (2014) emphasize that, in addition to substantive competencies such as knowledge and experience, specific psychological predispositions (personal culture, responsibility for the upbringing of children and young people, respect for the student, recognition, and even the possibility of creating a proper positive image of both oneself and the educational institution) are also extremely important.

The works of authors who have dealt with the subject of academic teachers' competencies have primarily indicated the essence of didactic and methodological competencies. On the basis of the above considerations, it can be concluded that it is the subject knowledge (i.e. the substantive aspect) that is the key element of the characteristics of an academic teacher. Methodological preparation also plays an important role. These competencies include the motivate students to work, pass on their passions, set diverse tasks for students, encourage

independent thinking and decision-making (Maciejowska, 2020). However, a competent teacher is not only one who constantly improves his/her general and specialist knowledge and is able to apply various teaching methods in an effective way; the teacher should also be a role model for students. The teacher should be able to build close contact with them, while maintaining a professional distance. However, it is interesting to ask whether the application of CIT will confirm the set of competencies of academic teachers that have been indicated by researchers or whether it will allow attention to be drawn to a different group of competencies – the need for which being reported by the interested parties themselves.

3. Critical Incident Technique (CIT)

Currently used in management practice for work analysis, CIT was first described in 1954 by the American psychologist Flanagan (1954) in the article “Critical incident technique”. In his article, Flanagan pointed out that CIT was actually a set of procedures for directly collecting data on observations of human behaviour (incidents). The author’s assumption was that it was to be implemented in such a way as to facilitate the potential usefulness of the collected observations in solving practical problems and developing general psychological principles. An incident was understood to mean any observable human action that was, in itself, complete enough to allow for inference about the consequences of that behaviour as well as the person who performed the action.

It is important in the analysis of critical incidents that they relate to real events that occurred in the past. Critical incidents should relate to situations in which a given employee has taken some action or made a decision. In this context, stimuli are also important, i.e. events or the behaviours of other people that caused a specific reaction. The decisions that were made should reflect the job-specific requirements: knowledge, skills, abilities, and other characteristics and should be of a conscious nature; also, the subject of the incident should know for what purpose and why he/she made the decision. It is necessary for the critical incident to clearly indicate what the end result of a certain decision in a given situation was, whether it was a positive or negative outcome. In the process of generating critical incidents, experts (i.e. people from whom incidents are obtained) can only be people who have current or past experience related to a given position (Prokopowicz, Żmuda, Król, 2014).

CIT seems to be particularly important for the processes of identifying employee competencies, as it focuses directly on capturing and describing behaviours that are a direct observable expression of the employee’s competencies. As Flanagan himself wrote, CIT was a set of important (although, as the author emphasized, flexible and modifiable in order to adapt to a specific situation) rules and procedures related to the analysis and synthesis of observations. The procedure that was proposed by Flanagan (1954) assumed the use of five steps:

1. Setting the goals of the studied/analysed activity.
2. Preparation of the research plan: determining the types of situations to be observed, determining the importance of the situation for the general objective, and deciding who will make the observations. Flanagan emphasized that, in the CIT survey, the sample size did not depend on the number of participants but more on the number of critical incidents that were observed or reported and whether these incidents constituted an appropriate scope of the audited activity.
3. Data collection (which can be carried out through individual or group interviews as well as with the use of questionnaires and behaviour registration forms).
4. Data analysis – categorize the taken observations.
5. Interpreting the collected data and reporting.

In order to maintain the methodological correctness of the technique that is used, it is important to carefully follow the established and robust method of qualitative research (see Glinka, Czakon, 2021). Currently, it is increasingly visible that researchers focus not only on the retrospective description of the behaviour itself but also on the thoughts, feelings, and reasons why the participants behaved the way they did, i.e. on focusing on what the person did, why they did it, and the result of their actions (Butterfield, Borgen, Amundson, Maglio, 2005). This is particularly important for identifying and understanding the key competencies that are needed by an employee in a given position; hence, the analysis of critical incidents is successfully used in work analysis (Chell, 1998; Stitt-Gohdes, Lambrecht, Redmann, 2000). CIT seems to be a useful technique for identifying the competencies of academic teachers. Its value stems from the ability to recognize, categorize, and analyse the employee's behaviour in specific everyday professional situations while performing authentic tasks. A technique based on the actual experience of employees allows one to capture the competencies of an "action" and in the context of their usefulness in a specific organization. The fact that the research takes place in the natural environment of the respondents makes it easier to formulate conclusions and recommendations – for example, in the area of development activities for employees (Cisek, 2017). What is more, by attempting to reconstruct episodes from the employee's professional life that were undertaken in the faces of various professional challenges, CIT makes it possible to reach the so-called hidden knowledge (Polanyi, 1958) or practical "how-to" knowledge (Wagner, 1987) that seemed to be involved in the case of making decisions on how to act in difficult situations (Prokopowicz, Źmuda, Król, 2014); this can undoubtedly be discussed in the context of the work of academic teachers.

4. Research method

The methodological guidelines that were proposed by Flanagan and other researchers were applied to the research (Flanagan, 1954; Butterfield, Borgen, Amundson, Maglio, 2005; Krzyżanowska, 2000; Prokopowicz, Żmuda, Król, 2014):

1. The aim of the research: identifying the competencies of academic teachers by reaching everyday events and situations that are related to the performance of their professional roles by the respondents.
2. Research plan: the respondents were 20 academic teachers who actively implemented didactics with a minimum of 10 years of work experience. The respondents represented two universities in Krakow and were employed at different faculties. The respondents possessed doctoral or professorial degrees. The study involved ten women and ten men. The conversation with each teacher lasted about one hour. The recorded incidents concerned situations when the teacher carried out tasks that were defined for the area of didactics. The study collected 56 incidents; after the first verification of their quality (completeness of the incident), 50 were used for the final analysis.
3. Data-collection procedure: data collection was carried out through face-to-face interviews that were partially standardized. The instructions for the interview included the following:
 - a. informing the respondents about the purpose of the research and presenting the main assumptions of the critical incident technique – participants learned that the purpose of the interview is to collect information in order to understand the specifics of the work of an academic teacher (with a particular emphasis on situations with which the respondent has difficulties at work).
 - b. instruction on CIT – the participants were informed that the interview would be entirely focused on questions about specific situations that happened to them at work; they were asked to give specific examples. The respondents were warned that, for this purpose, the researchers could ask a number of detailed questions about the description of the situation, such as the description of the event, the time and place, the people, the sequence of events, and the reaction of the people who were involved in these situations.
 - c. Main questions - the aim was to obtain the most complete description of critical incidents; the interlocutors were encouraged to develop topics that they themselves considered important. The respondents were asked:

“Please describe the situation related to the work in a given position:

 - that was a difficult situation but you felt that you had handled it well,
 - in which you realized that something could have been done in a different and better way”.

4. Analysing data – results.

- a. The pre-selection of incidents: the incidents were assigned to categories that reflected the types/aspects of those tasks that were related to the work of an academic teacher. The categories were created by the authors of the article on the basis of a qualitative analysis of incidents. Analysing the respondents' statements, the authors assigned incidents to areas that were related to the didactic work of an academic teacher. The following categories were distinguished: preparing classes, conducting classes, evaluating students' work, being evaluated by students, working with diploma students, organizing one's own work, organizing events for students outside the designated frameworks of the classes, cooperating with the administrative units at the university, and coping with crisis situations that were psychologically difficult.
- b. The next step was to re-analyse, organize, and group the incidents into categories and then assign competencies to them. At this stage, the authors worked independently in order to increase the reliability of the conclusions; then, the results of the work were compared.

5. Results of own research

The results indicated the important role of psychological competencies in the work of academic teachers. The surveyed teachers described their experiences in didactic work, which mostly concerned descriptions of difficult incidents as well as those in which they did not assess their behaviour as being optimal but, on the contrary, there was a reflection on some competence deficit or whether it was not accompanied by competent behaviour despite the awareness of the desired action.

The most represented group in the research were those incidents that described the difficult attitudes of students for teachers; in the perception of the teachers, these were related to the lack of respect, the lack of respect for university rules, and the entitlement of the students. Optimal responses in such situations implied the need to have not only substantive and methodological competencies but also psychosocial competencies such as coping with stress, self-confidence, assertiveness, and accepting or providing difficult feedback.

Another group of incidents consisted of crisis situations (difficult ones) that had occurred both during and outside the classroom. These events were most often related to the personal situations of the students, including their private problems, mental conditions, and lack of support from their relatives. In the face of these difficult crisis situations, optimal interventions and behaviours of educators require highly developed personal/psychological and social competencies.

Among the incidents that were widely represented in the respondents' statements were situations that were related to the provision of feedback and the evaluations of students' work as well as those that the students made of their teachers. Here, the respondents pointed out the high sensitivity of students to negative feedback, hostile reactions, questioning the legitimacy of grades, and behaviours that devalued the lecturers' work (expressed directly or through anonymous evaluations or in the forum of academic communities).

The results of the studies that were described above are presented in Table 1.

Table 1.

Categories of critical incidents along with assigned competencies of academic staffs

Competence	Categories of critical incidents
1. Coping with stress	1, 2, 3, 4, 5, 6, 7, 8, 9
2. Assertiveness	1, 2, 3, 4, 5, 6, 7, 8, 9
3. Giving and receiving feedback	1, 2, 3, 4, 5, 6, 7, 8, 9
4. Communicativeness	2, 3, 4, 5, 6, 7, 8, 9
5. Confidence	1, 2, 3, 4, 5, 6, 7, 8, 9
6. Empathy, social sensitivity, support, tolerance	2, 3, 4, 5, 6, 8, 9
7. Continuous learning	1, 2, 3, 5, 6, 9
8. Work-life balance	2, 3, 4, 5, 6, 7, 9
9. Motivating students	2, 3, 5, 6, 7, 8,
10. Self-motivation	1, 2, 3, 4, 5, 6, 7, 8, 9
11. Conflict resolution	2, 3, 4, 5, 6, 7, 8, 9
12. Knowledge of procedures	1, 2, 3, 4, 5, 6, 7, 8, 9
13. Substantive competencies	1, 2, 3, 5
14. Methodological competencies	1, 2, 3, 5
15. Dealing with crisis, difficult situations	2, 3, 4, 5, 6, 8, 9
16. Working with students with special needs	1, 2, 3, 5, 8, 9

Incident categories included in the table:

1. preparation of classes;
2. conducting classes;
3. evaluations of students' work;
4. assessment by students;
5. work with diploma students;
6. organization of own work;
7. organization of events for students outside designated course framework;
8. cooperation with administrative units at university;
9. crisis situations – psychologically difficult.

Source: based on own research.

The next group of incidents consisted of work with diploma students, which generated similar issues. Academic teachers pointed to the high expectations of students; these concerned the absolute availability of supervisors, excessive involvement in writing theses, shifting responsibility, untimeliness and sensitivity to feedback, or too little independence of the diploma students. The teachers spoke about the great need for the individualization of teaching, which they have noticed in recent years among students; this translated into the expectation of the constant availability of the teacher on weekends and days off from classes. Analyses of the contents of these dilemmas indicated that such competencies as communicativeness, coping with stress, assertiveness, and self-confidence were very useful in solving them (all while maintaining empathy and sensitivity to the students' needs).

What is important and worth emphasizing is the invariably recurring difficulty in the descriptions of educators; these were often defined by their lack of skills, competence in coping with the excess of duties, and reconciling didactic work with scientific work as well as the pressure and sense of overload and difficulties with maintaining work-life balances. This almost constant element – stress, tension, overload, and often burnout – illustrated not only the competence gap but perhaps the working conditions of many academic teachers.

6. Conclusions from own research

The aim of the research was to identify the competencies of academic teachers using the critical incident technique for this purpose. The conducted in-depth interviews with academic teachers made it possible to confirm the importance of substantive and methodological competencies; also, it made it possible to indicate the importance of personal and psychological competencies.

Answering the first research question that was posed in the introduction, it has been shown that CIT makes it possible to identify the competencies of an academic teacher. CIT is a technique in which the respondent is given the floor and is followed in his/her everyday professional life. Its application allowed us to get closer to the answer to the question, which caused an increase in the importance of the personal and psychological competencies of an academic teacher.

Answering the second research question, the analysis of the obtained empirical material emphasized the importance of the psychological competencies of academic teachers. Changes at universities are generated not only by growing requirements for university employees but also by changes in education, technological progress, or the rapid pace of economic development. The COVID-19 pandemic, armed conflicts (especially the war in Ukraine), and energy and environmental crises are factors of direct and indirect impact on the academic community. These cause stress, a sense of threat, anxiety, uncertainty, and isolation, and they significantly affect the deterioration of one's mental condition.

What most incidents have in common are the interpretations that are made by educators who pay attention to several issues. The first one concerns the impact of the current situation in the world as well as the events of previous years that have contributed to the decline in the mental well-being of students and changes in their behaviours, motivation, levels of sensitivity, and resistance to difficult situations; these directly affect their behaviours at universities. These changes, which are reflected in the professional dilemmas of academic teachers, are also a reflection of two models that have been presented in the literature: VUCA (Benatta, Lemione, 2014), who described the functioning of an organization under uncertain and unpredictable conditions where the excesses of information result in its ambiguity and

complexity, and BANI (Grabmier, 2020), who described the sense of uncertainty that is associated with the functioning within a reality that is fragile and full of anxiety, non-linearity, and incomprehensibility. It is worth emphasizing that this description of the reality in which an academic teacher and a student meet with mutual expectations is a potential for difficult situations to appear.

The second issue that was raised by the educators concerns the generational change – the challenges that are related to the education of the young generation. Among the many advantages of Generation Z (which currently forms the largest groups of students at universities), it is also pointed out that they find it difficult to establish interpersonal relationships (especially in direct contact outside the Internet); they experience a lack of need for authority figures (they find the knowledge that they need on their own), the inability to focus their attention, their high expectations, and their self-confidence (all while being very sensitive). This state of affairs is illustrated by the term “snowflake generation”, which describes people who do not tolerate criticism about themselves very well; this makes them easily offended (Stillman, Stillman, 2017; Nieżurawska, Karaszewska, Dziadkiewicz, 2016; Żarczyńska-Dobiesz, Chomałowska, 2014; Anisiewicz, 2023). All of these characteristics that are visible in the empirical material translate into a new model of the teacher/student relationship and become a challenge for the daily work of an academic teacher.

The third aspect that appeared in the research was the overload and excess of duties of an academic teacher (pressure on didactics on the one hand and on scientific work, organizational matters, and the internationalization of teaching on the other). This results in difficulties in maintaining work-life balances, constant tension, stress, the need for continuous learning, and difficulties in organizing one’s own work.

The answer to these challenges is the ability of academic teachers to engage; regardless of the conditions in which they work, they should perform not only a didactic function in relation to students but also an educational, developmental, and compensatory function (Jaskot, 2002).

7. Summary

The analysis indicated possible competence gaps of academic staff that were related to the ability to cope with difficult situations that were related to work at the university. The research showed that academic teachers currently point to the need to improve their psychological competencies, which determine the effectiveness of their decisions in the area of teaching. The higher their mental resilience, self-confidence, ability to cope with difficult emotions, and assertiveness in relationships with others, the greater the chances for not only efficient self-management but also shaping appropriate relationships with students.

The work of an academic teacher implies the need to cope with demographic transformations and with the conditions of permanent change while being accompanied by constant pressure to learn and acquire new knowledge. In this context, it is therefore worth considering the possibilities of developing a group of psychological competencies so that, at the organizational and university levels, activities that support teachers in this area are implemented. It is justified for universities to not only introduce training opportunities in this area (which would teach the principles of competent behaviour in difficult situations) but also offer professional and psychological support (which would strengthen the ability to respond positively to stressful situations in the workplace as well as act as an intervener in the event of a difficult situation that exceeds the employee's ability to cope). It is also important to have a clear system of procedures that would support the academic teacher – especially in crisis situations.

The qualitative research that was conducted by the authors should be treated as an introduction to the discussion on the competence needs of an academic teacher.

When drawing conclusions from the qualitative research, it is also necessary to remember its limitations, which include the number of respondents, the lack of the differentiation of the respondents due to the length of service or the position that was held, and the lack of reference to objective assessments of the competencies of the surveyed employee in relation to the performance of teaching duties (evaluations of students and assessments of supervisors). The study also did not take contextual variables such as organizational culture or university strategy into account, which may affect the required competencies of an academic teacher. The CIT that was selected for the research allowed for only qualitative research to be conducted. To confirm the obtained results, it would be worthwhile to conduct research in a quantitative model on a much larger sample of subjects. The results of such an analysis could be verified by the list of competencies of academic teachers being established on the basis of the CIT. Quantitative analysis is a future direction of this research.

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UNIVERSITY STUDENTS' ATTITUDES TOWARD PROFESSIONAL FUTURE. THEMATIC ANALYSIS

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Purpose: The purpose of the article is to understand students' attitudes toward their professional future.

Methodology: Twelve qualitative in-depth interviews were conducted with university students. A content analysis was performed using the thematic analysis method with QDA Miner Lite software. The article provides an opportunity to trace the use of qualitative methods in a research project. It points out the strengths and limitations of this approach, which is not typically used in research in management science or economics.

Findings: The research conducted indicates that in the context of career plans, respondents focus on three options: working as a salaried employee, running their own business and investing. Each of these is associated with different beliefs, emotions and actions. A full-time job is seen through the prism of security, but also fewer profits and demands than running one's own business. Business plans, often inspired by parents of entrepreneurs, co-occur with active preparation: taking additional courses or searching for guidance content on the Internet. Students also consider investments that will generate a passive income. They draw their knowledge on this subject mainly from online sources.

Research limitations: The findings of the qualitative study cannot be regarded as representative. The results of the research should be considered as a pilot study. Specifically, students' attitudes toward investing and passive income require further research.

Practical implications: Insights into the attitudes of people about to enter the labor market will allow organizations to tailor HR activities aimed at this group. Awareness that students are interested in investments and derive their knowledge on the subject from online sources may provide the stimulus for economic universities to include these issues more broadly in their curricula.

Originality/value: Analysis goes beyond students' professional plans. They were studied in relation to emotions and beliefs. The use of qualitative methods made it possible to explore new areas. The research revealed that for some students, the idea of investing and passive income is very attractive and is considered on equal footing with a full-time job or running one's own business.

Keywords: attitudes toward professional future, students, entrepreneurial intention.

Category of the paper: research paper.

1. Introduction

In recent years, researchers, managers and HR professionals have been noticing changes in young people's attitudes toward professional work (Gajda, 2017; Kukla, Nowacka, 2019; Żarczyńska-Dobiesz, Chomątowska, 2014). It is becoming increasingly common to hear about lower levels of motivation, high expectations or even resignation from work (Muster, 2020). How much truth is there in this narrative? Such situations are to occur especially among representatives of the younger generation, known as Generation Z, born after 1995. Indeed, one can see clear differences between the attitudes toward work of younger and older workers, which indicates a generational change (Kroenke, 2015). This issue is not only cognitively interesting but also has a practical dimension (Opalińska, 2018). This is because the change in employee attitudes requires a new approach to human resource management. Regardless of the motivation - cognitive or practical - it seems crucial to understand the attitudes of representatives of the younger generation towards their professional future. This is the goal of this article, which goes beyond declarations about career plans. It focuses on the attitudes of students, and therefore on their beliefs and emotions. This kind of approach allows a better understanding of this age category, which will soon begin to shape the landscape of the organization.

2. Transition to professional work

The moment of transition from school to professional work is extremely important both from the perspective of an individual and the entire labor market. Decision-making regarding one's professional future is often the subject of research and reflection. According to Linda Gottfredson's (1981) psychological theory of the development of career aspirations, people develop cognitive maps of the world of professions, which are beliefs about what work in particular professions is like, what kind of wages and lifestyle it entails, and what kind of predispositions it requires. By confronting this with beliefs about themselves (aptitudes, interests) and their career aspirations, young people decide what occupation they could work in. Similarly, David L. Blustein, Luanna E. Devenis, Barbara A. Kidney (1981) argue that decisions about one's professional future are closely related to processes of self-recognition and identity formation.

Entrepreneurial intentions are also relevant in the context of attitudes toward the future of work. Bird defines them as a state of mind that leads people to develop new business concepts (Bird, 1988). According to this author, entrepreneurial intentions are determined by self-efficacy, personality and family traditions. Similarly, J.M. Crant considers entrepreneurial

intentions as the desire to own one's business and the belief in the ability to realize it (Crant, 1996). McElwee and Al Riyami's research supports Bird's findings about the influence of family and entrepreneurial traditions on the probability of starting one's own business (McElwee, Al Riyami, 2003).

It is significant for the reflection on students' attitudes towards their professional future that they are mostly representatives of Generation Z (Tulgan, 2009). Individuals born after 1995 will soon begin or are already taking their first steps in the labor market. These are people growing up in a digital world, surrounded by new media that have accustomed them to deciding what they will do or consume and when. This makes them different from previous generations in attitudes, career aspirations, their expectations toward employers and the way they function at work. They are characterized by a high level of digital competence, which they are able to use in their careers (seeking knowledge, communicating, generating content, searching for jobs or working remotely). Their career plans are short term, and they highly value work-life balance (Żarczyńska-Dobiesz, Chomątowska, 2014).

Nowadays, the labor market is changing very fast, which certainly makes career decisions more difficult. A choice that seems good at the beginning of studies may turn out to be wrong after finishing them. Due to automation and artificial intelligence, some professions are becoming redundant, while others are transforming. This intensifies young people's dilemmas (Mouse-Strychalska, 2021). As a result, highly flexible career plans are being created, and their authors are ready to change them (Piorunek, 2016). In addition to linear careers, which follow a single profession and industry, non-linear, multi-directional careers are emerging (Yakimiuk, 2016). Many young people are changing their perspective on a particular profession and seeking new career directions for themselves.

The foregoing considerations lead to the conclusion that in order to understand people entering the labor market, it is not enough to ask about their career plans. A plan is understood as deliberate actions that are intended to lead to a set goal (Maslyk, 2005). In a changing environment, goals can change, as can the means of achieving them. In this context, it seems better to use the term "design," which differs from planning in its lower degree of certainty of purpose and actions (Piorunek, 2004). However, the latter also focuses only on planned activities. According to the author, it is worth taking into consideration beliefs and emotions as well. Only taking into account these three elements, which, after all, interact with each other, will give a complete picture of the situation. Therefore, it seems reasonable to base the research on the attitude construct, which consists of three components:

- behavioral, which determines actions and intentions of actions toward the attitude object,
- cognitive, which consists of knowledge and beliefs about the attitude object and
- emotional, which determines emotions toward the attitude object.

Previous research has tended to focus on declarations of career plans. Via a survey questionnaire, students answered questions about their plans to take up a career in a specific industry, whether or not in line with the field of study, in a specific place and about actions planned or taken to find a job (e.g., Stępińska et al., 2017). Factors of career plans have also been analyzed. For example, a study of economy students showed that when deciding on a professional future, the most important factors are an attractive salary, stability of employment, the possibility of promotion and a good atmosphere in the workplace (Kuźmicki, Borysiuk, 2021). In turn, surveys of medical students in Poland have addressed the issue of their plans to work abroad (Szostek et al., 2017; Ustymowicz, Bogusz, 2014).

The purpose of this article is to provide a deeper insight into students' career plans. After all, behind the declaration of concrete actions are thought patterns, beliefs shaped to a great extent by the world outside the academy, and emotions. It seems reasonable, therefore, to study all these issues in interconnection. Accordingly, the research problem posed is: What are students' attitudes toward their professional future?

3. Research methodology

The main objective of the research conducted was to answer the question: what attitudes towards the professional future do students display? Given that attitudes are a multidimensional construct, it was decided to use a qualitative approach (Frankfort-Nachmias, Nachmias, 2001). Qualitative research is not often used in the field of management science (Maison, 2010). However, they seem adequate when the goal is to gain insight into people's mindsets and motivations.

IDI (Individual In Depth Interview) were used. Such interviews, by design, resemble a natural conversation and are much less structured compared to questionnaire interviews. As a result, when starting a research, it is impossible to assume in advance what type of answers will be received. Moreover, the study can potentially open up new fields of exploration (Czakoń, 2009). In the project described above, the researcher entered the interview with a prepared list of issues. The form or order in which they appeared depended on the individual interview process. Twelve interviews were conducted, which ranged in duration from 22 to 83 minutes and were recorded with a voice recorder. Full-time students of the Faculty of Law and Economics at Kazimierz Wielki University in Bydgoszcz took part in the study. Table 1 shows the participants in the study: their gender and field of study. Availability-based sampling was used - the interviews were conducted with students who responded to invitations placed at the University, on the website and sent via email. The data was collected between May and June 2023.

Table 1.
Structure of the student sample by selected characteristics

Variable	Value	Quantity
Gender	Female	5
	Male	7
Field of study	Bachelor's administration	3
	Administration Master's degree	3
	Bachelor's economics	3
	Economics Master's degree	2
	Law in business	1

Source: own research.

An essential step in qualitative research is the analysis of the collected material. Usually it is textual material to which content analysis is applied (Babbie, 2008). It should not be regarded as a homogeneous and closed set of guidelines. The researcher has many possible approaches at his disposal. In the study described here, a thematic analysis was used to isolate and interpret the main themes that recur in the respondents' statements. The guidelines described by Virginia Brown and Victoria Clarke (Brown, Clarke, 2006) were applied. Analyses were carried out in the free program QDA Miner Lite v3.0. Transcription of the interview recordings was carried out using Word. The resulting text required numerous corrections of spelling errors. The texts were then imported into the mentioned QDA Miner Lite program. This program streamlines the researcher's work, but does not replace it. It is the researcher who makes all decisions regarding meaning analysis, coding and interpretation.

In the first step, the content of the respondents' statements was analyzed for recurring meanings and patterns. On this basis, the original codes were created, which were then assigned to the relevant parts of the statements. During the coding process, new codes appeared or the existing ones were renamed. This is a common situation in this type of analysis. This is because coding is a process that aims to make the set of content assigned to a single code homogeneous, and the code itself meaningful in terms of answering the research problem. Therefore, the next emerging content can change the characteristics of its category, otherwise a code. It is also permissible to change the coding of a given passage if the researcher deems it necessary. Likewise, in the case of the study described above, the coding process required going back to previously analyzed text passages and reinterpreting them. The next step was to group related codes into themes. Themes should include codes and fragments of statements that relate to a particular aspect relevant to the research problem. At this stage, too, it was necessary to reanalyze the text, changing the themes initially adopted, sometimes changing the codes or coding. According to the thematic analysis guidelines, these are all decisions made by the researcher.

4. Findings

During the in-depth interviews, students spoke about their career plans, related thoughts, emotions and their preparations. One of the themes identified during the analysis was the goal they are aiming for (Tab. 2). In each statement, there was content indicating values that are attractive enough to be a motivator for actions in the professional sphere. The codes forming this theme were, in order of frequency of appearance: financial security, own apartment/home, professional success, ability to help parents, travel the world, comfortable life, a lot of money. The predominant themes are related to the need of security: financial and physical, which is provided by having one's own apartment or house. The vision of professional success and having a lot of money is also motivating. Some respondents spoke of money as a means to an end, but for others it was an end in itself. The opportunity to explore the world is also an attractive prospect. For some students, it is important that the achievement of career plans will allow them to support their parents if they need it. This code co-occurred with another - representing a feeling of support from parents during studies.

Table 2.

Themes identified during content analysis with their corresponding codes

Theme	Codes in order of frequency of occurrence
Goal	financial security own apartment/home professional success ability to help parents exploring the world comfortable life a lot of money
A full-time employment	security planned profession/industry plan B lack of competence needed to run a business
Running a business	profits higher than on the full-time position business idea gaining the knowledge needed to run a business freedom to decide for yourself fear of responsibility interest-related idea flexible working hours locational independence why I don't plan a full-time position first
Investing	searching for content on the Internet about investing emotions landlord I invest Stock market investments in precious metals saving in order to invest later

Cont. table 2.

Professional experience	work while studying work before studies helping parents on the farm, helping in the family business running one's own business in order to achieve financial security in order to realize dreams why I don't work in order to gain experience
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Source: own research.

Career plans and attitudes towards future professional work can be considered as a pathway to the goal outlined above. Three themes emerged in this area: full-time employment, running one's own business and investing. In the sample analysed, the largest group of respondents plans to work as an employee. This is of course not data that can be considered representative of the entire student population, but it is worth exploring the thinking patterns, motivations and emotions behind such a decision. The plan to work on a full-time basis is closely linked to a sense of security. It is understood by students in several ways: stable, predictable income, defined responsibilities, security in case of illness. It is worth mentioning that Ukrainian students perceive a full-time job as an element that will make it easier for them to obtain Polish citizenship. In most statements, career plans were concretised to selected professions or industries that were related to the field of study. For students, such a choice was so obvious that they did not justify it additionally. Some of the young respondents had a plan in case their first choice failed - a job in another, usually related profession, more easily achievable in their opinion. Plans for full-time work co-occur with the intention to continue their studies at master's or postgraduate level. This is particularly noticeable in the case of those undecided on a particular profession or industry. Interestingly, in several statements, plans to work as a salaried employee were accompanied by a statement about the lack of soft skills needed to run one's own business (leadership skills, courage). As if their authors assumed that running their own business was a better option and made excuses for not doing so.

Another topic in the area of career plans is running one's own business. This decision is often accompanied by the belief that the profits from such a venture are higher than from a salaried employment. This is an assumption presented by students as self-evident. Other positive features attributed to running a business are the freedom to decide for oneself, flexible working hours and locational independence. On the other hand, there are also statements in this context indicating fear of responsibility and failure. Most of those declaring plans to start a business already have a precise idea for it. In a few cases, the idea is related to the students' hobbies and interests - it appeared spontaneously during the realisation of their passion, not related to their field of study or professional preparation. Planning one's own business coexists with acquiring the knowledge and competences needed to run it. This refers to activities undertaken on one's own, outside of studies, e.g.: attending courses and trainings, reading business manuals, searching for guidance content on the Internet. There was also a strategy of taking up a full-time job in order to gain experience and accumulate funds,

which will later be used in one's own business. Interestingly, the majority of respondents planning to run a business mentioned the influence of their parents - entrepreneurs - on this decision.

The area of investing emerged alongside career plans involving employment or running a business. These issues were not evoked in any way by the researcher. Their appearance suggests that the idea of passive income is popular among students and treated on a par with earning money through a full-time job or being an entrepreneur. There were individuals who declared that they were investing, or had plans to do so, e.g. in the stock market. However, interest in this topic appeared much more frequently in the statements of respondents. This interest is manifested by following content on the Internet on various forms of investment: the stock market, real estate and bullion. Most often, these are videos on YouTube. Both those who invest and those who think about it identify it with strong emotions - the fear of loss, the exciting vision of profit, the need to temper emotions.

The final theme that emerged was work experience. Half of the sample interviewed are those who combine their studies with work. Students are employed in a wide variety of industries and occupations, only in selected cases related to their field of study. Similarly, there is no pattern in terms of working hours or what type of contract they work under. In a few cases, students have obtained their current employment by engaging in additional projects offered to them by the University. The area of work experience also includes work undertaken before the start of the studies, helping out in a family business or on a farm, and the interesting example of earning money by playing a computer game in which virtual money is gained that can be resold to other players. There is also the experience of someone running their own innovative and profitable business. Students are motivated to work by the need for financial security, saving money to pursue their dreams and gaining experience - both in life and at work. It is noteworthy that the narratives of respondents who did not work during their studies include explanations why they could not do so. From this, it can be concluded that working during studies is seen by them as a standard they should follow.

5. Summary

During Three themes emerged in the context of career plans. Working as an employee is seen through the prism of security, but also less profit and demands than running one's own business. Such plans tend to be concretised to the chosen profession, and those less concrete co-occur with plans for further studies. In contrast, students planning a business, often with the inspiration of their parents, prepare for this, mainly by searching for specific content on the Internet. Besides working as an employee and running their own business, students are also considering investments that will bring them a passive income. This is a way of earning, placed

on a par with the previous two and seen as complementary to them. This vision appears to be as attractive as it is exciting. Students draw their knowledge of the subject mainly from online sources.

Qualitative methods proved to be useful for investigating such complex and nuanced constructs as attitudes. They have made it possible to analyse both beliefs and ways of thinking about different forms of work and investment, the emotions associated with them and behaviours, both current and planned. The advantage of content analysis of in-depth interviews is that it allows one to grasp the context of a statement, which significantly influences its interpretation. This was the case of students justifying why they do not intend to start a business or work during their studies. The context suggests that these situations are regarded as a certain standard that students think is expected from them. The value of a qualitative approach is also that the researcher may discover knowledge that they did not expect. This is particularly important when exploring new or rapidly changing areas of reality, and may provide a trigger for further research. In particular, it seems that students' attitudes towards investing and passive income are worth further observation. In addition, the findings of the qualitative research can become the basis for hypothesis formation to be verified in representative quantitative research.

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CREATIVE DESTRUCTION AND LABOR PRODUCTIVITY IN POLISH MANUFACTURING INDUSTRIES

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Purpose: The aim of the study was to determine the impact of creative destruction on labor productivity, with the level of technology in industries as a factor modifying this impact.

Design/methodology/approach: The econometric analysis was conducted for 24 manufacturing industries in Poland in 2018-2021. Employment turnover rates were used as measures of creative destruction. In modeling changes in labor productivity as a function of creative destruction, a classification of manufacturing industries into technical sectors based on the intensity of R&D was used. It was also tested whether the relationship between the examined categories has changed during the COVID-19 pandemic. Regression equations were estimated using the panel OLS.

Findings: The results of the analysis showed that creative destruction had a positive impact on changes in labor productivity, but inter-industry labor reallocation was not pro-efficient. These regularities, both in terms of direction and strength of impact, did not differ during the COVID-19 pandemic. These conclusions apply only to high and medium technology industries. The lack of relationship between job creation, job destruction, labor reallocation and productivity in low-tech industries suggests that there is a threshold of R&D intensity ($I_{R\&D} > 1\%$) required for creative destruction to play an active role in economic processes.

Research limitations/implications: The categories and classification of industries used in the analysis are only approximate measures of creative destruction and technological level, so the further research is required. Especially, it is needed to confirm the thesis about the existence of a threshold of R&D intensity and the impact of creative destruction on labor productivity.

Originality/value: Incorporating the level of technology as a factor modifying the impact of creative destruction on labor productivity allowed to connect two research areas: 1) the effects of technological progress on job destruction/job creation and 2) their impact on labor productivity. The regularities noted in the study may explain, at least in part, the divergent research results regarding the effects of creative destruction measured by employment turnover rates on labor productivity observed at the level of industries, sectors and regions.

Keywords: job creation, job destruction, labor productivity, manufacturing industry.

Category of the paper: Research paper.

1. Introduction

The concept of creative destruction comes from the Theory of Economic Development of J.A. Schumpeter (1960), according to which the source of development processes are innovations, and the mechanism responsible for moving the economy to higher growth paths is based on two different in nature, but interrelated phenomena: the creation of qualitatively different, new elements of the economic system (enterprises, processes, products, technologies, etc.) – creation; elimination of old, ineffective elements of the economic structure – destruction. The consequence of creative destruction is the reallocation of production factors (labor, capital) from less to more effective uses, leading to a change in the economic structure combined with improved efficiency.

Numerous empirical studies concerning efficiency and industry structure which take into account the entries/exits of enterprises, as well as the effects of resource reallocation within incumbent entities (within effect) and between companies (between effect) have generally confirmed the positive impact of creative destruction on productivity and economic growth (Kozłowska, 2010, p. 61-70; Metcalfe, Ramlogan, 2006). Firms turnover and related competition, market selection and reallocation of production factors have been recognized as the basic sources of growth in aggregate productivity (Dachs et al., 2016; Masso et al., 2004). It was also found that the conditions existing in the enterprise environment (structural and technological features of the industry, institutional factors) influence the intensity of creative destruction (firms turnover) and its effects on productivity changes (Kozłowska, 2010, p. 70).

Analogous conclusions are provided by the results of research on the labor market, in which employment turnover rates expressed in terms of job creation and job destruction are used as measures of creative destruction¹. It has been noted that:

- job creation and job destruction are continuous phenomena, they are an immanent feature of economic processes (Caballero, Hammour, 2000), and the intensity of job creation/destruction and labor reallocation are strongly related to the business cycle (Graves, 2023; Näf et al., 2022; Rembert, 2017),
- more labor flows take place within narrowly defined industries than among them (Caballero, Hammour 2000; Vainiomäki, Laaksonen, 1999), and inter-industry differences in the intensity of job creation and job destruction are a derivative of differences in the technological level (technological intensity and expenditure on R&D), saturation of production processes with human capital (Dachs et al., 2016; Santos et al., 2023; Vainiomäki, Laaksonen, 1999), the nature of technological changes (embodied/non-embodied technological progress) (Dosi et al., 2021; Santos et al.,

¹ The basic premise for using job turnover rates as measures of creative destruction results from the fact that the effect of firms turnover is labor reallocation taking place at the level of companies, industries/sectors, as well as regions (De Loecker, Konings, 2006; Rembert, 2017).

2023), as well as the adaptation of firms to these changes resulting from differences in the costs of adapting new solutions to the skills and technical equipment of employees (Irandoost, 2023; Mortensen, Pissarides, 1998).

Moreover, research results have shown that the effects of job creation, job destruction and labor reallocation on productivity growth are characterized by significant diversity at the level of industries, sectors (Caballero, Hammour, 2000; De Loecker, Konings, 2006) and regions (Kuźmar, 2019). Although these differences may be the result of several factors (research method, analytical perspective, institutional factors), it cannot be ruled out that the complexity of the relationship between technology and employment dynamics plays an important role in this respect.

The results of an empirical study presented in this article for the manufacturing industries in Poland in 2018-2021 are consistent with this view in the sense that the aim of the analysis was to determine the impact of creative destruction, measured by employment turnover rates, on labor productivity, with the level of technology in industries as a factor modifying this impact. Hence, in modeling changes in labor productivity as a function of job creation, job destruction and labor reallocation, a classification of manufacturing industries into technical sectors based on the intensity of R&D was used. Moreover, it was tested whether the economic disruptions and institutional solutions introduced during the COVID-19 pandemic have distorted the relationships between the examined categories.

2. Data and Method

In the study annual data published by the Central Statistical Office for 24 manufacturing industries in Poland in 2018-2021 was used². In line with the research goal, labor productivity was modeled, assuming that it is a function of creative destruction and the accompanying labor reallocation. Gross value added at constant prices from 2018 per employee (variable PP_L) was used as a measure of labor productivity. Referring to many studies on the labor market in the context of creative destruction (Ahmadiani et al., 2022; De Loecker, Konings, 2006; Kuźmar, 2019; Vainiomäki, Laaksonen, 1999), categories describing the movement of employees were used as approximate measures of creative destruction (job creation and job destruction)³:

² The data was taken from the Statistical Yearbooks of Industry. The latest Statistical Yearbook of Industry 2022 published by the Central Statistical Office contains information for 2021.

³ The hire (termination) rate is calculated as the ratio of the number of hires less the number of persons returning to work from childcare (the number of terminations less the number of persons granted childcare) during a surveyed year to the number of full-time paid employees as of 31st December from the year preceding the surveyed year (GUS, 2022, p. 199).

- hire rate – job creation (variable WP), expressing the share of new employees in employment;
- termination rate – job destruction (variable WZ), reflecting the share of dismissed employees in employment.

According to Schumpeter's views, creative destruction is two inseparably connected phenomena: creation and destruction. Therefore, the interaction between WP and WZ variables was added to the model to fully reflect the impact of creative destruction on labor productivity. It was assumed that the interaction of variables WP and WZ ($WP*WZ$) in the regression model reflects intra-industry labor reallocation processes.

The basic equation describing the relationship between labor productivity and creative destruction in manufacturing industries was a linear regression model in the form:

$$PP_{Ljt} = \alpha_0 + \alpha_1 WP_{jt} + \alpha_2 WZ_{jt} + \alpha_3 WP_{jt} * WZ_{jt} \quad (1)$$

Due to the fact that the time scope of the study covers the period of the COVID-19 pandemic and related legal solutions (lockdown, anti-crisis shields) aimed at preventing the spread of the virus and protecting enterprises and jobs, it cannot be ruled out that the creative destruction and its impact on labor productivity were subject to disruptions. Hence, the binary variable $DCOV$ was included in the regression equation (1), the value of which was 1 for observations for 2020, and 0 for the remaining years (2018, 2019, 2021). The form of the regression equation is described by the formula:

$$PP_{Ljt} = \alpha_0 + \alpha_1 WP_{jt} + \alpha_2 WZ_{jt} + \alpha_3 WP_{jt} * WZ_{jt} + \alpha_4 DCOV * WP_{jt} + \alpha_5 DCOV * WZ_{jt} + \alpha_6 DCOV * WP_{jt} * WZ_{jt} \quad (2)$$

The statistical significance of parameter estimates α_4 , α_5 , α_6 implies that the impact of the job creation, job destruction, and labor reallocation, respectively, on labor productivity in 2020 differed from the impact recorded for the remaining years. In such a case, the strength of the influence of the variables WP , WZ and their interaction ($WP*WZ$) on the PP_L variable in 2020 is determined by the sum of the coefficients, respectively: $\alpha_1 + \alpha_4$; $\alpha_2 + \alpha_5$ i $\alpha_3 + \alpha_6$. The lack of statistical significance of parameter estimates α_4 , α_5 , α_6 means that the impact of the examined categories on labor productivity was identical throughout the research period.

Moreover, assuming that the level of technology is a factor modifying the impact of creative destruction on labor productivity, the GUS classification of manufacturing industries into technical sectors was applied. Based on the intensity of R&D ($I_{R\&D}$), four sectors are distinguished: high technology ($I_{R\&D} > 7\%$), medium-high technology ($2.5\% < I_{R\&D} < 7\%$), medium-low technology ($1\% < I_{R\&D} < 2.5\%$) and low technology ($I_{R\&D} < 1\%$) (GUS, 2023, pp. 159, 202-203).

Among 24 manufacturing industries only two were classified as high technology. Therefore, instead of four technology sectors, three sectors were distinguished: the high technology sector (WT) (including industries from the high and medium-high technology sectors), the medium

technology sector (*ST*), identical to the medium-low technology sector, and the low technology sector (*NT*).

In the econometric study, the division of industries according to technology levels was used by including two binary variables in the regression equation (1):

- the *DWT* variable, for which the value of 1 in each year of observation was assigned to industries belonging to the *WT* sector, and the value of 0 to other industries,
- the *DNT* variable, for which the value of 1 in each year of observation was assigned to industries belonging to the *NT* sector, and the value of 0 to other industries.

The estimated regression equation was of the form:

$$PP_{Ljt} = \alpha_0 + \alpha_1 WP_{jt} + \alpha_2 WZ_{jt} + \alpha_3 WP_{jt} * WZ_{jt} + \alpha_4 DWT * WP_{jt} + \alpha_5 DWT * WZ_{jt} + \alpha_6 DWT * WP_{jt} * WZ_{jt} + \alpha_7 DNT * WP_{jt} + \alpha_8 DNT * WZ_{jt} + \alpha_9 DNT * WP_{jt} * WZ_{jt} \quad (3)$$

The interpretation of the regression parameters for the *DWT* and *DNT* variables is analogous to that presented for the binary variable *DCOV*, but in this case the reference point are the results recorded for the sectors classified as medium technology: statistical significance of the parameter estimates α_4 , α_5 , α_6 (α_7 , α_8 , α_9) implies that the impact of the *WP*, *WZ* variables and their interactions on the *PP_L* variable in the *WT* sector (in the *NT* sector) differed statistically from the impact recorded for the *ST* sector. The strength of its impact in the *WT* (*NT*) sector is determined by the sum of the coefficients corresponding to a given category of the independent variable: $\alpha_1 + \alpha_4$; $\alpha_2 + \alpha_5$ and $\alpha_3 + \alpha_6$ ($\alpha_1 + \alpha_7$; $\alpha_2 + \alpha_8$ and $\alpha_3 + \alpha_9$).

Before estimating the regression equations, the *PP_L*, *WP* and *WZ* variables were logarithmized. Due to the two-dimensional nature of the data (spatial-temporal data), panel regression was used. Due to the differences between individual manufacturing industries, panel models with fixed effects were used. Regression equations were estimated using the panel OLS. The validity of including fixed effects in the model was tested using the test for differentiation of the intercept between groups (Welch's test). The assumption of normality of distribution of regression residuals was tested using the Doornik-Hansen test. The Wald test was used to verify the assumption of homoscedasticity of regression residuals, while the hypothesis of the lack of autocorrelation of the residual component was tested using the Wooldridge test. If autocorrelation and/or heteroscedasticity of the residual component were found, the OLS with heteroskedasticity and autocorrelation consistent standard errors (HAC) was used. The statistical significance of the sums of regression coefficients was tested using the Student t-test. The level of statistical significance of the tests was set at $\alpha = 0.05$.

3. Results

Based on the results of regression equation (2) (Table 1), it can be concluded that in 2018-2021, job creation, job destruction, and labor reallocation had a statistically significant impact on labor productivity in the Polish manufacturing industries. It should be noted, however, that while the impact was positive in the case of job creation (measured by the hire rate) and job destruction (measured by the termination rate), the opposite was observed with respect to the interaction of these variables. The negative value of the coefficient with the interaction of the *WP* and *WZ* variables means that the labor reallocation accompanying creative destruction were not pro-efficient and weakened the positive effects related to job creation and job destruction. The observed relationships, both in terms of the direction and strength of the impact, were the same during the COVID-19 pandemic and in the remaining years examined – none of the regression coefficients for the interactions of variables with the *DCOV* variable met the conditions for statistical significance.

Table 1.

Estimation results of the regression equation (2)

Method: Panel OLS with fixed effects. HAC; number of observations: 96				
Variable	Coefficient	Standard Error	t statistics	p value
<i>const</i>	-1.5898	2.7133	-0.5859	0.5636
<i>WP</i>	2.6453	0.8508	3.1090	0.0049
<i>WZ</i>	2.1226	1.0107	2.1000	0.0469
<i>WP*WZ</i>	-0.8450	0.3131	-2.6980	0.0128
<i>DCOV*WP</i>	-0.1223	0.0819	-1.4940	0.1487
<i>DCOV*WZ</i>	0.0450	0.1346	0.3341	0.7413
<i>DCOV*WP*WZ</i>	0.0248	0.0366	0.6763	0.5056
LSDV $R^2 = 0.9791$; Within $R^2 = 0.3105$; F statistic $F(6, 23) = 5.2794$; $p = 0.0015$; Welch test value $F(23, 25.9) = 9.5419$; $p = 0.0000$; D-H test value $\chi^2 = 0.4436$; $p = 0.8011$.				

Source: own calculations.

The validity of the assumption that the level of technology is a factor modifying the impact of creative destruction on labor productivity is partially confirmed by the regression results (3) (Table 2).

Table 2.

Estimation results of the regression equation (3)

Method: Panel OLS with fixed effects. HAC; number of observations: 96				
Variable	Coefficient	Standard Error	t statistic	p value
<i>const</i>	-1.1099	2.3706	-0.4682	0.6441
<i>WP</i>	4.3445	0.3944	11.0100	0.0000
<i>WZ</i>	3.6208	0.2163	16.7400	0.0000
<i>WP*WZ</i>	-1.3591	0.1164	-11.6800	0.0000
<i>DWT*WP</i>	0.0545	2.5818	0.0211	0.9833
<i>DWT*WZ</i>	-0.4336	2.3756	-0.1825	0.8568
<i>DWT*WP*WZ</i>	-0.0670	0.8970	-0.0747	0.9411
<i>DNT*WP</i>	-3.6569	0.9836	-3.7180	0.0011

Cont. table 2.

<i>DNT*WZ</i>	-3.5935	1.0747	-3.3440	0.0028
<i>DNT*WP*WZ</i>	1.2122	0.3527	3.4370	0.0022
LSDV $R^2 = 0.9834$; Within $R^2 = 0.4517$; F statistic $F(9, 23) = 773.035$; $p = 0.0000$; Welch test value $F(23, 25.9) = 7.2170$; $p = 0.0000$; D-H test value $\chi^2 = 1.2936$; $p = 0.5237$.				

Source: own calculations.

Based on the results, it was found that the relationship between the job creation, job destruction, labor reallocation and labor productivity in industries classified as medium technology and high technology did not differ significantly – none of the regression coefficients for the interaction of variables with the *DWT* met the conditions of statistical significance. However, the results for industries of the low-technology sector lead to a different conclusion. The statistical significance of the regression coefficients (3) $\alpha_7, \alpha_8, \alpha_9$ implies that the impact of the *WP, WZ* variables and their interactions on the *PP_L* variable in the *NT* sector was different from that observed in the medium and, indirectly inferring, high technology sectors. This conclusion is confirmed by the results of the regression equation (3), from which the binary variable *DWT* was removed (Table 3).

Table 3.

Results of estimating the regression equation (3) excluding the binary variable DWT

Method: Panel OLS with fixed effects. HAC; number of observations: 96				
Variable	Coefficient	Standard Error	t statistic	p value
<i>const</i>	-1.3587	1.6515	-0.8227	0.4191
<i>WP</i>	4.3313	0.6980	6.2060	0.0000
<i>WZ</i>	3.6417	0.6942	5.2460	0.0000
<i>WP*WZ</i>	-1.4105	0.2421	-5.8250	0.0000
<i>DNT*WP</i>	-3.6437	1.1277	-3.2310	0.0037
<i>DNT*WZ</i>	-3.6145	1.2461	-2.9010	0.0081
<i>DNT*WP*WZ</i>	1.2637	0.4071	3.1040	0.0050
LSDV $R^2 = 0.9811$; Within $R^2 = 0.3747$; F statistic $F(6, 23) = 12.2216$; $p = 0.0000$; Welch test value $F(23, 25.9) = 7.3820$; $p = 0.0000$; D-H test value $\chi^2 = 0.4043$; $p = 0.8170$.				

Source: own calculations.

The results presented in Table 3 lead to two basic conclusions:

- the positive impact of job creation, job destruction and the negative impact of labor reallocation on the *PP_L* variable characteristic of industries in the medium and high technology sectors are consistent with the results obtained for the entire group of industries, i.e., without their division into technical sectors (Table 1),
- in low-technology sector, neither job creation nor job destruction nor labor reallocation were statistically significant factors influencing labor productivity. Although the regression coefficients for all interactions of variables with the binary variable *DNT* meet the condition of statistical significance, the sums of the coefficients determining the direction and strength of the impact of the *WP, WZ* variables and their interactions on the *PP_L* variable were not statistically significantly different from zero (Table 4).

Table 4.

Results of the significance test of the sum of coefficients in the regression equation (3) excluding the binary variable DWT

Variables	Sum of coefficients	Standard errors	t statistic	p value
<i>WP; DNT*WP</i>	0.6875	0.8857	0.7763	0.4455
<i>WZ; DNT*WZ</i>	0.0272	1.0348	0.0263	0.9792
<i>WP*WZ; DNT*WP*WZ</i>	-0.1469	0.3273	-0.4487	0.6578

Source: own calculations.

4. Conclusions

The results of the study revealed that in the manufacturing industries in Poland in 2018-2021, creative destruction, measured by the hire rate and the termination rate, had a positive impact on labor productivity, although this effect was weakened by the negative impact of labor reallocation – the reallocation of labor taking place in industries was not pro-efficient. The effect of reallocation, inconsistent with expectations, can be interpreted in the context of labor market regulations and frictions, which inhibit the effective flow of labor and lead to incorrect allocation of labor resources (Ahmadiani et al., 2022; Elfayoumi, 2022). The productivity "wedge" between the existing and optimal allocation of resources reflects the scale of institutional and market distortions (entry/exit barriers, transaction costs, regulations aimed at protecting enterprises and jobs, costs of hiring/firing employees) that cause Schumpeter's selection and reallocation are not working properly (Bennett, 2021; Irandoust, 2023).

The results obtained for the period of the COVID-19 pandemic are also inconsistent with expectations. The impact of job creation, job destruction and labor reallocation on labor productivity recorded in this period did not differ from the impact of these categories in the remaining years included in the study. The results of S. Graves (2023) for the US economy based on the simulation of a theoretical model indicate that the rate of job destruction in the second quarter of 2020 was twice as high as usual, while the rate of job creation almost did not change. In this context, it can be assumed that the legal solutions introduced in Poland in 2020 (anti-crisis shields) prevented the intensification of job destruction, leaving its effects on productivity unchanged.

It should be emphasized that the conclusions apply only to industries of medium and high technology sectors. This result is to some extent consistent with that reported by B. Dachs et al. (2016) for 26 European countries in the years 1998-2010, according to which the intensity of job creation and job destruction increases with the increase in the technological intensity of industries/sectors. The higher the level of technology, measured e.g. by R&D intensity, the more important the features typical of high-technology industries become in economic processes (short life cycle of products and processes, rapid diffusion of innovations, large share

of highly qualified employees) (Comporek, 2014), and thus the more important Schumpeterian (innovative) dynamism based on the ability to innovate and efficiency (Ahmadiani et al., 2022; Spencer, Kirchoff, 2006). Moreover, taking into account the criterion of the classification of industries according to levels of technology used in the study, the lack of relationship between the job creation, job destruction, labor reallocation and labor productivity in low-technology sector may lead to the conclusion that there is a threshold level of intensity of R&D ($I_{R\&D} > 1\%$) required for creative destruction to play an active role in economic processes. Confirmation of this thesis undoubtedly requires further research, especially since the categories and classification of industries used in the analyzes are only approximate measures of creative destruction and technological level.

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INCLUSIVE ONBOARDING PROCESS AND THE SPECIFIC ORGANIZATIONAL CULTURE – A THEORETICAL OUTLINE OF THE PROBLEM

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Purpose: The aim of this article is to indicate to what extent an organization hiring new employees is able to prepare an individualized, inclusive onboarding process for a diverse workforce; to what extent is it necessary, and to what extent is it possible, so that each new employee efficiently find themselves in the new workplace, but also has the feeling that the organization wants to use their potential and talents.

Design/methodology/approach: The objectives are achieved by the analysis of existing scientific literature and research. The theoretical scope is to discuss the possibilities of introducing organizational culture efficiently during the process of onboarding and still make the process inclusive.

Findings: It was found that to make the newcomer become truly included in the organization and connected to its social life it is necessary for the organization to pay attention to all four phases and prepare practical solutions to: compliance, clarity, culture and then connection.

Practical implications: The implications for business comprise two ideas how to prepare inclusive onboarding in the organisations.

Originality/value: The paper is addressed to HR specialists (practitioners) and also to researchers to check in practice the proposed approach.

Keywords: human resources management; onboarding; inclusiveness; organizational culture.

Category of the paper: Conceptual paper.

1. Introduction

Both researchers (e.g. Bauer, 2010) and human resource management (HRM) practitioners define the onboarding process in organizations as inclusive by definition. On the other hand, in today's social reality, inclusiveness has a slightly broader meaning, because it also requires paying attention to and taking into account in practice HRM many features that differentiate people – not only those well known, researched and described, such as gender, but also the fact of the existence of increasingly older syndromes (the inevitable demographic process of aging of European societies) and those increasingly diverse in age (Sammara, Profili, Peccei, 2023),

taking into account the possible degree of physical disability or chronic disease of the employee (Innocenti, Profili, Sammarra, 2023), as well as neurodiversity (Doyle, 2021; Tomczak, 2022).

Outlining the broader background of the problem – each new employee, who may be significantly different from others, appears in an organization that also has its own specific, pre-formed organizational culture. It is worth noting that when considering the individual meaning and specificity of organizational culture, as well as the requirements for the adaptation process itself, each of these concepts may cause difficulties due to its multidimensional nature. While a lot of space has been devoted to research and the search for effective practices for the inclusion of newly hired employees (e.g. Klein, Polin, 2012), their diversity is noticed by organizations rather after hiring and onboarding into organizational life. The aim of this article is to outline a research area that seems to be important from the point of view of the effectiveness of HRM tools and processes, i.e. to indicate to what extent an organization hiring new employees is able to prepare an individualized, truly inclusive onboarding process for such a diverse workforce; To what extent is it necessary, and to what extent is it possible, so that each new employee effectively and quickly finds himself in the new workplace, but also has the feeling that the organization wants to use his or her potential and talents.

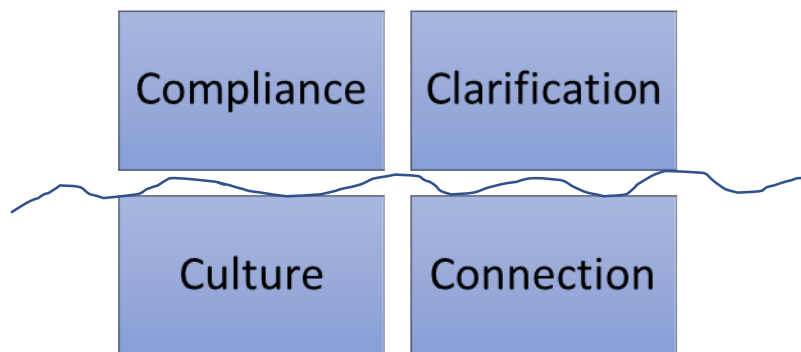
2. Onboarding and culture in organizations

2.1. What is onboarding

John Van Maanen and Edgar H. Schein begin their 1977 publication with a statement that the organizations we work at offer a person much more than just a job position. Bearing in mind our own experience and observations of the organizations around, it can be added that when we become a new participant in any organization, we are almost immediately thrown into its multidimensional, already formed social life, which means interpersonal relations, visible and hidden patterns of acceptable behavior, specific language (sometimes jargon or specific corporate slang), coalitions and oppositions to specific people, groups, power and many others. Usually, before we start to be perceived as a full-fledged, sociologically speaking - "our" - member of the organization, we participate in a previously prepared adaptation process (Feldman, 1981; Van Maanen, Schein, 1979). Its role is to provide each new employee with all possible organizational support so that they can be introduced to both dimensions of organizational life – professional and social – as quickly and effectively as possible (Król, Ludwiczynski, 2008). This means that the newcomer gradually joins both his professional role, i.e. professional duties, and the social life of the organization, i.e., m.in. efficient movement between existing social relationships and building his own.

This process is interchangeably called adaptation (Król, Ludwiczynski, 2008), *orienting/ orientation* (Klein, Heuser, 2008; Smith, 1984; Wanous, Reichers, 2000), induction (Van den Broek, 1997), socialization (Van Maanen, Schein, 1979), and since the early 2000s – onboarding (Bauer, 2010; Bradt, Vonnegut, 2009). In the literal sense, onboarding has connections with maritime topics, as it means "boarding on" (for example, a ship). This process can be perceived in a similar way in the organizational context. The basic question that both HR practitioners and researchers ask themselves is how to prepare the onboarding process so that it is as easy as possible for both parties, what it will require from the organization and what it will require from the employee. According to Bauer (2010) there are four building blocks of successful onboarding which are called the Four C's (see: Table 1). The extent to which each organization utilizes these four foundational components dictates its comprehensive onboarding strategy, resulting in most firms being categorized into one of three levels.

Table 1.
The Four C's concept



Source: adapted from Bauer, 2010.

Compliance means providing knowledge on basic regulations and legal or policy-related rules. *Clarification* is ensuring the new-comer is acquainted with all job-related expectations. *Culture* refers to providing formal and informal organisational norms. *Connection* comprises the vital interpersonal relationships and information networks that the new should participate in at first and create individually secondly. The first two levels are strongly connected to the professional aspects of the job, the two others refer mostly to social dimension. To cover all of them Klein and Polin (2012) propose 7 onboarding best-practices based on practitioner literature they analysed:

1. Perceiving onboarding as a process that requires time and planned following steps,
2. The attitude that onboarding should reinforce culture,
3. Understanding that onboarding is a team effort,
4. If possible the organisation should take advantage of technology,
5. It is necessary to give newcomers a sense of purpose,
6. Initially the organisation should provide appropriate orientation training,
7. Provide feedback channels.

The onboarding process leads to three types of effects (Table 2), which are multidimensional in nature – they can be visible immediately, in the near future and in the long term.

Table 2.

Onboarding results – taking into account the time perspective

Onboarding results		
Immediate	Short term	Long term
They refer specifically to the development of new knowledge and better and better cognition/absorption of the substantive content of socialization processes (Klein, Heuser, 2008).	Transparency of the organizational role, social inclusion, perceived alignment (Klein, Heuser, 2008).	Linking to the work performance (Bauer, Bodner, Erdogan, Truxillo, Tucker, 2007),
	Improving the performance of tasks, integration with the group, political knowledge (Kammeyer-Mueller, Wanberg, 2003)	Job satisfaction (Bauer et al., 2007; Cooper-Thomas, Anderson, 2002; Meyer, Bartels, 2017; Myers, Oetzel, 2003).
		Organizational commitment (Bauer et al., 2007; Cooper-Thomas, Anderson, 2002; Kammeyer-Mueller, Wanberg, 2003; Meyer, Bartels, 2017).
		Organizational identity (Myers, Oetzel, 2003), Will to stay in the organization (Bauer et al., 2007; Ellis et al., 2017), Withdrawal behaviors (Kristof-Brown, Zimmerman, Johnson, 2005), The will to leave the organization (Cooper-Thomas, Anderson, 2002; Gupta et al., 2018; Jones, 1986; Kammeyer-Mueller, Wanberg, 2003; Myers, Oetzel, 2003), Staff Liquidity (Bauer et al., 2007).

Source: own study based on: Becker, Bish, 2021, p.2.

Why is it so important to plan and monitor the effectiveness of the onboarding process? First of all, it is worth understanding that each of the time perspectives has certain specific psychological and social effects for the employee. If onboarding has a negative impact on any of them, it leads primarily to a lack of commitment to the tasks performed, and consequently to leaving the job. Ellis et al. (2017) noted that in situations of improper onboarding, as many as 17% of new employees leave the organization within the first three months. This is an unfavorable situation both for the employee (it causes the need to look for another job, go through the processes of recruitment, selection and new adaptation) and for the organization (possible loss of talent with unique skills, the need to once again engage one's own material and intangible resources in the search for a new employee, with no guarantee of success in the entire new process). Generally, when onboarding process is done correctly it leads to “higher job satisfaction, organizational commitment, lower turnover, higher performance levels, career effectiveness, lowered stress” (Bauer, 2012, p. 17).

2.2. The role of organizational culture

The concept of culture, including organizational culture, is considered to be one of the most ambiguous, but also subject to dynamic changes in terms of their understanding (Krzyworzeka, 2008). In the maze of definitions, it is worth paying attention to two important aspects of organizational culture. First of all – its uniqueness. The culture of organizations began to be discussed, researched and described particularly intensively in the 1980s (Hofstede, Hofstede, 2007; Alvesson, 2002), which is understandable, because more and more people worked in multinational corporations, where people from very different national cultures met and had to learn to cooperate. At that time, it was emphasized, and also today, researchers draw attention to the fact that '[t]he every organisation, like a local community, has its own culture [...] created and maintained by its participants' (Konecki, 2007, p. 9), the uniqueness of which is built by employees with the use of their own symbols. Thanks to this, they can move and act freely in it, as well as notice its unique character. As Zbiegień-Maciąg (1999) writes, the processes of creating symbols and giving them meanings are continuous. Kostera (2003) also notes that "[t]he culture is therefore that which, through symbols, enables us to see and understand the world, as well as to communicate. It offers a common language, shared associations and ideas, as well as at least partially a common evaluation of various things and phenomena" (Kostera, 2003, p. 33). Barbara Czarniawska-Joerges, on the other hand, calls the culture of organization 'a bubble of meanings' (Czarniawska-Joerges, 1992, p. 60).

Secondly – the multidimensional nature of culture. There are many definitions of organizational culture in management sciences, which emphasize its complex nature and diversity (e.g. Schein, 1985; Sikorski, 2006; Hofstede, 1980; Hofstede, 2000; Trompenaars, Hampden-Turner, 2002). One of the most commonly cited is the definition proposed by Edgar Schein (1985), which indicates three dimensions of organizational culture. The lowest level, and at the same time the one most deeply hidden from the human eye and consciousness, are the basic assumptions of culture. It includes all the most important problems of human existence (Marcisz, 2017; Lipińska-Grobelny, 2020), e.g. perception and understanding of the organization's environment, the importance of professional activity, "ideas about the correct ordering of formal and informal social relations" (Lipińska-Grobelny, 2020, p. 274 after Marcisz, 2017). The second dimension, a little more visible and conscious, is the norms and values in force in the organization. And the last, most visible and conscious level of culture are cultural artefacts, i.e. symbols, ways of communication, rituals, taboos, stories (Zbiegień-Maciąg, 1999, pp. 44-51; Kostera, 2003; Mikułowski-Pomorski, 1999). If we assume that each organization is (more or less) a culture that is (more or less) distinct from others, usually ambiguous, then we also assume that it has specific, unique features, i.e. assumptions, values, symbols and other artefacts observable externally as manifestations of its a complicated and rich inner life (Hatch, 2002). However, it is very difficult to interpret the manifestations of culture without knowing (and not understanding) its very core hidden in the depths (Zbiegień-Maciąg, 1999).

3. Summary: inclusive onboarding – how to make good use of diversity

In the light of the above considerations, inclusive onboarding can be understood as an active, planned and prepared action of the organization, which aims to effectively and systematically include the newly hired employee in the multidimensional social and professional life of the organization. Inclusivity implies the inclusion of employees with different competences, physical or mental requirements, and socio-demographic characteristics. It is worth bearing in mind that it includes the employee in a multidimensional organizational organism in which there are visible and invisible elements, for which in turn it may be necessary to spend a lot of time (even more than assumed at the beginning).

The aim of the article is to indicate to what extent an organization hiring new, diverse employees is able to prepare an individualized onboarding process and to what extent it is necessary for the employee to effectively learn about various dimensions of the organization, and to what extent it is possible – so that each new employee also has the feeling that the organization wants to use their capabilities and they want to get involved in its activities. The relationship between employee engagement and HRM practices is the subject of many scientific studies (e.g. Alfes et al., 2013; Saks, Gruman, 2021). Also in the context of developing DEIB culture (that means Diversity, Equity, Inclusion, Belonging). Owyong (2022) explains how to change particular HRM practices that enhance building strong DEIB culture in organisations all over the world. It is not enough to employ diverse people and give them equal chances, possibilities, expectations but it is necessary to re-think existing HRM processes (especially onboarding – as that is the subject of the article) and prepare such solutions and practices that literally include newcomers into both professional and social organizational dimensions, and lead to the sense of belonging to the work team. In this context it is worth taking a closer look at the two proposed perspectives which are aimed at constructing the onboarding process in such a way as to significantly increase the chances of a new employee reaching the last stage of Connection according to the concept of The Four Cs (which seems to be impossible without knowledge of and emerging in the organisational Culture):

- firstly, the use of the Job Demands-Resources (JD-R) model in the onboarding process in relation to each of the most common diversity (gender, age differences, disability, chronic diseases, neurotypicality). It is a model that has been constructed to explain the phenomenon of burnout (Demerouti et al., 2001), but it is also used in another organizational context – research on the impact of HRM practices on increasing employee engagement, e.g. chronically ill people (Innocenti, Profili, Sammarra, 2023) and neurodiverse workers (Tomczak, Kulikowski, 2024). The JD-R model takes into account the requirements of the workplace (i.e. physical, social and organizational aspects that generate physical or mental effort and constitute some kind of psychological or physiological cost – e.g. exhaustion) and resources, i.e. the possibility of applying

strategies to protect the employee's health from the adverse effects of the workplace requirements, stimulate personal development and act functionally in achieving professional goals (Demerouti et al., 2001).

- secondly – preparation of separate onboarding processes for people taking up work for the first time, i.e. without professional experience, and for those with experience. The separation itself is a common practice, but in the case of people changing jobs (i.e. with work experience, and especially with long-term experience), it is worth considering extending the standard onboarding process, usually planned as a process of learning and adapting of the employee, to include the stage of "unlearning" previous work practices, behaviours, and even habits (Klein, Heuser, 2008). HRM practitioners and researchers propose that unlearning precedes proper adaptation, because only then does the organization have the opportunity to make onboarding more individualized, i.e. to take into account the diversity of employees, their unique experiences, knowledge base, and needs (Becker, Bish, 2021).

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THE ROLE OF FORMAL AND INFORMAL COMMUNICATION IN SHAPING SUPERIOR–SUBORDINATE RELATIONSHIPS

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Purpose: The purpose of this article is to analyze the functioning of two primary forms of communication—formal and informal—in modern organizations, specifically in the context of superior–subordinate relationships.

Design/Methodology/Approach: The results presented in the article are based on qualitative research conducted by the authors (10 problem-focused questions with 81 respondents). The aim was to obtain a comprehensive picture of the formal and informal communication processes occurring between superiors and subordinates and to categorize the fundamental components of these processes.

Findings: The research indicates that traditional, one-way communication schemes are no longer used in modern organizations. Formal communication from superiors is typically supported by informal messages, which serve either as preparation for a formal message or as a follow-up to supplement the formal message.

Research Limitations/Implications: Based on the categories of communication processes identified in the article, it would be desirable to conduct quantitative studies to determine the scale and frequency of the communication processes identified in the qualitative research.

Social and Practical Implications: The content of the article informs managers and the institutions that train them of the need to change their approach to communication between managers and subordinates. It is essential to move away from viewing informal communication primarily as dysfunctional and to recognize its role and significance in the processes of conveying and interpreting formal messages.

Originality/Value: The article highlights new trends in communication processes between superiors and subordinates, redefines the role of informal communication, and outlines a range of possible schemes for integrating informal and formal communication in superior–subordinate relationships.

Keywords: formal communication, informal communication, superior, subordinate.

Category: Research paper.

1. Introduction

Communication is a powerful tool as both the catalyst and regulator of human relationships, and theorists have long been interested in the issue of communication between superiors and subordinates. However, there has been a noteworthy shift in how the role of each party is perceived. Even relatively recently, there was a prevailing view of superiors as dominant, while subordinates were regarded primarily as providers of feedback (Fenn, Head, 1965). In 1970, James Granger stated that, in order to avoid the majority of communication problems, companies should build inter-organizational trust, encourage management to include a human factor in their message, and promote integrity—all of which can be achieved only with informal communication. However, some researchers claim that informal communication is a dysfunctional derivative of more organized and desirable formal communication. Makowiec and Potocki (2014) defined dysfunction in an organization as any activities or conditions that may disturb its optimal functioning. Regarding dysfunctional forms of informal communication, Pophal (2001) identified avoiding formal channels of communication, making decisions based on fragments of information (information gap), ad hoc communication between workers (which leads to failure to provide time and space for discussion), and lack of ensuring the appropriate level of redundancy of information through proper channels. Kozak (2009), meanwhile, argued that any behavior or action of an employee that is not in accordance with organizational values or culture can be labeled as pathological. These arguments point to informal communication as something undesirable that should be limited to a minimum.

The exchange of information, ideas, and feelings enables individuals to establish and maintain social bonds. Berger and Calabrese's (1975) uncertainty reduction theory demonstrates how communication aids in reducing uncertainty in new relationships by fostering understanding and closeness. This process is particularly crucial in personal contexts and broader professional interactions, where communication functions as a tool for both structuring information exchange and building a sense of community.

In the management field, communication is a critical element influencing operational efficiency and the organisation's ability to process complex information, which is essential for making immediate and strategic decisions. Effective organisational communication is both a means of conveying information and a tool for managing people, shaping organisational culture, and implementing change. Communication between superiors and subordinates is particularly intense, occurring continuously and daily. As such, superiors constantly face decisions about how, what, when, to whom, and in what mode to communicate to achieve the desired outcomes. One of the main distinctions in communication processes between superiors and subordinates is that of formal versus informal communication.

The process of constructing communication strategies for superiors and subordinates, including the selection of content communicated through formal or informal channels, is undoubtedly of great importance, as it determines the atmosphere and level of trust in the team and thus affects the effectiveness of the management process. However, there is a surprisingly scant amount of prior research on this issue. The primary goal of this study is to address this gap through qualitative research attempting to explain the reasons for the choice of specific forms of communication and to identify appropriate sequences of formal and informal communication to meet the goals of management. Analysis of conversations, interviews, and observations regarding formal versus informal communication was the basis for interpreting the results of this study. The practical aspects presented in the research and reflected in the discussion will contribute to a better understanding of the dynamics of communication within organizations. The remainder of the paper is divided into three main parts. The first part covers the theoretical background; the second part presents the results of the study, focusing on the aspect of formal communication and touching on informal communication; and the final part summarizes the findings of the research.

2. Methods

The research that forms the basis of much of this article was conducted in December 2013 and January 2014. A qualitative methodology was employed to avoid imposing predefined response categories on the participants. The primary goal was to obtain authentic personal narratives regarding the perception and evaluation of communication processes between superiors and subordinates in contemporary institutions. The research instrument comprised ten open-ended, problem-focused questions that allowed respondents to express their views, reflections, and experiences. All questions pertained to formal and informal communication and the methods and circumstances of their use. To mitigate the typical risk of obtaining a meagre response rate, cooperation was solicited from individuals who had previously participated in classes conducted by the authors. The questionnaires were sent to approximately 500 people who held managerial roles, and 81 responses that qualified for analysis were received. This high response rate was likely influenced by the respondents' previous interaction with the authors and desire to help specific, non-anonymous individuals. However, this context did not affect the content of the responses, as all participants were informed about the purely scientific purpose of the study and assured of complete confidentiality and anonymity.

The study's primary objective was to identify how communication phenomena in superior-subordinate relationships are perceived and structured. This initial stage of the research process serves as the foundation for more in-depth empirical studies based on the identified categories of phenomena. This approach proved necessary given the relatively limited number of sources

dedicated to discussing the issue of communication between superiors and subordinates. After a general review of the collected material and confirmation that its quality met expectations, a detailed analysis of the responses began according to the structure derived from the questions. Despite the diversity of respondents' employment locations, a precise categorisation of responses emerged after analysing a random sample of the responses. A given response was either assigned to an existing category or considered for a new one. Subsequent analyses contributed fewer unidentified categories, ultimately leading to a saturation point in the material's structure. Because the respondents' answers were spontaneous and unstructured, statistical analysis was not performed, as it would be overly influenced by interpretations imposed by the researchers. However, a general assumption was made that the identification of individual categories, discussed in the later part of the study, would be carried out with the utmost care and only when a particular type of response was expressed by at least a dozen or so respondents. It might be argued that half of the collected material would have sufficed to identify the final response structure. However, the reality was more complex: up to the final analysis, the last responses provided interesting and vital information, often consistent with previously obtained information but revealing new details in different contexts. It is for this reason that it is advisable to seek as comprehensive a research sample as possible, even in qualitative studies.

3. Formal Communication

Research on social phenomena often begins by defining the terms to be analysed and referencing the phenomenon's history. Early discussions on formalising communication in organisations can be found in the works of Taylor (1911), Weber (1947), and Fayol (1949). These classics of management theory were proponents of hierarchical and highly formalised communication, closely aligned with their broader conceptual frameworks. Similar approaches can be observed today. For example, Prestia (2021) defines formal communication as the flow of documents that are primarily tied to organisational policies, unidirectional, and oriented towards maintaining high accuracy and compliance with other established rules.

When employees communicate formally, the communication typically occurs in the context of task execution or goal setting related to work. As Koch and Denner (2021) note, such communications include task assignments, meeting arrangements, and information dissemination about decisions. These statements are not contradicted by research findings but are enhanced and enriched by the identification of reasons or premises for using formal communication. The relationships between superiors and subordinates is the focus of the present research, analysed from the perspective of respondents, who are managers.

The collected materials were analysed, and respondents' comments on the role and methods of formal communication were categorized into several groups.

The first group includes remarks on the regulatory and organisational nature of formal communication:

- "Formal communication is used when I want to convey information essential to the company's functioning to employees".
- "Formal communication is necessary for proper job execution and reliable accountability for its outcomes".
- "Formal communication is an excellent tool in situations where precision and clarity are important".
- "The role of formal communication is to provide clear information to recipients".
- "Formal communication should ensure the maintenance of standards and compliance between various rules in the company".
- "Formal communication is necessary to ensure uniformity of action and consistency of company policy".
- "The task of formal communication is to convey official management decisions to employees".
- "An important feature of formal communication is its availability to everyone who might be interested or affected by the information".

The second group of responses relates primarily to issues of responsibility, including its allocation, division, and enforcement:

- "I use formal communication when the situation requires defining responsibility for decisions and their implementation".
- "People often try to evade responsibility by blaming others. Formal communication serves as a 'shield' to verify who is right".
- "The precision, transparency, and organised structure of formal communication make it useful in many difficult or even conflicting situations".
- "Formal communication is advantageous when employees from different departments participate in a project, and thorough coordination of their work is required".
- "The importance of formal communication increases in long-term projects. It is crucial to track the evolution of decisions".

The third group of premises for formal communication is psychosocial in nature and relates to trust. The following comments from our respondents illustrate this:

- "I use formal communication with people I do not trust".
- "I resort to formal communication when dealing with a difficult, sensitive issue, and I am unsure how the person involved will react".
- "I rely on formal communication when an employee behaves poorly, and clear expectations and consequences must be established. I want to have documentation of my actions".

- “When there are doubts or differences of opinion, it is worth referring to formal communication because it inspires trust as it is believed to be verified and confirmed by appropriate company authorities”.
- “When I do not fully trust someone, even while using formal communication, I prefer to secure myself by involving others as witnesses”.

In summary, the main characteristics our respondents attributed to formal communication are: clarity, conciseness, official documentation, consistency, unambiguity, certainty, availability, and durability. Some respondents expanded their assessment by characterising certain features of formal communication as advantages. The most frequently mentioned of these were clear information structure, clearly defined terms, linguistic correctness, careful adherence to forms related to respect for the recipient, controlled circulation, and defined access rules.

Meanwhile, the weaknesses and limitations our respondents associated with the use of formal communication include: a high level of formalisation discouraging or even preventing questions, rigidity, excessive bureaucracy, limited innovation, and slow implementation of changes. More detailed comments on the disadvantages and limitations of formal communication were also provided:

- “An excess of information or regulations leads employees to skip or ignore some of them”.
- “A high level of formalisation slows down decision-making processes”.
- “The formalisation of communication hinders the exchange of ideas and hampers innovation processes”.
- “Employees may find formally structured messages difficult to understand”.
- “Excessive formalisation of communication can hinder the building of positive relationships between superiors and subordinates by creating a sense of excessive distance”.

In concluding this part of the discussion, it is also worth mentioning the opinions of respondents related to “compromise” between communication types:

- “It is important for the company and its employees to find a balance between formal and informal communication, which should allow for order and consistency in management without losing the necessary flexibility and dynamism”.
- “Managers should skillfully navigate between formal and informal communication channels, striving to maintain coherence and balance”.
- “One of the main tasks of a manager is to create a friendly and balanced communication environment that allows for adapting the communication process to the requirements of the situation. A good manager should be able to choose when to use formal communication and when informal approaches will yield better results”.

According to Whittaker et al. (1994), today's most common formal communication channels are documents, memos, emails, and official phone calls. Moreover, the COVID-19 pandemic has significantly increased the use of tools like MS Teams and chat services for formal information exchange (Viererbl et al., 2022). Our research fully supports this observation.

The choice of communication methods is linked to the roles participants play in the organisation and their positions within the organisational structure (Chen, Krauskopf, 2013; Lai, 2016). Formal communications are often directed downwards in the organisational hierarchy, from the superior to the subordinate. In less bureaucratic organisations, we increasingly see communications moving upward as well, in the form of opinions or suggestions from subordinates (Holtzhausen, 2002). According to our findings, these upward communications often take the form of informal communication.

4. The Role of Informal Communication in Management Processes

The first signs of changing attitudes towards communication and the recognition of the existence and role of informal communication can be found in the works of Barnard (1938) and Mayo (1945). They highlighted that informal communication significantly influences the sense of community among employees, helps establish norms and rules of conduct, and is a crucial factor in job satisfaction.

In many sources, including the most contemporary, informal communication within an organisation is described as exchanging thoughts, opinions, or views on topics unrelated to work (Fay, 2011). Informal communication occurs when employees, usually at the same level within the organisational structure, engage in informal roles unrelated to their positions (Koch, Denner, 2022; Lai, 2016; Wolfgruber et al., 2022). It is unplanned, is not bound by specific expectations, and has an unofficial character (Hanlon, 2021). Research shows that informal communication occurs in corridors; common work areas; or social spaces like kitchens, dining rooms, and restrooms. It is also increasingly conducted using modern communication methods such as Messenger, MS Teams, Skype, SMS, and email (Viererbl et al., 2022).

Many authors assert that informal communication channels play a crucial role in organisations, facilitating better and faster dissemination of information, and that the obtained information is often considered more insightful (Lai, 2016). Informal communication contributes to employees' sense of belonging to the organisation by providing access to information that might otherwise be inaccessible, offering opportunities to share their opinions, and increasing their participation in decision-making processes (Wolfgruber et al., 2022). Effective informal communication is essential for job satisfaction (Špoljarić, Verčič, 2022) and can also enhance a company's financial performance (Park, 2022).

Before discussing the analysis of the empirical research findings on informal communication, it should be noted that our research indicates a significant increase in the importance of this form of communication. More importantly, we note a fundamental shift in its role, particularly in superior–subordinate relationships. For this reason, the research suggests that basic assumptions about the relationship between the two types of communication need to be revised, as contemporary organisations exhibit a high degree of mutual dependency and complementarity between them. To avoid excessive generalisation, we divided the scope of relations between superiors and subordinates into five areas: operational management, task execution processes, the sphere of behaviour and relationships among team members, and the areas of motivation, employee evaluation, and professional development. Each area demonstrates different communication process patterns involving formal and informal communication.

The area of operational management typically functions under time pressure, customer pressures, and disruptions of various kinds. Work process methods are highly formalised and precise, ensuring correctness and efficiency. The role of formal communication is to imbue these processes with rationality and obligation. However, the aforementioned pressures and disruptions make this form of communication insufficient. According to our respondents, situational or informal communication is essential when:

- Formal procedures do not account for the specifics of the situation at hand.
- An increase in speed is required.
- Changes in task allocation are needed.
- Safety rules are being violated.
- Established rules of cooperation between employees are being breached.
- Unethical behaviors occur.

In these cases, informal communication is an essential, sometimes necessary complement to formal communication, often functioning in a difficult-to-distinguish combination. In this context, informal communication's main features are speed, responsiveness, and intentional alignment with formally set goals. This creates a personalised substitution within the organisational system, which can sometimes use both types of communication simultaneously or alternately. The distinctive feature of such communication is the parallel and non-conflicting action of both communication types. There are, however, many risks associated with the lack of formal grounds for action, the absence of proper documentation, neglecting the individual sensitivities of some people, or using inappropriate language forms.

Interpersonal relationship regulation and personnel decision processes differ from the operational area in that informal communication mainly occurs in the phase preceding decisions and formal communication. One respondent's statement illustrates this as follows: "When it comes to issues related to an employee's functioning within the team, it is better first to have an informal conversation and warn them that if the situation does not change, there will

be consequences". Another respondent noted: "There should be a principle of two conversations: the first, informal, indicating that something is not right, and if the situation does not improve, the second conversation should be completely formal". Another respondent said, "Before making difficult decisions, it is worth having informal discussions to understand employees' expectations". We also observed a theme of reducing tension and resistance to planned actions: "Informal communication can be used to gently convey information about upcoming difficult decisions and reduce uncertainty and anxiety".

The next area examined is employee motivation. In this case, there is a clear trend towards using informal communication to explain or add commentary following the transmission of formal messages about decisions. However, occasional remarks also suggested a desire to gather informal opinions on planned motivational actions: "It is good to know employees' expectations and needs beforehand". Managers, however, are aware that this might create expectations they cannot meet: "You should not ask employees about their opinions on bonuses or awards in advance because they will be disappointed if their expectations cannot be fulfilled." For this reason, the predominant trend is to use informal communication in the form of commentary, explanation, or even justification: "I use informal communication techniques to convey information about the background of decisions to reduce dissatisfaction caused by them". "I prefer conversations in a more private setting when mistakes have been made. It is easier to admit that something was not done as it should have been". Sometimes, informal communication serves as a specific form of compensation when a satisfactory financial solution is not possible: "If I do not have financial resources, I at least praise, congratulate, and promise informally and individually. I cannot do it publicly or on a large scale because they will not believe me, and I do not have the appropriate means".

The next area is employee evaluation. The focus here is on ongoing evaluation, as periodic evaluations are governed by somewhat different principles, typically being highly formalised and following established procedures. For example, in the case of motivation, communication regarding evaluation usually occurs after the events to which it pertains and takes the form of commentary, explanation, or, occasionally, justification. Respondents explained it as follows: "It is better to communicate unsatisfactory evaluations informally to avoid hurting the employee and to explain the reasons for unsatisfactory behaviours clearly". "Sometimes evaluations are made by comparing an individual with others, either better or worse. This should not be done publicly or formally". There were also calls for combining formal and informal communication: "Formal and informal communication should be combined. Each has its drawbacks, and their combination helps avoid these". "Combining formal and informal communication helps show the strength of the evaluator while also demonstrating a willingness to find a compromise".

The final area examined in the study covers employee professional development issues. In this case, communication was informal and conducted ex-ante. Superiors expressed their opinions on the potential and developmental opportunities of employees, informed them of existing solutions, encouraged them to make efforts, and guided them: "I invite an employee

for a conversation to inform them non-committally that they have a good reputation and should think about what they want to achieve in the future”. “I start with informal communication to inspire the employee to increase their effort, which will facilitate recognition of their value and lead to formal steps being taken”.

The analysis shows that informal communication is a vital management tool that complements and sometimes even substitutes for formal communication. However, one should not underestimate the negative aspects of informal communication. The respondents pointed out several issues:

- “Informal communication lacks credibility. You never know what is true, what is a trial balloon, and what is a rumour”.
- “The inherent selectivity of informal communication means that you think everyone knows about an issue when only some do, creating chaos”.
- “Every company has individuals who are overly active in spreading information and those who are more withdrawn and reserved. This difference in activity creates an artificial hierarchy that does not reflect the actual value of employees”.
- “The plague for the management process is unchecked, piecemeal information or just plain rumours, which intensify especially during change, reorganisation, or layoffs”.
- “Informal communication often serves as a means of self-protection or as evidence in case of conflict or blame assignment”.
- “Unfortunately, with the widespread use of informal communication, there has been a significant degradation, and sometimes vulgarisation, of language”.
- “It can be challenging to distinguish between what is a formal communication and what is a personal opinion of an individual”.

Despite informal communication’s distinct nature, its ties to the work context are undeniable, even if they are sometimes unintentional or dysfunctional regarding the established goals and rules.

5. Summary

As revealed in this study, the notion of inherent competition or contradiction between formal and informal communication between superiors and subordinates is not justified in modern organisations. These are not independent, separate forms oriented toward entirely different goals. Rather, in the realm of superior–subordinate relationships, which is the focus of our study, there is a clear trend towards the simultaneous use of both forms of communication. An interesting aspect of our findings is the identification of three groups of premises for using formal communication:

- Regulatory premises: These relate to maintaining order and ensuring the correct execution of tasks.
- Responsibility premises: These involve assigning, sharing, and enforcing responsibility.
- Trust-based premises: These concern the level of trust between the superior and the subordinate.

On the other hand, the study of informal communication allowed us to recognise the distinct content of communication in various areas of personnel management. It helped identify their nature and revealed the existence of several sequences of intertwining formal and informal communication.

The presence of the following communication areas and sequences was observed:

- Exclusively formal communication: Used in highly structured, official scenarios where precision and adherence to rules are paramount.
- Exclusively informal communication: Typically occurs in more relaxed, personal contexts or when quick, spontaneous exchanges are needed.
- Communication processes start informally and move to formality: This sequence begins with informal discussions to gauge reactions or prepare for formal decisions.
- Communication processes are initiated formally and concluded informally: This process starts with official communication followed by informal explanations or follow-ups to ensure understanding and compliance.
- Processes involving multiple alternating cycles of both types: These are dynamic processes wherein formal and informal communication are used interchangeably to address complex or evolving situations.

Our findings align with Koch and Denner's (2021) observation of organisational communication as a spectrum anchored by fully formal and fully informal communication at the extremes. Between the two, they argue that messages often have a "mixed" nature, containing both formal and informal communication elements. The research confirms this insight and further highlights the diverse forms and sequences in which formal and informal communication can be composed and utilised.

In summary, formal communication is derived from the organisational structure and specifies who can communicate what to whom and within what scope. Informal communication complements formal communication by enabling more effective and rapid dissemination of information, and it is essential for fostering organisational belonging and building closer relationships between superiors and subordinates.

Based on this research, formal communication between superiors and subordinates is often enriched with elements of informal communication, whether it precedes, accompanies, or follows formal information transmission. Both types of communication are generally aimed at cooperation rather than conflict or competition.

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COMPANY PROSUMERISM AS A FORM OF COOPERATION WITH CONSUMERS

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Purpose: The aim is to present prosumerism of companies as a form of cooperation with consumers, their expectations, perceived benefits and challenges.

Project/methodology/approach: The research tool was a survey questionnaire prepared by the author of this paper. The survey was conducted in 2022 among 1000 adults (18 years and older), by a research company, using CAWI method in a consumer panel.

Results: The survey results show that consumers engage in various prosumer activities of companies. However, they also expect companies to be proactive in including them in such activities. They are aware of the prosumerism benefits for companies, but also recognize the challenges related to it.

Research limitations/practical implications: Research was conducted among only one group of participants in prosumer activities – consumers. It is planned that future research will also include a second group – companies. This will provide insight into the prosumption activities undertaken, their barriers, as well as their benefits and opportunities. In the paper, recommendations are presented for companies to undertake prosumption activities in order to cooperate with consumers and respond to their expectations.

Social implications: The importance of prosumption activities for companies, as well as for consumers, is highlighted, which can influence consumers to become more involved in companies' activities, thus benefiting them more.

Originality/value: The paper analyzes the company's own research findings on the benefits, expectations and problems associated with prosumption practices of companies. Practical recommendations provide valuable guidance for companies planning and implementing prosumer activities aimed at cooperation with consumers.

Keywords: prosumerism, prosumption, consumer, cooperation, company.

Paper category: research paper.

1. Introduction

The development of new technologies and new media creates enormous opportunities for companies to interact with consumers as well as to establish and shape relationships with them. Consumers, especially young ones, want to be active participants in the market, not just passive

recipients, and expect companies to involve them in their activities on various levels, from expressing their opinions up to the modification of products according to their expectations and participation in the design of products/services. Consumers become prosumers or active consumers – combining the roles of producer and consumer. As Toffler points out, a prosumer is a producer who consumes products created by himself, but the market development has caused many changes in the relationship between producer and consumer (Toffler, 2006, pp. 306-307), and changes in various spheres of social and economic life mean that the modern consumer is no longer so self-sufficient and needs the market and producers' help. Therefore, companies should undertake presumptive activities aimed at cooperation with consumers, by creating appropriate tools and platforms to engage them. The aim of this paper is to present consumer activity in the context of cooperation with companies, as well as consumers' expectations in this regard and their conditions. It has been assumed that consumers are prosumers – most of them undertake various prosumer activities, recognizing both the benefits and challenges for companies arising from such cooperation. The research conducted so far has focused primarily on prosumer activity, while there is a lack of research on the prosumerism of companies and its perception by consumers. The paper presents the results of our own research on prosumerism as a form of cooperation between companies and consumers, as well as their expectations as well as perceived problems and challenges for companies.

2. Significance of prosumerism and prosumption

Prosumerism is part of the new business model (Tapscott, Williams, 2008, pp. 41-55), which is characterized by openness, partnership, cooperation, and sharing. This model is referred to as the sharing economy, as the parties involved in it share their resources. Consumers share their experiences, opinions and co-design solutions, and companies share their resources to encourage customers to collaborate. The new economy model is based on the principle of “engage and create together” (Tapscott, Williams, 2008, p. 56) and is shaped not only by the actions of companies, but also by activity, consumer involvement and the development of new technologies (Siuda, 2012, p. 33). It requires more intangible, conceptual, innovative work to respond to consumer demands and needs (Krzysztofek, 2014, p. 30). Therefore, prosumerism represents the actions and practices of companies that aim to involve consumers in the company's activities, in the creation of products, which involves revealing the ways of creating solutions and giving consumers control over the product (Siuda, 2012, p. 33).

Prosumerism is combined with prosumption i.e. the activity of consumers who want to be involved in the activities undertaken by companies on various levels: from expressing opinions to co-creating the market offer. Prosumption involves the co-participation of buyers with bidders in the process of marketing creation, resulting in the preparation of product offerings

and/or other marketing values that better meet buyers' expectations, which in turn allows for building long-term marketing partnerships (Baruk, 2017, p. 23). T. Szymusiak distinguishes three types of prosumption due to the cooperation level between the participating parties:

- individual prosumption – no cooperation, full independence and self-reliance of the prosumer,
- intra-prosumption – collective, occurs in a group of prosumers participating in the process of product development,
- inter-prosumption – collaboration between the prosumer and the producer through social networks to develop new solutions (Szymusiak, 2013, p. 263).

Taking into account the involvement level in the collaboration process, F. Nowacki distinguishes 6 types of prosumers: (1) active user – provides a small contribution through social networks in which he participates, (2) engaged user – creates ideas that the company offers exclusively to the co-creating prosumer, (3) innovative user – creates innovations for other prosumers or the company, which he uses exclusively for his own needs, (4) company partner – co-creates innovations with the company, further offered to all buyers, (5) co-creator of the market – building a market where everyone cooperates with each other, (6) market creator – independently creating the industry with the participation of other prosumers (Nowacki, 2016, p. 138). Cooperation between companies and consumers takes the form of social cooperation, when companies use not only their own human resources, but also dispersed social resources. Therefore, it is important to maintain and improve this cooperation in order to keep these resources with the company and use them (Comor, 2010). Consumer-company cooperation can be twofold:

- civic prosumption – the customer expresses prosumption activity by giving his opinion on the market offer, feedback, sharing his experience,
- participatory prosumption – the customer is actively involved in the process of developing a product, service or other form of cooperation with the company, and their result is a joint product, service or advertising, created on the basis of the consumer's design/idea/initiative (Tian, Shen, Chen, 2017).

Such activities are mutually beneficial – prosumers, on the one hand, share their knowledge, ideas, experience, and develop their skills, gain knowledge and experience (Lemanowicz, 2020, p. 83.) Material aspects can also be important here – the prosumer can obtain tangible benefits in the form of free products/services or financial gratification, and companies, shaping a better offer thanks to cooperation, can be more competitive.

3. Positive and negative aspects of prosumerism

Prosumption changes the relationship between business and customers (Jenkins, 2007, Prahalad, Ramaswamy, 2004b, p. 1; Terblanche, 2014, p. 1; Ritzer, Jurgenson, 2010) the relationship becomes more symmetrical through consumer participation, thus intensifying information exchange (Jenkins, 2007, p. 94). The prosumption model leads to the fact that passive, unconscious consumers, who remained in isolation from each other, now become conscious, active and “connected”, i.e. forming communities, consumers (Prahalad, Ramaswamy, 2004b, p. 1; Terblanche, 2014, p. 1). Creation of consumer communities increases their awareness, position and role in relations with producers. However, prosumption can also exacerbate the asymmetry of these relationships, as involving consumers in the company’s activities can involve their manipulation and exploitation (Ritzer, Jurgenson, 2010). On the one hand, changing relationships is a top-down process, driven by business, which directs consumer behavior. On the other hand, it is also a bottom-up process shaped by consumers themselves, engaging voluntarily with companies (Jenkins, 2007, pp. 21-23). Therefore, in the prosumer model, exploitation is less visible, and it is more difficult for companies to control prosumers than it was previously for consumers, due to the greater potential for resistance on their part (Ritzer, Jurgenson, 2010).

As such, prosumption intended to change the business-customer relationship may further deepen it. Business can create the appearance of cooperation with consumers, during which it controls them all the time. Consumers are convinced that they are the ones who give opinions, criticize, make choices (Bauman, 2000, p. 100), while the company is all the time monitoring their activity, learning about their preferences and consumption behavior (Fuchs, 2011, pp. 11-12). It can be stated that customers have been locked in a cage-trap that allows companies to exercise control over them (Barber, 2009, pp. 53-54). Companies know what their customers think, what their experiences are, what they do with their products, they know their expectations, as customers themselves provide this information to them (Ritzer, 2009, p. 29), often deriving joy, pleasure from this cooperation. At the same time, companies provide consumers with the tools to collaborate, share their opinions, give consumers work for which they do not pay (Fuchs, 2011, pp. 10-12).

Therefore, in order to solve the problems of prosumerism, companies need to prepare strategies for prosumption activities, plan them and implement consistently, making them not single actions, but actions that engage customers and create a community of prosumers around the company, such that they become an important asset of the company. The prosumption activities of companies must not be secondary, aimed at creating appearances, involving consumers in less important activities, because they want to take meaningful actions that allow their creativity, ideas to be taken into account (Xie, Bagozzi, Troye, 2008, p. 110).

4. Research methodology

The paper presents the results of our own research, the aim of which was to obtain the respondents' opinions on prosumerism of companies, the forms of cooperation of the respondents with companies and their expectations in this regard. The following research questions were adopted: are consumers active consumers, prosumers? what forms of consumer activity do they most often undertake and what are their expectations regarding cooperation with companies? It was assumed that consumers are active consumers, and their activity takes the form of citizenship rather than participation, and it is mainly determined by gender, education, age and material situation. The survey was conducted in 2022 by a research company, using the CAWI method in a consumer panel with a sample of 1000 adults (18 years and older). The participants were 510 women and 490 men. Forty-four percent each were people with secondary and higher education (including a bachelor's degree), with the remainder having vocational education (11%) and primary education (2%). The largest percentage of respondents were individuals in the 30-39 age group (30%), about 1/4 of the respondents were each aged 18-29 and 40-49, the remainder (about 1/5), were those aged 50 and over.

5. Presentation of research results

Respondents are active consumers who engage with companies in various ways. The vast majority of them (79.5%) seek information about products/services on the Internet, while almost half share their opinions, experiences about products, services with other users (49.1%). At the same time, women are more likely to share their opinions than men ($p = 0.013$). In turn, 35% of respondents took part in testing products/services, and 28.5% in contests organized by companies. Women are also more likely to engage in such activities than men ($p = 0.001$ and $p = 0.020$, respectively). Significantly fewer respondents (15%) participated in meetings, events organized by companies, in the process of developing a product/service that was initiated by the company or in the preparation of a promotional campaign, advertising (10%). Respondents are even less active in modifying the products/services of companies to meet their own needs (9%) or preparing their own projects/proposals (7%). There is a significant relationship between the respondents' age and their consumer activity, the lower the age, the more often the respondents engage both in various activities organized by companies, as well as take their own initiatives and share their opinions and experience with others. The consumer activity of respondents is also determined by education. The higher the education, the more often the respondents participate in testing products of services ($p = 0.004$), in contests ($p = 0.003$) and events organized by companies ($p = 0.001$), and the more often they seek information about market offerings ($p = 0.000$).

Table 1.
Respondents' age and prosumer activity

Consumer activities	Total		18-29 years old		30-39 years		40-49 years		50 years and over		p
	n	%	n	%	n	%	n	%	n	%	
participation in product/service testing	353	35,3	93	36,8	114	37,7	81	33,9	65	31,6	0,475
participation in competitions organized by companies	285	28,5	84	33,2	111	36,8	63	26,4	27	13,1	0,000
participation in the development a product/service, initiated by the company	97	9,7	26	10,3	43	14,2	21	8,8	7	3,4	0,001
participation in the preparation of a promotional campaign, initiated by the company	100	10,0	33	13,0	36	11,9	24	10,0	7	3,4	0,003
participation in events organized by companies	155	15,5	45	17,8	53	17,5	35	14,6	22	10,7	0,124
sharing opinions, experiences about products, services with other users	491	49,1	134	53,0	165	54,6	121	50,6	71	34,5	0,000
searching for information about products/services (company websites, social networks, price comparison sites)	795	79,5	198	78,3	256	84,8	198	82,8	143	69,4	0,000
preparation of a project or modification of a product/service or promotional campaign and presentation to the company	72	7,2	22	8,7	30	9,9	15	6,3	5	2,4	0,009
modification of products produced by companies for their own needs	89	8,9	29	11,5	27	8,9	16	6,7	17	8,3	0,309

Source: own research.

Knowledge and opinions about products/services with other users are often shared by almost half of respondents (48%), sometimes by 34% of respondents, while rarely by 18% of respondents. This is the most common form of consumer activity. The younger the respondents, the more often they share their experience and opinions ($p = 0.005$), and also the better their financial situation, the more active the respondents are in this regard ($p = 0.000$). The consumer activity of the respondents is not limited to cooperation with companies, but is primarily aimed at other consumers, which is reflected in seeking their opinions about the market offer. The vast majority of respondents seek information about products and services as they take them into account when making purchasing decisions (88%). The opinions of other users are more important for women (91%) than for men (84%) and for those with higher education and better financial situation.

Respondents are active consumers, most often their activity is civic and reflected mainly in seeking information on market offerings and sharing their opinions. To a much lesser extent, their participatory activity involving engagement in the creation of the market offer is visible. Civic activity is easier than participatory, requiring less effort and involvement. Access to information about opportunities for consumers to get involved is also not insignificant,

challenging companies to disseminate more such information. Especially as the survey shows that there are high expectations of respondents related to prosumerism. Only about 1/10 are not interested in any form of consumer activism.

The majority of respondents would like to participate in product testing (65.5%), and almost half of respondents declare a desire to participate in contests organized by companies. Women are more willing to express this type of activity than men. In turn, almost 44% of respondents would take part in the process of developing a product/service or promotional campaign. More than 30% of respondents would like to participate in meetings, events organized by companies and modify products by adapting them to their own needs. On the other hand, more than 20% of respondents would like to prepare their own design of a product and service or promotional campaign. Particularly important is the large percentage of those who would like to undertake various forms of prosumer activity, including participation. These expectations of consumers are higher than their actual activity, and this raises challenges for companies, which should create solutions to establish cooperation with consumers to address their expectations and needs. Consumers are more willing to collaborate on solutions created by companies than to create their own solutions. The higher the education level, the more often the respondents declare their willingness to engage with companies in various forms. More consumer activity is declared by younger people, as well as those with better financial situation. The respondents' gender determines the declared prosumer activity of the respondents in two areas, i.e. participation in product testing and participation in competitions – women are more likely to express their willingness for participation than men.

Table 2.

Respondents' age and expectations related to consumer activity

Expected consumer activity	TOTAL		18-29 years old		30-39 years		40-49 years		50 years and over		p
	n	%	n	%	n	%	n	%	n	%	
participation in product/service testing	655	65,5	162	64,0	206	68,2	151	63,2	136	66,0	0,611
participation in competitions organized by companies	487	48,7	122	48,2	176	58,3	109	45,6	80	38,8	0,000
participation in the development of a product/service/promotional campaign	437	43,7	123	48,6	149	49,3	104	43,5	61	29,6	0,000
participation in events organized by companies	309	30,9	90	35,6	108	35,8	68	28,5	43	20,9	0,001
modification of products produced by companies for their own needs	318	31,8	83	32,8	119	39,4	73	30,5	43	20,9	0,000
preparation of own product/service design or its modification or participation in a promotional campaign	231	23,1	72	28,5	94	31,1	49	20,5	16	7,8	0,000

Source: own research.

The need for companies to become more involved in cooperation with consumers is indicated by as many as 70% of respondents, only about 4% have a different opinion, and ¼ have no opinion on this issue. The lower the age, the more often the respondents believe ($p = 0.017$) that companies should encourage consumers to become involved in their activities, such an opinion is also shared more often by those with better financial situation ($p = 0.001$). Encouraging consumers to cooperate is important for companies, because according to respondents, companies need to cooperate with consumers and treat them as partners in order to stand in the market. Companies' openness to consumers is beneficial for businesses due to the possibility of creating new solutions, innovations (59%), access to information through which they can improve their offerings (50%), the possibility of shaping a positive corporate image (54%), as well as establishing and maintaining closer relationships with consumers (48%). The higher the education level, the more often the respondents indicate benefits for companies from cooperation with consumers in the image, relational and innovative dimensions, and the need for companies to value consumer involvement.

Table 3.

Gender and company benefits from cooperation with consumers

Company benefits from cooperation with consumers	TOTAL		Male		Female		p
	n	%	n	%	n	%	
access to information that can improve their offerings	504	50,4	231	47,1	273	53,5	0,043
opportunity to build a positive image	542	54,2	256	52,2	286	56,1	0,224
opportunity to establish and maintain closer relationships with consumers	480	48,0	233	47,6	247	48,4	0,781
opportunity to create new solutions, innovations	588	58,8	270	55,1	318	62,4	0,020

Source: own research.

However, in order for this cooperation to be mutually beneficial, companies should appreciate consumer involvement more through, among others, financial or in-kind rewards (47.5%) and take into account consumer suggestions for changes in the market offer (44%). In addition, they should provide free tools, materials, with the possibility for consumers to use them creatively and present their solutions to the company (35%) and create special networking platforms to facilitate consumers to create their own solutions, share their experiences/opinions (30%). Meetings between the company and its engaged consumers are also quite important (29%).

Table 4.

Gender and opinion on actions to be taken by companies

Companies should:	Total		Male		Female		p
	N	%	n	%	n	%	
recognize consumer involvement through, among others, financial/in-kind rewards	475	47,5	229	46,7	246	48,2	0,635
take into account consumer suggestions for product/offer changes	441	44,1	213	43,5	228	44,7	0,694
hold meetings with its engaged consumers	286	28,6	128	26,1	158	31,0	0,089

Cont. table 4.

create networking platforms (portals, forums) to help consumers create their own solutions, share their experiences/opinions	302	30,2	143	29,2	159	31,2	0,493
provide tools, materials free of charge, with the possibility for consumers to use them creatively and present solutions to the company	346	34,6	159	32,4	187	36,7	0,161

Source: own research.

Prosumerism also comes with challenges for companies, such as the need for constant innovation, creating new solutions to meet consumer expectations, and the cost of such collaboration, as companies must offer the right tools for collaboration or the risk of losing control over processes, consumer disloyalty and the difficulty of keeping consumers engaged. This is, of course, a difficult task, but with the consumer market currently in place and the need to constantly solicit consumers, companies must implement the prosumption model, especially given that consumers are interested in such cooperation with companies.

6. Discussion

Prosumerism, a phenomenon of increasing importance in the operations of companies, presents both opportunities to achieve tangible benefits and challenges from working with consumers. Consumers are prosumers and want to cooperate with companies. An analysis of the correlation between socio-demographic variables and the involvement of respondents in particular prosumption activities shows a strong correlation between gender, age or education. Respondents engage not only with companies but also with other consumers, seeking opinions about products and services or sharing them, which is an expression of civic activism (Tian, Shen, Chen, 2017). To a lesser extent, they engage in participatory activities (Tian, Shen, Chen, 2017) by engaging in activities, i.e. designing a promotional campaign, participating in the development of market offerings, or designing their own solutions. Undertaking this type of activity involves more effort and contribution, which is why it is important to create solutions aimed at increasing it. Particularly considering that the respondents declare their willingness to engage in this type of activity. However, a barrier is the lack of information, consumer knowledge about the activities organized by companies and the possibilities to join them. Accordingly, companies should disseminate more information about the prosumption activities undertaken using various communication channels, while encouraging consumers to participate in them.

In the activities undertaken, companies should involve consumers by providing specific tools rather than offering them to create their own projects, as consumers are more likely to collaborate on solutions created by companies rather than design their own solutions. Through cooperation with consumers, companies gain feedback on market offerings, consumer ideas to

improve market offerings, including better customization of the product to their needs and expectations, greater consumer satisfaction and loyalty. Therefore, companies should engage more in cooperation with consumers. It is also important to appreciate the involvement, activity of consumers, through financial and in-kind rewards, taking into account their proposals in the prepared market offer or providing free tools to create their own solutions. Companies planning prosumption activities should also draw attention to the problems and challenges associated with them, which arise from, among others: the need for constant innovation, the creation of new solutions, or the need to bear the costs of providing appropriate tools for cooperation, the difficulty of maintaining consumer involvement and their disloyalty.

7. Conclusions

The research conducted provided insight into consumers' activity in terms of cooperation with companies, their expectations, perceived challenges of company prosumerism. Admittedly, this consumer activity tends to take on civic forms (giving opinions/evaluating products), but according to the survey, consumers expect more participatory forms of cooperation. In spite of the fact that these are only declarations by consumers, not supported by actual cooperation, they can provide valuable guidance for a company in planning its activities. Getting to know consumers' opinions about the prosumerism of companies provides valuable guidance for them regarding planned activities in this area. Analysis of the survey results allows for the formulation of practical recommendations for companies, in terms of prosumer activities taking into account the expectations and needs of consumers.

A limitation of the research is the narrowing of the study sample to only one group of prosumerism participants – consumers, so the planned future research will include companies, which will provide insight into their prosumption activities, their perceived benefits, barriers and challenges. This research will expand the current knowledge on prosumerism of companies, as there is a lack of studies in this area. Most conducted research focuses on prosumer activity, and therefore it is reasonable to undertake prosumerism research from the perspective of companies. This would allow a better understanding of the various aspects of companies' prosumerism, gain insight into the internal factors determining companies' ability and propensity for such activities, and provide indications for effective prosumer activities

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INTERCULTURAL MATURITY OF MANAGERS

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Purpose: Intercultural maturity is one of the more important issues that requires exploration in the area of management. It is understood as an awareness of cultural differences, their acceptance, as well as the ability to cooperate with culturally different people. The aim of the article is to diagnose the intercultural maturity of Polish managers and to make its comparative characteristics taking into account the criterion of company size.

Design/methodology: The Intercultural Maturity Scale (IMS), developed by the authors, was used to examine intercultural maturity. A survey was conducted in 452 Polish organisations employing foreigners in 2023. The willingness and ability of Polish managers to cooperate with representatives of other cultures was diagnosed.

Findings: The survey showed that Polish managers are at the level of ethnorelativism, but in its initial phase. They are generally aware of the existence of cultural differences and show a willingness to cooperate with representatives of other cultures, but their knowledge and skills in this area are not sufficient. Contrary to expectations, only in a few aspects was the relationship between the size of the organisation and the ability to cooperate with culturally different people confirmed.

Research limitations: The survey was limited to the territory of Poland.

Practical and social implications: Intercultural maturity considered in the cognitive, affective and behavioural dimensions has substantive justification. It is possible to identify which of these dimensions requires improvement. These involve the ability to understand other cultures and to take advantage of the opportunities offered by interacting with others (achieving cultural synergy). It should be emphasised that increasing cultural diversity poses new challenges for managers.

Originality/value: The article presents a conceptualisation of cultural maturity and points to its dimensions, i.e. cognitive, affective and behavioural. A model of intercultural maturity is presented. The tool used to diagnose intercultural maturity has a high reliability index and has been tested with a group of managers. Its use is therefore justified in subsequent research processes.

Keywords: intercultural maturity, model of intercultural maturity, managers, Polish organisations employing foreigners.

Category of the paper: Research paper.

1. Introduction

Displacement processes related to the geopolitical situation and the opening up of borders have an impact on the diversity of the working environment, which is becoming a place of interaction between people from different cultures (Sułkowski, Chmielecki, 2017; Beugelsdijk, Welzel, 2018; Beugelsdijk et al., 2018; Sułkowski et al., 2020; Przytuła, Sułkowski, 2021). As a result, organisations are increasingly operating in a multicultural environment and benefiting from the input of an increasingly culturally diverse workforce (Moczydłowska et al., 2017; Mączyński et al., 2019; Szydło et al., 2020). This is evidenced by the number of foreigners insured with the Social Insurance Institution in Poland, which at the end of July 2023 amounted to 1.097 million (money.pl, 2023). Ukrainians, Belarusians and Georgians are the largest group, while as regards representatives of Muslim countries they are: Uzbeks, Turks and Bangladeshi (Raport..., 2023). The number of representatives of other cultures taking up employment has doubled compared to 2021. In the long term, the employment of more and more foreigners seems inevitable. Unfavourable demographic trends are progressing in Poland, increasing the need for foreign workers to fill staff shortages. As suggested by analysts from the Polish Economic Institute, low birth rates, a decline in the proportion of people of working age and an increase in the proportion of older people represent labour market challenges for the coming years (Dębkowska et al., 2022).

Demographic and technological change and increasing international mobility require workers to move seamlessly from one cultural context to another (Dharm et al., 2015; Przytuła, 2019; 2020). They also require employers and managers – who employ culturally different people – to be able to understand other cultures, to be willing to learn about them, and to take advantage of the opportunities offered by interacting with others (achieving cultural synergy) (Cappellen, Janssens, 2010).

Good interaction with strangers depends to a large extent on the same qualities that make up competence in communication. A wide repertoire of behaviours and the ability to choose the most appropriate behaviour in a given situation are the basis. A genuine interest in the other person is also important. This is more likely to happen when one is characterised by empathy on the one hand and complex cognitive structures (which enable, among other things, decentralisation) on the other. The capacity for self-observation also plays an important role when dealing with representatives of other cultures, as it makes it potentially possible to correct one's own behaviour (Adler et al., 2018).

In the light of the above considerations, it has to be said that intercultural maturity - understood as the awareness of the existence of cultural differences, their acceptance as well as the ability to cooperate with culturally different people – is an important research problem and has serious practical consequences (cf. Fritz et al., 2005; Brooks, 2019; Bhawuk, 2020, 2021; Tannous et al., 2023). The key to achieving intercultural maturity is:

- 1) **in the cognitive dimension:** awareness of cultural differences, knowledge of stereotypes, ability to understand cultural similarities and differences (Dai, Chen, 2022),
- 2) **in the affective dimension:** willingness to perceive and interpret cultural factors, which is expressed in intercultural sensitivity (Chen, Starosta, 1997; Fritz et al., 2005; Korczyński, Świdzińska, 2017),
- 3) **in the behavioural dimension:** the ability to function interdependently with members of other cultures, the ability of an individual to achieve communication goals while interacting with culturally different people (Adair et al., 2013; Chen, 2014; Bernardo, Presbitero, 2018; Barzykowski et al., 2019; Balakrishnan et al., 2021).

The conceptualisation of the dimensions indicated above was based on a literature review. The next step was to conduct surveys in organizations that employ foreigners. The research used a proprietary tool - the Intercultural Maturity Scale. The aim of the article is to diagnose the intercultural maturity of Polish managers and to make its comparative characteristics taking into account the criterion of company size.

2. Intercultural maturity – characteristics of the construct

In the literature on the subject, there are closely related terms that indicate the characteristics of an individual that allow him or her to relate to culture, i.e. intercultural competence, cultural adaptability, intercultural sensitivity, cultural intelligence, intercultural effectiveness or - the subject of interest in this article - intercultural maturity. Table 1 provides definitions of these constructs.

Table 1.
Overview of definitions relating to cultural constructs

Construct	Definition and author
intercultural competence	<ul style="list-style-type: none"> • a set of knowledge, attitudes, motivations and skills that enables individuals to function effectively in multicultural environments (Chen, Starosta, 1996), • ability to adopt an attitude of cultural relativism when dealing with representatives of other cultures, as well as the ability to put into practice the knowledge acquired about cultural differences (Nikitorowicz, 2009)
cultural adaptability	<ul style="list-style-type: none"> • adjusting to various aspects of daily life, learning culturally appropriate behaviours, and acquiring necessary social skills to facilitate comfortable interactions with local residents (Ward, Kennedy, 1999; Matsumoto et al., 2001)
intercultural sensitivity	<ul style="list-style-type: none"> • ability to develop positive emotions towards understanding and appreciation of cultural differences that promote appropriate and effective intercultural communication behaviour (Chen, Starosta, 1997)
cultural intelligence	<ul style="list-style-type: none"> • individual (a) ability to recognise rules in an unfamiliar social environment and (b) ability to apply them effectively in a culturally diverse environment (Earley, Ang, 2003)

Cont. table 1.

intercultural effectiveness	<ul style="list-style-type: none"> • successful performance in a new cultural environment, a sense of psychological well-being in that environment as well as an interest in and ability to deal with people from a different cultural background (Van der Zee, Van Oudenhoven, 2000)
intercultural maturity	<ul style="list-style-type: none"> • a complex understanding of cultural differences (cognitive dimension), the ability to accept cultural differences with a non-threatening sense of security (intrapersonal dimension) and the ability to function interdependently with various other ones (interpersonal dimension) (King et al., 2005).

Source: own elaboration.

It should be noted that the notion of intercultural maturity – when interpreted along cognitive, emotional and behavioural dimensions – encompasses all the theoretical constructs indicated above.

Intercultural maturity goes beyond superficial cultural change and involves a deeper level of self-awareness and responsiveness to global challenges. As societies become more interconnected and the pace of technological, environmental and social change accelerates, the concept of intercultural maturity is gaining importance as a means of promoting sustainable development and harmonious coexistence. Given the importance and universality of this process, the following was developed – based on Chen and Starosta's model of intercultural communication competence (1996) – an author's model of intercultural maturity (Figure 1).

According to the model presented above, a deficit in intercultural maturity is expressed in an individual's avoidance of contact with representatives of other cultures or in poor treatment of culturally different people. The reason for such behaviour may be ethnocentric thinking based on stereotypes. Intercultural maturity, on the other hand, manifests itself in forming relationships despite perceived differences. A person possessing this trait understands what behaviour is accepted, desirable in different cultures, and effectively cooperates with representatives of these cultures (Chen, Starosta, 1996, 1997). Figure 2 shows the levels of intercultural maturity.

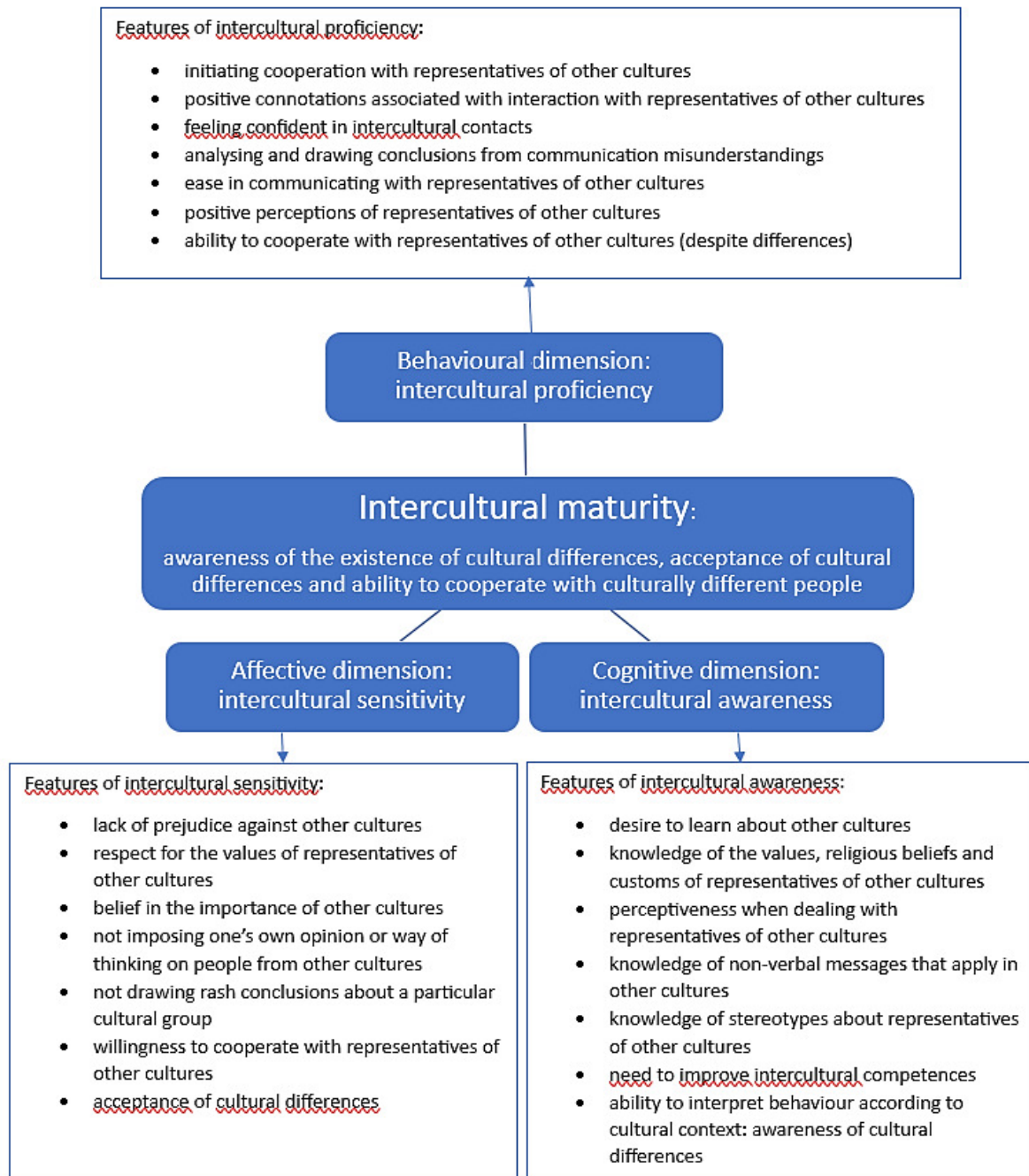


Figure 1. Model of intercultural maturity.

Source: own elaboration.

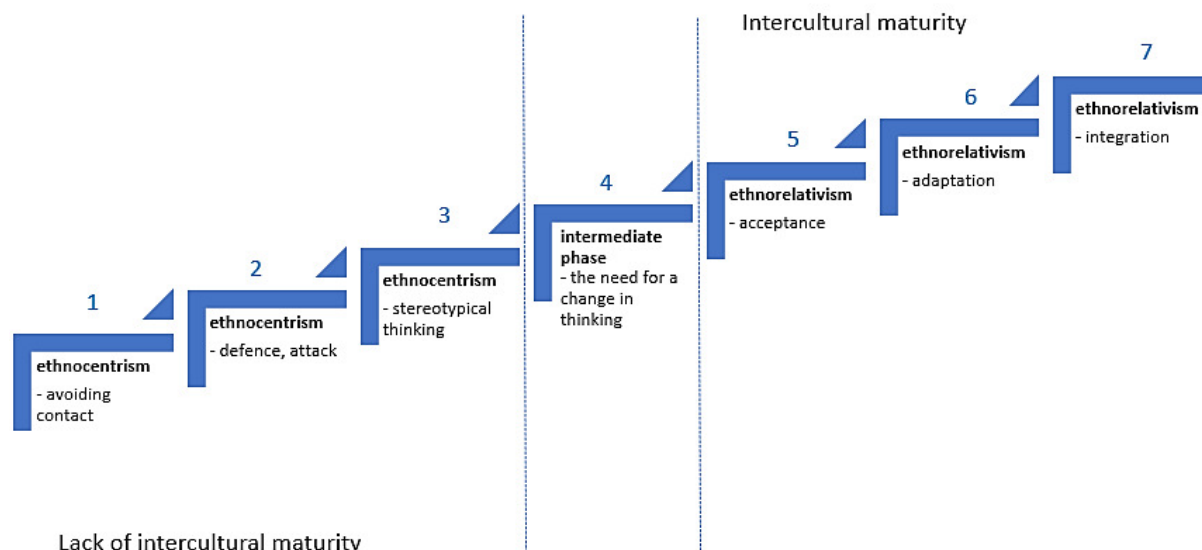


Figure 2. Levels of intercultural maturity developed on the basis of Bennett's concept (1986).

Source: own elaboration.

Intercultural maturity can be considered in terms of seven phases. The first three phases: (1) avoiding contact, (2) defence, attack and (3) stereotypical thinking refer to the level of ethnocentrism. The process of acquiring intercultural maturity involves moving from ethnocentrism to ethnorelativism (Bennett, 1986). The emergence of such can be equated with an intermediate phase, i.e. (4) the need for a change in thinking. Maturity manifests itself in accepting the assumption that one's way of seeing things is only one of many options. This conclusion makes intercultural exchange and learning from each other possible. Acceptance of differences (5) is the first phase of the ethnocentrism level. It involves respecting others' views and attempting to understand them, although not necessarily identifying with them. Adaptation (6) is the next phase of the ethnocentrism level. This is when a held worldview enables one to look at an issue through the prism of principles specific to another culture. Integration (7), on the other hand, is the final phase of the ethnocentrism level. An individual focuses on creating a coherent system of norms and values drawn from different, or even several simultaneous, cultural contexts.

3. Research problem and hypotheses

Managers are a professional group that needs support in working with representatives of other cultures, especially when the company's internationalisation processes are progressing. The diagnosis of their intercultural maturity seems to be of crucial importance from the point of view of intercultural management.

The following research question was posed:

In which dimensions and to what extent do Polish managers manifest intercultural maturity?

The research hypothesis is as follows:

H1: Polish managers are better prepared to cope in a multicultural environment in affective and behavioural dimensions than in the cognitive dimension.

This study also looks for the relationship between the size of organisations and the intercultural maturity of the managers working in them. Accordingly, the following research question was formulated:

Is the size of the organisation (large, medium and small) a differentiating factor in the intercultural maturity of managers?

Large organisations usually have an extensive training system that responds to market needs. It can be assumed that they give careful consideration to the cultural aspects (Gross-Gołacka, 2018; Yadav, Lenka, 2020, 2022; Zarządzanie..., 2023; Sygnatariusze..., 2023). The analysis of the indicated literature served as the basis for the formulation of the following hypothesis.

H2: The larger the organisation, the greater the intercultural maturity demonstrated by the managers.

4. Characteristics of the research sample

The survey (Intercultural Maturity Scale) was conducted in 2023. It involved 452 managers working in companies employing representatives of other cultures, 53% of whom were women, 46% men (1% of respondents specified a different gender or did not wish to answer). It should be noted that the entire area of Poland (all voivodships) and various industries were taken into account. A significant variable in the survey was the size of the organisation. The largest percentage was represented by large organisations – 42%, followed by medium-sized organisations – 35% and small organisations – 23%.

5. Results

The Intercultural Maturity Scale developed by the authors of the article contains 21 statements that fell into three dimensions: cognitive, affective and behavioural. For each statement, the respondents marked one of seven answers ranging from ‘strongly disagree’ to ‘strongly agree’ (a seven-point Likert scale was used). Moderate acceptance was

indicated when scores were between 3 and 5. Responses below 3 were considered as low acceptance, scores above 5 as high acceptance.

In light of the survey results obtained (analysis of individual statements), it should be concluded that Polish managers perform moderately well in the cognitive dimension (mean: 4.96). They try to deepen their knowledge of the cultures they may encounter (mean: 4.99). They are moderately knowledgeable about stereotypes of representatives of other cultures (mean: 4.95) and about non-verbal messages that apply in other cultures (mean: 4.50). They are moderately familiar with the cultural values, religious beliefs and customs of people from other cultures with whom they might hypothetically interact (mean: 4.88). They are relatively better at interpreting the behaviour of foreigners in relation to specific situations (mean: 5.02). They consider themselves rather perceptive of intercultural interactions (mean: 5.12). They also try to expand their cultural knowledge when communicating with representatives of other cultures (mean: 5.27).

In the affective dimension, Polish managers perform relatively well (mean: 5.45). They felt that they have no prejudice against people from other cultures (mean: 5.50), respect their values (mean: 5.58) and accept cultural differences (mean: 5.48). They believe that other cultures are as important as the one they come from (mean: 5.59). They believe that one is unlikely to impose one's opinion and way of thinking on people from other cultures (mean: 5.18) and recognise that conclusions about a cultural group cannot be drawn from occasional interactions (mean: 5.23). They point out that establishing a relationship with a culturally different person can be a valuable experience (mean: 5.58).

In the behavioural dimension, Polish managers perform relatively well (mean: 5.18). They have no problem cooperating with representatives of other cultures despite the differences between them (mean: 5.42). They believe they are positively perceived in this type of interaction (mean: 5.17). They generally enjoy interacting with representatives of other cultures (mean: 5.11) and tend to feel confident in their company (mean: 4.99). They can fairly accurately identify when they have become upset with an interlocutor from another culture (mean: 4.91). They mostly – although not always – know what to say in a given situation (mean: 4.92). They are slightly worse at initiating cooperation with foreigners (mean: 4.83).

In summary, managers tend not to have prejudices against foreigners, recognise cultural differences, respect representatives of other cultures and do not depreciate their contribution to the organisation. They also believe that their opinion and way of thinking should not be imposed on them. They try not to draw conclusions about a cultural group from occasional interactions. For the most part, they regard contact with a culturally different person as a valuable experience. They find it more difficult, however, to explore knowledge about other cultures. They often navigate this area intuitively. Also, they do not pay enough attention to non-verbal communication characteristic of a cultural group. Their knowledge of stereotypes is at a moderate level. Nevertheless, once they have come into contact with a representative of a specific culture, they try to broaden their knowledge of it in order to interpret the foreigner's

behaviour appropriately to the situation. They feel valued by culturally different colleagues. In general, Polish managers are able to co-operate with representatives of other cultures to a relatively high degree (mean: 5.15). Detailed results are shown in Table 2.

Table 2.
Intercultural maturity of managers – descriptive statistics

N o.	Managers total (N = 452)		Managers employed in large organisations (>250 employees) (N = 189)		Managers employed in medium organisations (50-250 employees) (N = 159)		Managers employed in small organisations (10-49 employees) (N = 104)	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1	5.50	1.49	5.75	1.36	5.16	1.66	5.58	1.35
2	4.83	1.43	4.75	1.44	4.84	1.50	4.95	1.30
3	4.99	1.37	4.88	1.31	4.94	1.38	5.25	1.45
4	5.11	1.19	5.08	1.16	5.13	1.27	5.13	1.14
5	4.88	1.26	4.79	1.26	4.81	1.31	5.15	1.18
6	5.58	1.23	5.73	1.13	5.35	1.35	5.67	1.18
7	5.59	1.30	5.74	1.19	5.40	1.41	5.62	1.31
8	5.12	1.15	5.14	1.12	5.01	1.25	5.23	1.04
9	4.99	1.21	4.99	1.27	4.90	1.20	5.12	1.09
10	4.91	1.29	4.93	1.26	4.82	1.30	4.99	1.33
11	4.50	1.30	4.48	1.34	4.50	1.31	4.54	1.21
12	5.18	1.34	5.34	1.29	4.98	1.41	5.21	1.30
13	5.23	1.31	5.30	1.26	5.06	1.36	5.38	1.28
14	4.95	1.24	4.98	1.23	4.86	1.30	5.05	1.19
15	4.92	1.22	4.88	1.22	4.85	1.26	5.10	1.13
16	5.58	1.22	5.76	1.12	5.40	1.25	5.52	1.33
17	5.17	1.09	5.28	1.05	5.03	1.14	5.20	1.05
18	5.27	1.21	5.38	1.14	5.08	1.34	5.37	1.12
19	5.48	1.18	5.68	1.04	5.23	1.37	5.50	1.03
20	5.02	1.16	5.04	1.12	5.01	1.16	4.99	1.26
21	5.42	1.10	5.53	1.04	5.28	1.17	5.43	1.09

C: cognitive dimension (statements: 3, 5, 8, 11, 14, 18, 20); mean: 4.96.

A: affective dimension (statements: 1, 6, 7, 12, 13, 16, 19); mean: 5.45.

B: behavioural dimension (statements: 2, 4, 9, 10, 15, 17, 21); mean: 5.18.

Cultural maturity (all statements); mean: 5.15.

Source: own elaboration.

The indices in Table 2 were grouped into three dimensions: cognitive, affective and behavioural. The indices were then aggregated and statistically significant differences between the dimensions were shown using the Kruskal-Wallis test: (A-B, $p = 0.00$; A-C, $p = 0.00$; B-C, $p = 0.00$). The respondents felt they performed best in the affective dimension (mean: 5.45), slightly worse in the behavioural dimension (mean: 5.18), and worst in the cognitive dimension (mean: 4.96), as illustrated in Figure 3. It should be emphasised that the 1-7 scale (used in the survey tool) in a straight line was transferred to seven levels of cultural maturity.

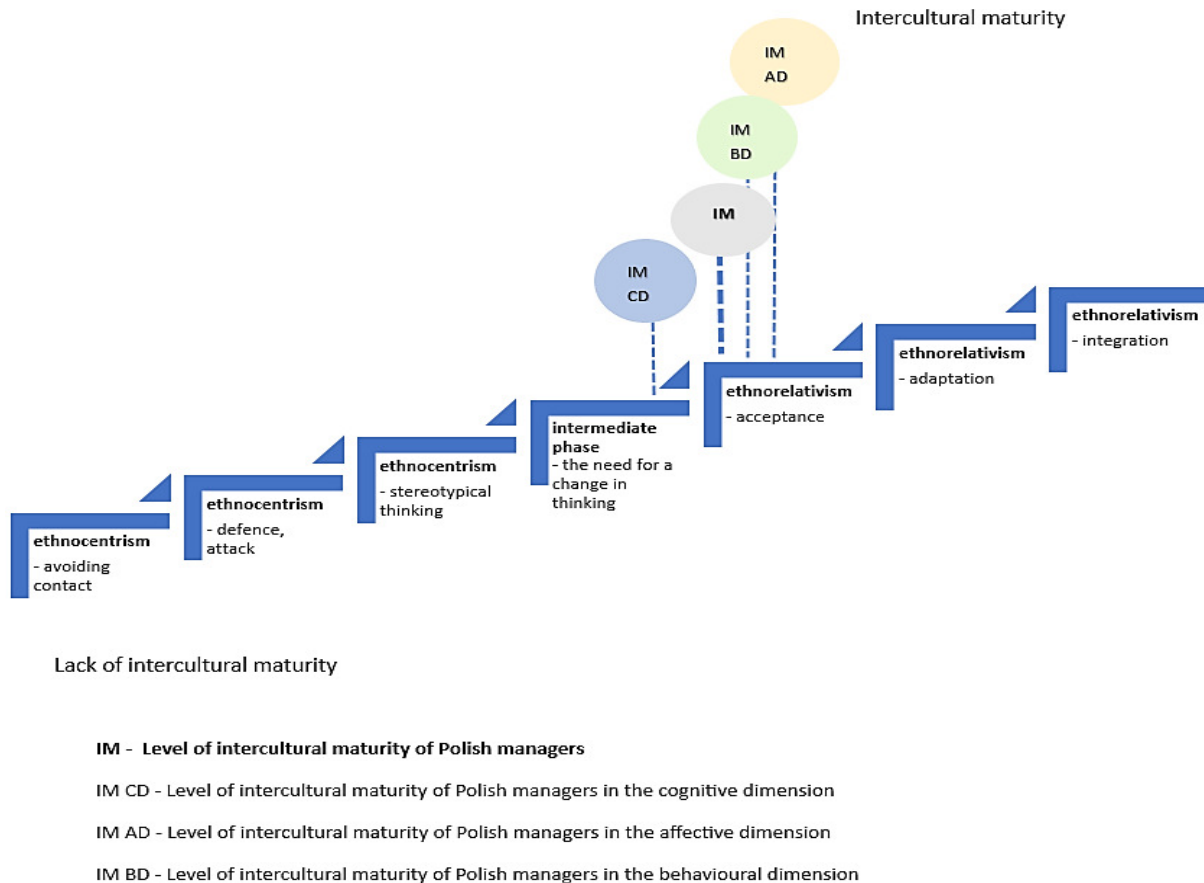


Figure 3. Level of intercultural maturity of Polish managers: a general index and indices in the cognitive, affective and behavioural dimension.

Source: own elaboration.

Polish managers, in relation to the affective and behavioural dimensions, are at the first level of ethnorelativism in the acceptance phase (5). This phase, as defined by Bennett's concept, is the acceptance of cultural diversity without prior concerns, the emergence of respect for differences in behaviour and later for differences in values. An individual's indigenous culture is experienced as one of the many available ways of experiencing reality and one of the many existing worldviews. A culture other than one's own arouses interest and is evaluated positively. The surveyed managers, on the other hand, are in an intermediate phase (4) in the cognitive dimension. It is most likely that managers from Poland have a need for more information regarding cultural aspects, only they do not always realise it. Thus, it can be concluded that the results of the study confirmed hypothesis 1: Polish managers are better prepared to deal with a multicultural environment in the affective and behavioural dimension than in the cognitive dimension.

At the same time, it should be emphasised that the averaged indices are located in two adjacent phases, i.e. the intermediate phase (cognitive dimension) and the acceptance phase included in the ethnorelativism level (affective, behavioural and overall index, which is an averaging of the three dimensions).

The real challenge seems to be to properly prepare for life in a diverse world in which change is and will continue to occur. It may seem that large organisations are much more prepared for this than smaller ones. The Kruskal-Wallis test was used to analyse the relationship between the size of the organisation and the respondents' intercultural maturity. The results are shown in Table 3.

Table 3.

Intercultural maturity of managers employed in large, medium and small organisations

Statement No.	Managers employed in large organisations: L (N = 189) M (N = 159) S (N = 104)			ANOVA Kruskal-Wallis Test		Groups with differences			Dimension
	L-Mean	M-Mean	S-Mean	H	p				
1	5.75	5.16	5.58	12.65	0.00	L-M	-		a
2	4.75	4.84	4.95	1.21	0.54	-	-	-	b
3	4.88	4.94	5.25	7.36	0.02	-	L-S	M-S	c
4	5.08	5.13	5.13	0.23	0.89	-	-	-	b
5	4.79	4.81	5.15	6.84	0.03	-	L-S	M-S	c
6	5.73	5.35	5.67	8.37	0.01	L-M	-	M-S	a
7	5.74	5.40	5.62	4.34	0.11	-	-	-	a
8	5.14	5.01	5.23	1.49	0.47	-	-	-	c
9	4.99	4.90	5.12	1.32	0.52	-	-	-	b
10	4.93	4.82	4.99	1.09	0.58	-	-	-	b
11	4.48	4.50	4.54	0.02	0.99	-	-	-	c
12	5.34	4.98	5.21	5.97	0.04	L-M	-	-	a
13	5.30	5.06	5.38	5.36	0.07	-	-	-	a
14	4.98	4.86	5.05	1.52	0.47	-	-	-	c
15	4.88	4.85	5.10	2.38	0.30	-	-	-	b
16	5.76	5.40	5.52	7.54	0.02	L-M		-	a
17	5.28	5.03	5.20	3.80	0.15	-	-	-	b
18	5.38	5.08	5.37	3.90	0.14	-	-	-	c
19	5.68	5.23	5.50	9.47	0.01	L-M			a
20	5.04	5.01	4.99	0.01	0.99	-	-	-	c
21	5.53	5.28	5.43	3.64	0.16	-	-	-	b

L – large organisations.

M – medium organisations.

S – small organisations.

a – affective dimension.

b – behavioural dimension.

c – cognitive dimension.

H – ANOVA Kruskal-Wallis Test.

p – statistical significance level.

Source: own elaboration.

The research shows that the size of the organisation slightly differentiates the intercultural maturity of managers. Five statistically significant differences can be observed between large and medium-sized organisations. Each of them relates to the affective dimension, i.e. related to sensitivity to the needs of culturally different people. The differences relate to statements on prejudice against people from other cultures (1), respect for the values of representatives of other cultures (6), imposing one's opinion on others (12), considering a relationship with

a culturally different person as a valuable experience (16) and acceptance of cultural differences (19). In these aspects, managers of larger organisations present higher intercultural maturity. This is most likely due to more training in the organisation and the possibility of more frequent contact with foreigners (e.g. more projects, cooperation initiatives).

Two statistically significant differences in statements 3 and 5 between large and small enterprises and medium and small enterprises should also be noted (Table 3). They concern the cognitive dimension. In this case, the representatives of small organisations show greater educational determination in the cultural field, as they seek to explore the cultures (3), values, religious beliefs and customs of those with whom they might hypothetically collaborate (5). One difference concerns the affective dimension. It can be observed between medium-sized and small organisations. It refers to respect towards the values of representatives of other cultures (6), which is emphasised more clearly by managers in small organisations. Most likely, in small organisations, bonds are formed and it is often possible to get to know the other person more intimately. Hence, a relational style of management can be encountered.

The results do not support hypothesis 2: The larger the organisation, the greater the intercultural maturity shown by managers. Only 8 differences out of 63 potentially possible were observed, and only between groups of managers operating in large and medium-sized organisations. The authors have two conjectures related to this fact. Firstly, Polish society as a whole (irrespective of the workplace and size of the organisation) is more and more likely to accept the principles of cultural egalitarianism, due to increasingly rich experiences with representatives of other cultures. The best way to experience cultural difference is through contact with foreigners, which provides an opportunity to learn effective communication and prevents stereotyping. Secondly, Polish managers are increasingly educated about diversity in its broadest sense, which is perceived as a resource rather than a source of danger. Contacts between representatives of different groups are considered from the perspective of individuals, not the groups they belong to. In addition, intercultural contacts that are durable, open and regular are growingly taking place between representatives of different groups that do not physically inhabit the same territory. Increasingly, permanent intercultural ties are formed in virtual spaces, but this is also a topic for further exploration (Samul et al., 2021). Furthermore, thanks to globalisation processes, it is possible to work with culturally different people. Thus, people gain more and more experience as well as mature to achieve professional goals despite the existing cultural differences.

6. Conclusion and summary

Intercultural maturity considered in the affective, cognitive and behavioural dimensions has substantive justification. Using the Intercultural Maturity Scale, it is possible to diagnose the level of maturity in each dimension and to pinpoint strengths and weaknesses in a particular area. The tool has been tested in a professional environment. It is reasonable to use it in a subsequent research process as it has a high reliability index. Its usefulness stems from the challenges faced by managers who need to function adequately in culturally diverse organisations. This involves having the ability to understand other cultures and to take advantage of the opportunities offered by interacting with others (achieving cultural synergy).

The globalisation of business, demographic and technological changes and the increasing international mobility of employees result in cultural diversity, which should be taken into account in effective management. The real challenge is to properly prepare managers in terms of intercultural and then transcultural competence, so that they are ready to adequately prepare employees to function in a culturally diverse world. It is important: to develop convictions about the equivalence of all cultures, to prepare them to function in a pluralistic society, to make them sensitive to otherness, to develop an attitude of openness and tolerance, to develop their ability to solve problems arising from prejudice, negative stereotypes, or differences in values and attitudes.

Developing intercultural maturity is one of the greatest challenges of our time, as it involves reflectively combining one's own beliefs with those of representatives of other cultures and the challenges of the global world. Accordingly, the interculturally mature manager assumes that all cultures are valuable – he or she does not evaluate or judge them, teaches employees to respect differences, is aware that culture is a complex and diverse entity.

The ability to coexist, to create an equal environment for culturally and ethnically diversified people working in an organisation (irrespective of its size) is one of the key challenges to implementing the concept of inclusive management.

Disclosure

The authors declare no conflict of interest.

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DYSFUNCTIONS IN THE TEAM WORK OF AN EXTERNALLY STEERABLE EMPLOYEE IN THE ASPECT OF P. LENCIONI'S THEORY

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Purpose: Teamwork is now one of the primary forms of collaboration in companies. This is particularly true for project-managed companies. The aim of the research was to determine whether the behaviours of a 'E' employee could represent a reinforcement of dysfunction according to P. Lencioni.

Design/methodology/approach: A method for identifying the characteristics of the 'E' employee and their approach to teamwork was presented. These were then contrasted with the dysfunctions according to P. Lencioni.

Findings: The 'E' employee is a potential source of threats to team effectiveness and efficiency. At the same time, when dysfunctions build up in the team, an employee with 'E' traits may exacerbate undesirable behaviours and limit the overcoming of these dysfunctions.

Research limitations/implications: A major limitation of further research is the selection of existing teams and further evaluation of them in terms of the dysfunctions present.

Originality/value: The article is aimed at managers managing teams. It shows how to cope when a team member is a 'E' employee.

Keywords: team work, externally steerable employee, P. Lencioni, personality, dysfunctions.

Category of the paper: research paper.

1. Introduction

In the course of managing organisations, we often wonder where the reasons for differences in performance between seemingly similar companies lie. Existing problems in achieving the assumed results are often due to poor work organisation, weak organisational culture (Tobór-Osadnik, Bluszcz, 2023), poorly selected machinery, material shortages, difficulties in obtaining working capital or implementing sustainable development principles (Chomiak-Orsa, 2023) according to EU requirements (Bluszcz, Manowska, 2020). However, we often overlook

problems related to conflicts between employees, the effectiveness of internal communication or ineffective teamwork. Importantly, different teams achieve different quality and speed in completing tasks (Szwarc, Bzdyra, 2011). Thus, one way to improve business performance may be to rationalise the organisation of forms of work in companies. Often when managing people in an organisation, we need to identify groups and teams well (Ivy, Chabior, 2023). These differences are important in the selection of tasks and motivational tools.

In defining what a group is, it can be assumed that (according to E. Schein, 2016) a group is any number of people who interact (are bound by interactions), are aware of each other and perceive themselves as a group. It also assumes that the group as a whole has a common goal (Jemielniak, Kozminski, 2012). In contrast, according to John Adair (2009), a team involves definable membership, group consciousness, a sense of common purpose, interdependence in achieving the goal, interaction and the ability to act in a unified complementary way (Szczęśniak, 2017). Although the terms group and team are often used interchangeably, there are important differences between them. In a group, members do not have to engage in collective work. Its outcome is the collective work of its members, whereas in a work team there is a positive synergy effect. A team will only be a team and not a group if it considers itself a team, moves in a team direction and has its own team ways of doing things. The most important difference between a team and a group is that in a team, tasks are strictly separated and there are relationships between all members. It follows that in the absence of at least one person, the team loses the ability to continue to operate effectively and has to build relationships and divide tasks from scratch. This phenomenon occurs because each person's potential is carefully analysed and used effectively. This is especially true for project teams (Wach, Chomiak-Orsa, 2022).

In practice, different groups and teams work together, establishing common goals, interdependence and a shared identity or sense of themselves as a group (Hinds, 2015). The effectiveness of groups and teams in an organisation depends on the specificity of different types, as well as forms of power and organisational relationships (Wagoner, 2014). Multicultural and global teams, which are culturally diverse and geographically dispersed, are now common in many global companies (Zoltan, Vancea, 2015). Therefore, managers need to understand the fundamental differences between groups and teams, as well as different research approaches, in order to set realistic goals and achieve expected results (Vancea, 2015).

Teams face a variety of challenges in the workplace that can hinder the development of their skills and approach to teamwork. These challenges include the lack of traditional team structures with hard-to-identify boundaries for activities and fixed composition (Kapritsou, 2022). Those working in teams face difficulties in developing collaborative skills, which can affect their ability to work effectively as a team (Shuffler, Cronin, 2019). Therefore, it is important to focus on purposeful selection of team members, appropriate design and assignment of tasks, functionality of tasks and appropriate evaluation of team performance

(Alcover et al., 2021). By understanding and addressing these challenges, practitioners can increase team effectiveness and improve workplace performance.

Patrick Lencioni, as a result of many years of research, has identified 5 main dysfunctions of work teams (Lencioni, 2016). These can be represented in the form of a pyramid (Figure 1).

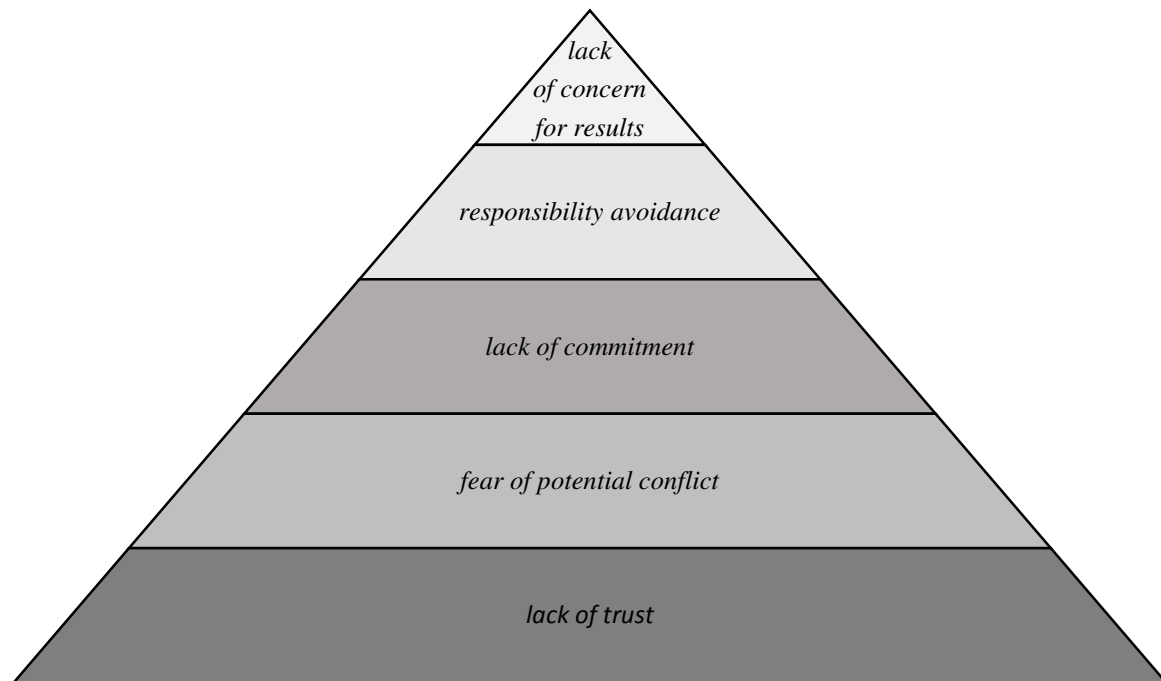


Figure 1. Five dysfunctions in teamwork according to P. Lencioni.

Source: Lencioni, 2016.

The dysfunctional team patterns described by Lencioni can be identified by examining five functional characteristics of teams. These traits include lack of trust, fear of conflict, lack of commitment, avoidance of responsibility and inattention to results (Aggarwal, 2016). Dysfunctional teams often exhibit these traits, which can lead to reduced productivity and performance. Additionally, the presence of subgroups within a team can also contribute to dysfunction. By examining these characteristics and analysing team dynamics, dysfunctional teams can be identified and steps can be taken to address the underlying issues.

Key signs of dysfunction in a team according to Lencioni include lack of cohesion, low productivity, avoidance of responsibility and lack of trust (Aggarwal, 2023). These dysfunctions can lead to a team becoming dysfunctional to the extent that it needs to be changed or dismantled. Lencioni's model outlines these typical obstacles and provides actionable steps to overcome them and build a cohesive, effective team.

The foundation of the pyramid is a *lack of trust* within the team. Lack of trust makes employees insecure about their position and their actions. They feel a constant fear of showing their weaknesses or shortcomings at work. This causes difficulties in making decisions and expressing their opinions. The manager then misses the chance to get valuable guidance directly from the employees on ongoing projects, tasks and general cooperation.

The result of a lack of trust is the *fear of potential conflict* among team members. Employees are afraid to express their opinions, especially if they differ from other team members. The phenomenon of groupthink then often arises (Moczyłowska, 2006). The team atmosphere restricts the individual from expressing his or her views and prevents him or her from expressing other, perhaps better, solutions to the task at hand. Such actions relegate the individual to a minority position. Team members fear confrontation and avoid commenting when, by contrast, a close-knit team is open to discussion, which is fundamental to its success.

This situation leads to a *lack of commitment*. It results in a lack of emotional commitment to the tasks at hand. Although employees carry out the assigned tasks, their level of commitment is very low.

The next rung of P. Lencioni's pyramid is *responsibility avoidance*. Team members do not see or understand the purpose of their actions, do not motivate each other, and have a reluctance to solve problems that arise and to identify with the stated goals of projects.

As we know, the fate of the company often depends on the results of the projects performed. Therefore, at the top of the pyramid is a lack of concern for results. Thus, any team member who is not interested in the results and is driven by their own interests worsens the performance of the team and the company. Lack of care for the workflow results in poor performance or even failure.

Forming a pyramid structure, these dysfunctions show that a lack of trust forms the foundation and that increasing dysfunctions lead to a lack of attention to performance, which is at the top (Pane et al., 2018). The model suggests that teams need to address each dysfunction in order to build a cohesive and effective team. Lencioni's pyramid is widely used in research and practice to understand and improve team dynamics (Pipkin et al., 2016).

The distinguished five dysfunctions of teamwork according to P. Lencioni indicate certain behaviours of team members that can be exacerbated by the 'E' (Enslave) employee described by K. Tobór-Osadnik (2012, 2017). This employee was identified in 3 dimensions - behavioural traits (Figure 2):

- 'E' – Enslaving (the employee does not have to be responsible for anything because the 'authority' is responsible; he does not have to be creative, entrepreneurial),
- 'S' – Suffering (a daily sense of harm and oppression, a total justification for inactivity),
- 'G' – eGoism (the employee is driven by his or her own narrow interests, incapable of thinking in terms of the common good).

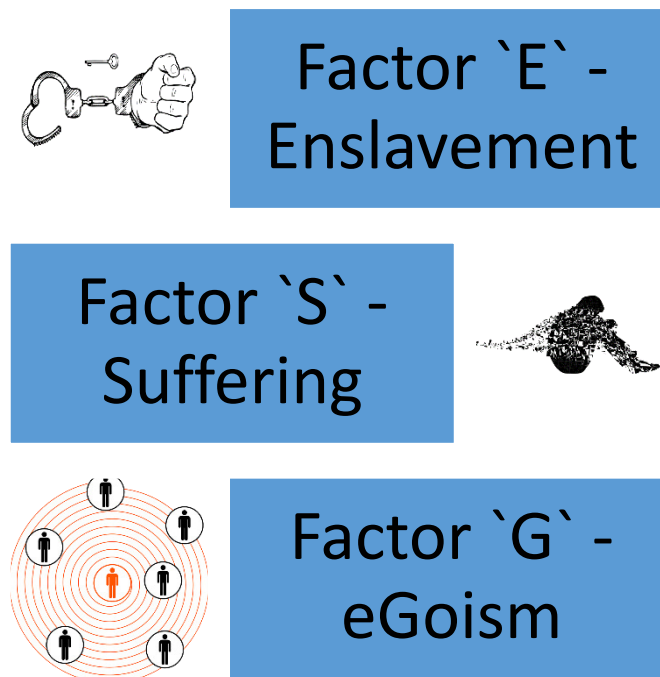


Figure 2. Characteristics of a 'E' employee.

Source: Tobór-Osadnik (2012, 2017).

The authors asked themselves whether the attitude represented by the 'E' employee poses a threat to the work of the team and whether these declared behaviours could, according to the authors, constitute an amplification of dysfunction according to P. Lencioni.

2. Methodology

Employees from a Polish mining company were taken as the research group for identifying the attitudes of 'E' employees. A questionnaire was constructed for the study, including 17 questions identifying the 'E' employee and questions describing declared teamwork behaviour.

Selecting an appropriate sample size was an important issue of the survey. To determine the minimum sample size, random selection was used on the basis of a predetermined level of precision, as described by the mathematical relationship (1):

$$n = \frac{\hat{s}^2 \cdot t_{\alpha}^2}{e^2} \quad (1)$$

where:

\hat{s}^2 – variation,

t_{α}^2 – value of the t-student distribution for the confidence level $1-\alpha$,

e^2 – maximum estimation error.

Among the random simple sampling techniques, a number of direct and unconstrained sampling methods are used. In order to identify the behaviour of a 'E' employee towards teamwork, random sampling of employees from the time recording system was used. This consisted of replacing individual units with numbers, which, by means of a random algorithm, were selected for the questionnaire survey in compliance with all probability rules. The sample thus selected has all the characteristics of a representative sample.

When determining the minimum sample size, the confidence level $1-\alpha$ and the maximum, i.e. acceptable, estimation error e must also be determined in advance. In the study carried out, it was assumed that 95% of the result obtained did not deviate from the actual value, requiring a significance level value of $\alpha = 10\%$, as a result of which the maximum estimation error could also be 10% (the value t_α was read from the Student's t-distribution tables for level $1 - \frac{\alpha}{2}$, as there is a two-sided critical area). Relationship (1) therefore takes the following form:

$$n = \frac{2,3897^2 - 1,9609^2}{0,1^2} = 186 \quad (2)$$

It can therefore be assumed from relation (2) that the sample will be representative at 186 ± 18 correctly completed questionnaires. The employees who took part in the survey were diverse in terms of age, length of service, education and position held. A total of 218 correctly completed questionnaires were collected and this value was entered into further statistical analyses.

Equation 3 (Stanislawek, 2010) was used to determine the number of compartments analysed.

$$k = 1 + 3,3 \cdot \log_{10} n, \quad (3)$$

where k determines the number of compartments and n the size of the test sample.

$$1 + 3,3 \cdot \log_{10} 218 = 6.6 \quad (4)$$

Seven ranges were adopted for further calculations. The range of values for the adopted chapters was determined by relation 5 (Starzyńska, 2009):

$$h = \frac{x_{\max} - x_{\min}}{k}, \quad (5)$$

where h – range of intervals.

Within the 7 compartments identified, the following ranges were highlighted for further study:

- no traits,
- weak traits,
- weak traits,
- medium level of traits,
- noticeable traits,
- high intensity of traits,
- strong level of traits.

In order to identify employee attitudes, a comparison of the responses obtained to an assumed pattern (pattern = no 'E' employee characteristics) was used. The resulting variation in the observed values was called dispersion and a distance measure was adopted for further analysis, which illustrated that the greater the value of this dispersion, the more the values of individual observations deviate from the expected value - the pattern (Aczel, Sounderpandian, 2017).

Thus, in order to illustrate the dispersion of employee attitudes in relation to a pattern, the Mahalanobis distance was used, which is referred to as the distance between two points in an n-dimensional space that differentiates the contribution of individual components and uses correlations between them (Kukułka, 2010). It is used in statistics to determine similarities between an unknown random vector and a vector from a known set - a pattern. Distance calculations were implemented and performed with the Matlab programme 7.1.

The research methodology developed and the author's programme written enabled the research to be carried out and to identify employees with varying degrees of 'E' traits (Figure 3).

Next, the respondents' attitudes towards teamwork and their role in the work team were examined, divided into employees with 'E' traits and employees not displaying such traits. As mentioned at the beginning of the chapter, in addition to the trait-identifying questions (E, S, G), the questionnaire also included 4 questions on the employee's attitude towards teamwork:

- Are you interested in the work quality of a team you are working in or mainly your own work quality?
- When your team is praised for a good job, do you feel proud of the team's achievements or your own?
- When the team in which you work has poor results, is it embarrassing you because of your own poor work or is it the fault of the team?

Do you think teamwork or your own work is more important?

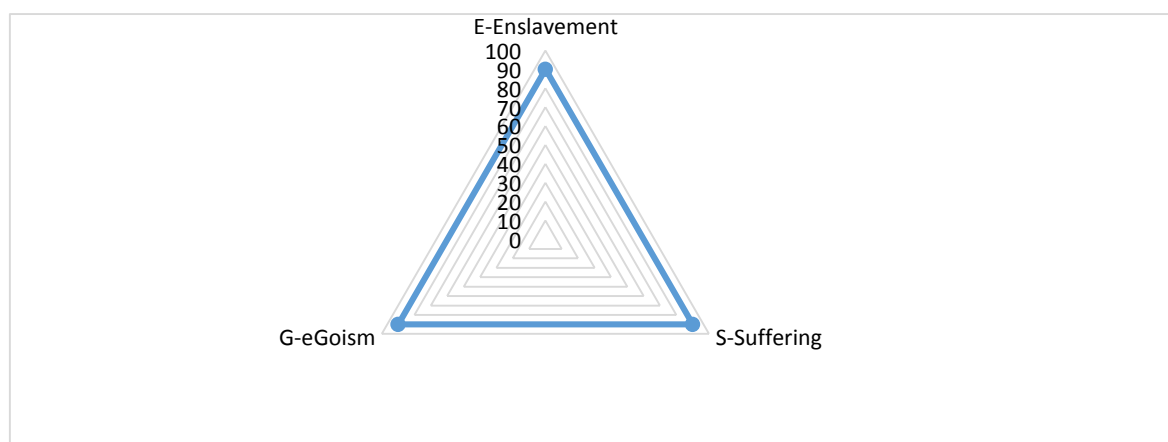


Figure 3. Graphical representation of the strength of 'E' traits [% response rate].

Source: own study.

It should be noted that the results of the answers to the latter questions did not affect the ranking of the respondents in the ranges of variability of the intensity of the 'E' traits. In this way, the attitudes of the respondents towards teamwork were determined in the respective ranges of variability: from an employee not showing 'E' traits to an employee with 'E' traits.

3. Results of research

After collecting all the well-filled questionnaires, the respondents were ordered according to their distance from the pattern. Figure 4 presents the percentage distribution of employees according to distance from the benchmark (no 'E' characteristics to strong 'E' characteristics). For the surveyed group of employees, no one fully met the characteristics of an employee without 'E' traits and with full 'E' traits. Importantly, this group is dominated by employees with weak and medium severity of traits (range 3 and 4). For the analysis of the respondents' declared teamwork behaviour, a comparison of the two groups (range 2+3) and (range 4+5) was adopted.

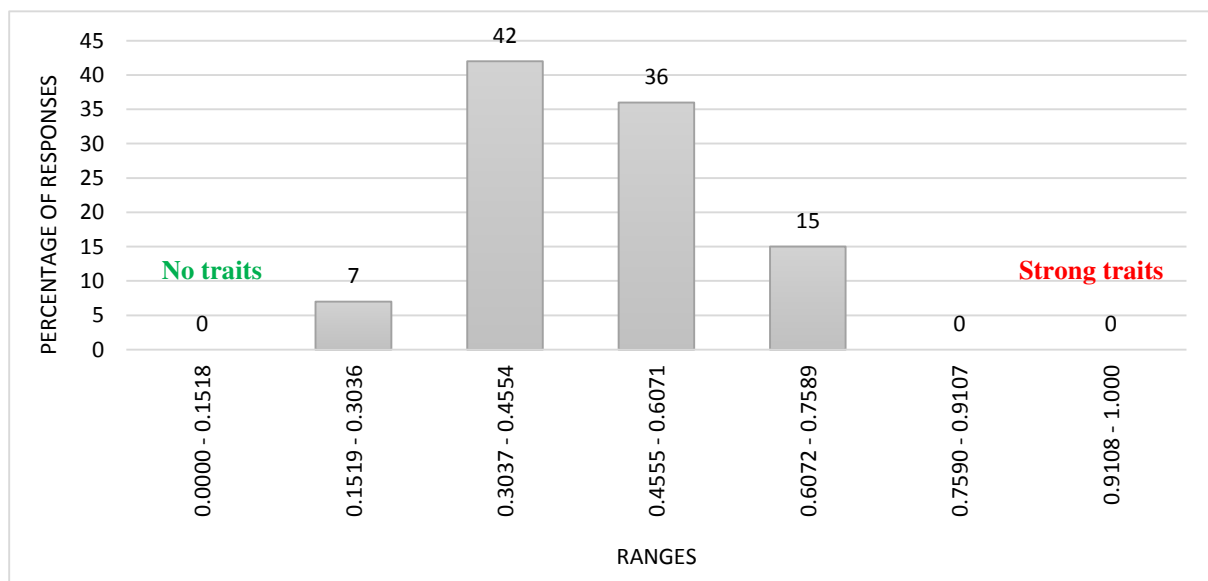


Figure 4. Percentage distribution of workers according to distance from the pattern (no 'E' features to strong 'E' traits).

Source: own study.

Figure 5 shows a radar chart of the severity of the E, S, G traits latent in the various 17 questions of the survey questionnaire for the group in band 5, which represents 15% of the respondents. These employees mostly exhibit traits E and S. Trait G is present, but in lower intensity.

Next, responses about attitudes to teamwork were analysed in groups with weak 'E' and strong 'E' characteristics. The results of the comparison are presented in Fig.6-9. As can be seen, there is a visible difference in the responses in this division of respondents.

To the question - Are you interested in the quality of the team in which you work or primarily in the quality of your own work? (Figure 6) respondents with weak 'E' characteristics answered that the quality of the team's work was important to them, while those with strong 'E' characteristics mostly indicated that they were interested in the quality of their work.

Then to the question - When your team is praised for good work do you feel pride in the team's achievements or in your own? respondents in the first group answered unanimously that they are proud of the team's achievements (Figures 7). On the other hand, in the ranges where employees show 'E' characteristics, the predominant answer was that they are proud of their own achievements.

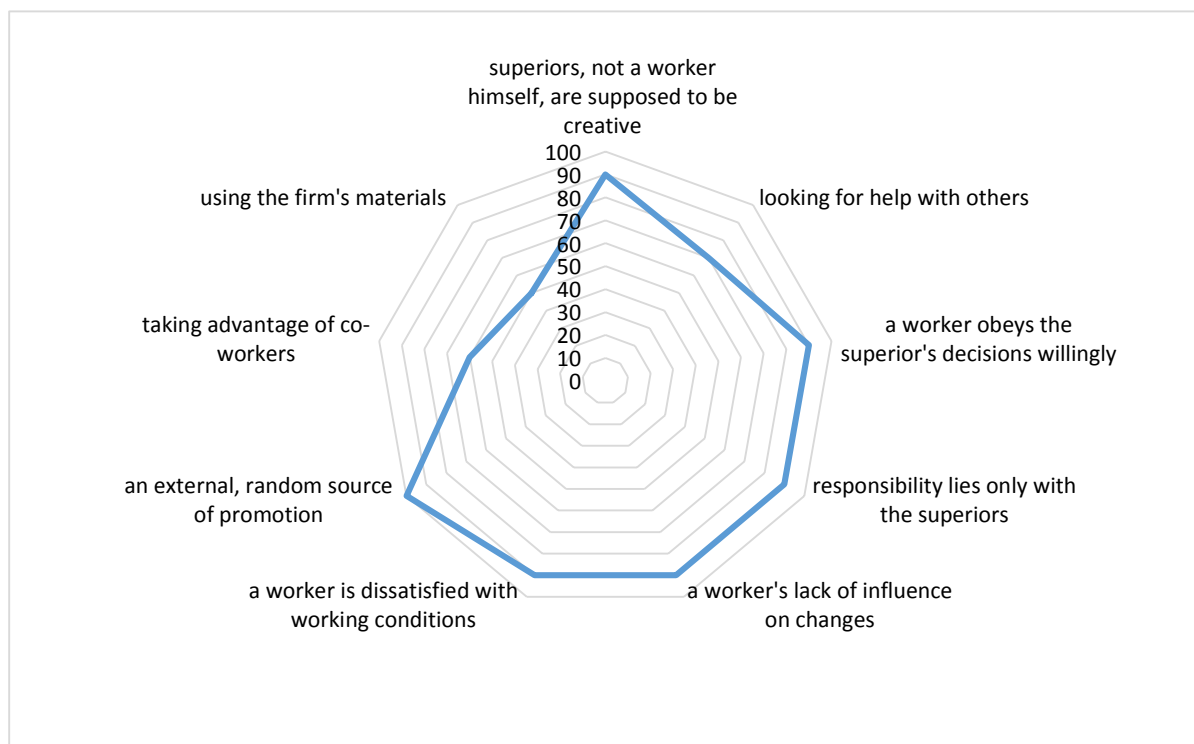


Figure 5. Employee with dominant 'E' trait (range 5) – results of the analysis [% response rate].

Source: own study.

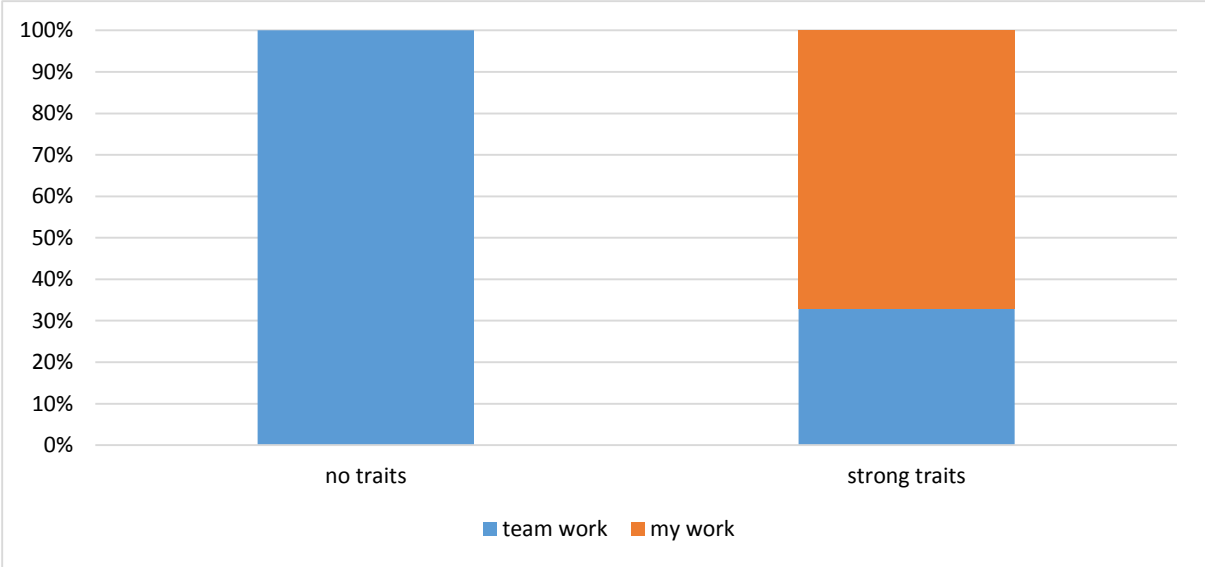


Figure 6. Are you interested in the work quality of a team you are working in or mainly your own work quality?

Source: own study.

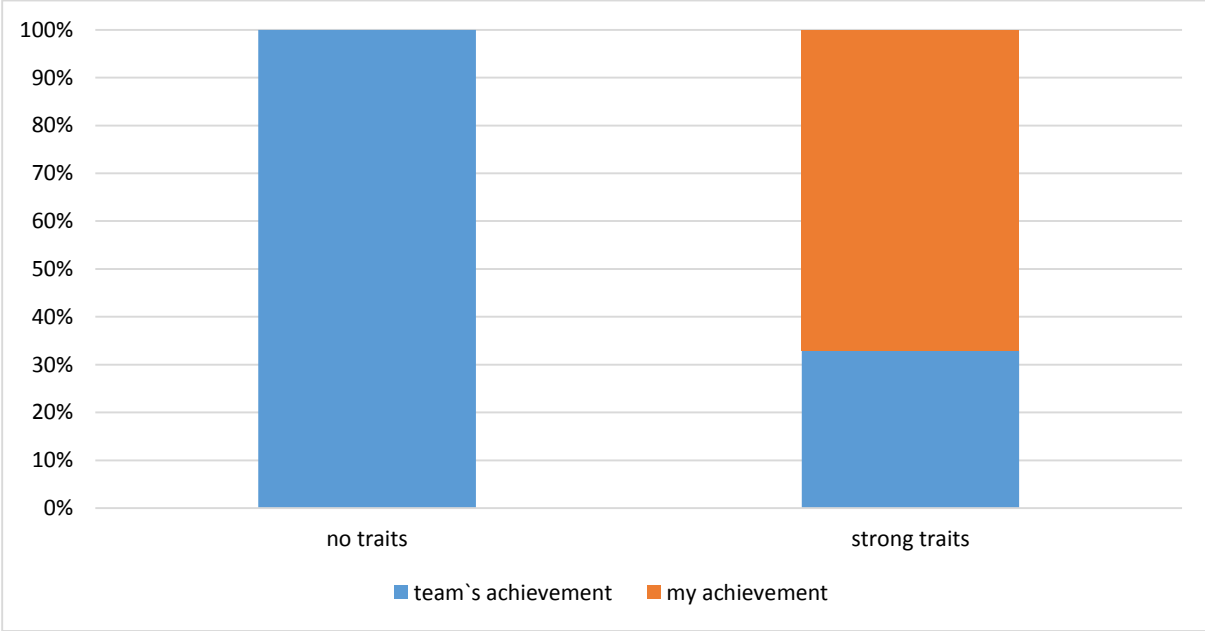


Figure 7. When your team is praised for a good job, do you feel proud of the team's achievements or your own?

Source: own study.

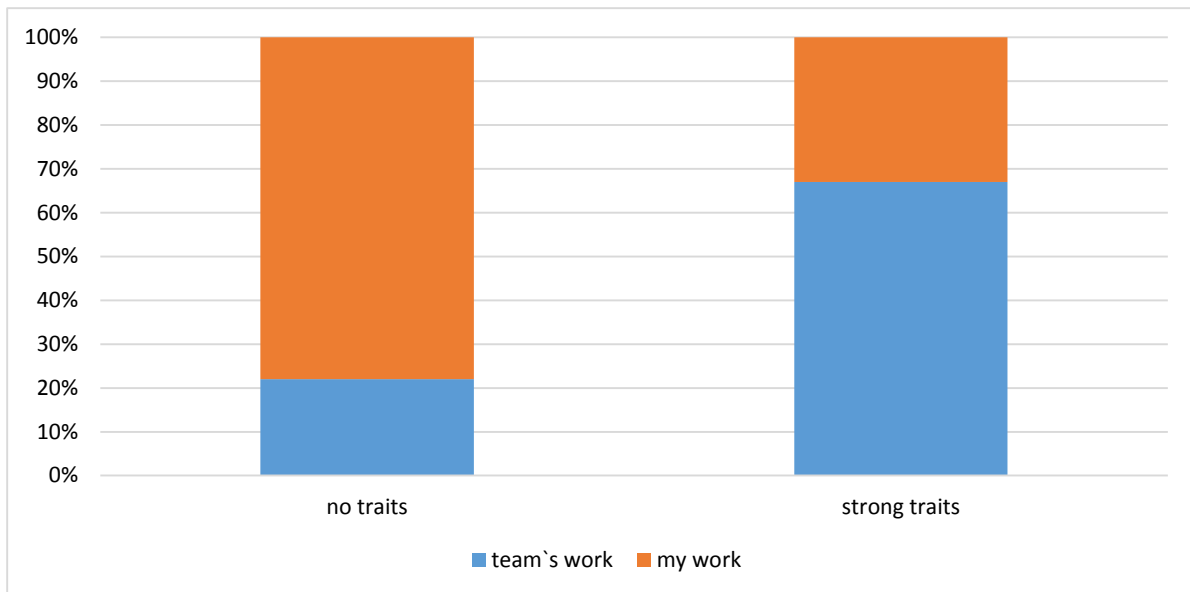


Figure 8. When the team in which you work has poor results, is it embarrassing you because of your own poor work or is it the fault of the team?

Source: own study.

Question 3 was a sensitive question because of the possibility that the answer might be implied: When the team in which you work performs poorly, does this make you uncomfortable because of your own poor performance or is it the team's fault? (Figure 8). Respondents assigned to the range of poor 'E' characteristics answered mostly that it was because of their own work, while respondents with 'E' characteristics indicated that the team was to blame. The results of the responses to this question support the conclusion that the 'E' employee looks for the fault of their failures in external factors.

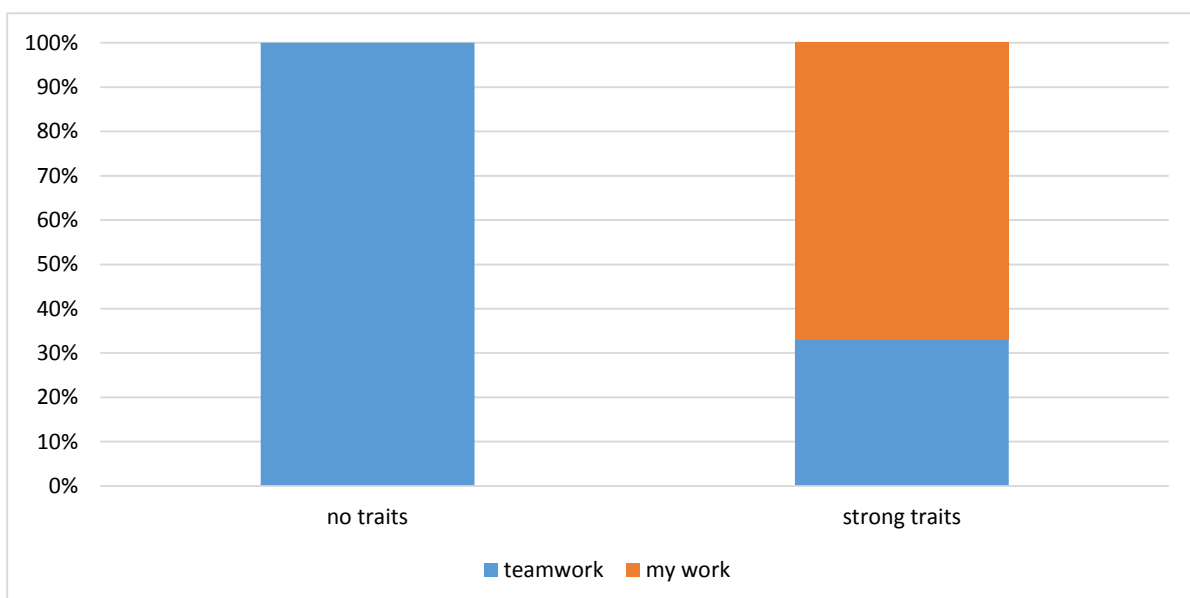


Figure 9. Do you think teamwork or your own work is more important?

Source: own study.

Figure 9 presents the results of the answers to the question: In your opinion, are team achievements or your own achievements at work more important? Respondents in the weak traits 'E' bracket answered that, in their opinion, team achievements are more important. In contrast, respondents in the strong 'E' traits bracket mostly indicated the answer that their own achievements were more important.

After analysing Figures 6-9, it is possible to draw the conclusion that the employees included in the group characterised by the characteristics of a 'E' employee show a markedly different perception of themselves in the work of the team. The performance of the team in which they work, its achievements are less important than their individual work and, at the same time, the team is responsible for failures at work.

4. Conclusions

By comparing the results of the responses presented in Figure 5, then juxtaposing Figures 6-9, and superimposing these responses on the pyramid of dysfunctions according to P. Lencioni, it is possible to formulate conclusions on how a E-type employee can influence the deepening of team dysfunctions at particular levels of their build-up.

Figure 10 presents the proposed model for linking the 5 dysfunctions of teamwork according to P. Lencionei with the influence of type 'E' traits on an employee's teamwork behaviour. As research has shown, such an employee is a potential source of threats to team effectiveness and efficiency. At the same time, in a situation where dysfunctions build up in the team, an employee with 'E' traits may exacerbate undesirable behaviours and limit the overcoming of these dysfunctions. Individual traits such as Suffering, Egoism and Slavery, on the one hand, hinder the work of the team, but such a high tendency towards extraversion allows managers to influence the behaviour of such employees more easily. This only requires the right choice of forms of motivation.

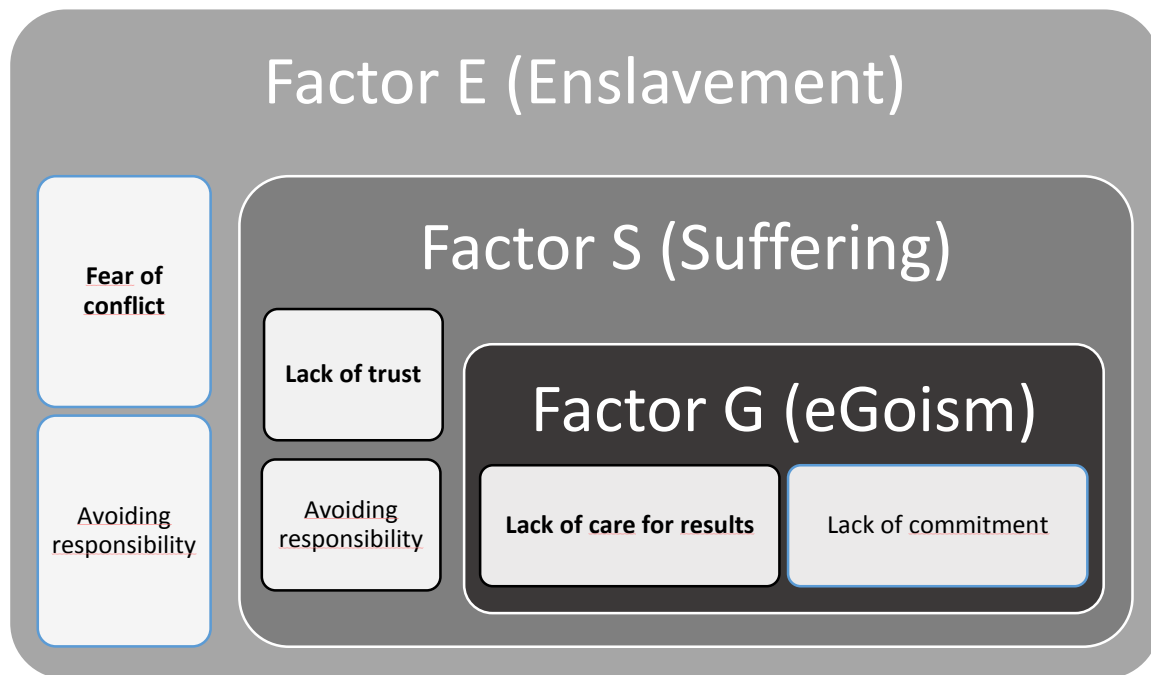


Figure 10. Correlation of 'E' employee characteristics with teamwork dysfunctions according to P. Lencioni.

Source: own study.

Therefore, overcoming dysfunction is the manager's task. Their aim should be to build trust within the team on a basic emotional level. This will make the fear of conflict disappear. Employees are willing and able to engage in discussions, openly sharing their views without disagreeing with the opinions of others. This relegates the 'E' employee to a minority role. Because each individual takes responsibility for his or her own behaviour and that of other team members, the social vanity to which the 'E' employee is prone is reduced. The team is performance- and goal-oriented. Therefore, it will naturally force the 'E' employee to conform or leave the team. Of course, if this is organisationally possible. It should be noted that, according to the authors, the greatest danger is when it is the team leader who exhibits the 'E' traits. Then the appearance of the discussed dysfunctions is very likely. In summary, the extroversion of 'E'-type employees requires strong motivational skills on the part of managers.

Acknowledgements

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TRUST IN ACADEMICS TEACHERS AND IMMEDIATE SUPERVISORS ACCORDING TO SELECTED NATIONALITIES OF THE GENERATION Z

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Purpose: The purpose of this article was to identify differences in evaluations of factors affecting trust in academics and direct supervisors as perceived by Generation Z from Poland, Spain and Turkey.

Design/methodology/approach: The presented analyzes constitute a part of a broader study on the trust that generation Z place in entities from various spheres of life. The article focuses on the academic teachers and supervisors. The research was carried out with the use of CAWI and PAPI methods on a sample of 656 respondents.

Findings: The aspects most and least influential on trust in both academics and supervisors were identified, statistically significant differences in the perception of these aspects depending on nationality were analyzed, and a correlation between respondents' evaluations of individual factors of trust.

Research limitations/implications: The research sample (lack of representativeness of the sample).

Practical implications: The article indicates which trust constructs should be paid attention to by a supervisor especially in the aspect of working in multinational teams.

Originality/value: The article indicates differences in the perception of trust constructs among young Poles, Spaniards and Turks. The article is addressed primarily to people managing multinational teams and academic teachers teaching students of various nationalities.

Keywords: trust, aspects of trust, generation Z, supervisor, academic teacher.

Category of the paper: research paper.

1. Introduction

The COVID-19 pandemic radically changed our daily lives, and was the catalyst for many changes of a social, cultural and political nature. It accelerated trends already in place - such as the rise of virtual interactions, but also aroused mutual distrust among people and deepened existing divisions (Twenge, 2024). In all spheres of life the increasing virtualization of life has contributed to a weakening of relationships and a decline in trust within teams (Lu et al., 2017;

Romeike et al., 2016). The weakening of intra-organizational relationships and lower trust in organizations (Edelmann Trust Barometer, 2021; Fulmer, Ostroff, 2017) has affected all generations – from baby boomers to Generation Z. This is particularly worrisome, as trust is one of the main mechanisms that create a platform for interaction (Stańczyk-Hugiet, Stańczyk, 2013) and plays a key role in shaping motivation and behavior in relationships (Kobylińska, 2018).

Generation Z now comprises more than a third of the world's population and will soon surpass Millennials in numbers. Year after year, more and more representatives of this generation are entering college and becoming professionally active (Ławińska, Korombel, 2023). Zetas have been present on the labor market for a short time often simultaneously pursuing higher education – able to combine both (Wasiluk, Bańkowska, 2021). Gaining their trust to a degree that at least enables them to function in the workplace/education is therefore a challenge faced by both modern managers and academics.

Bearing in mind that trust building is an interactive process in which parties learn to build and maintain credibility depending on organizational, contextual or structural conditions (Six, Sorge, 2008), and that feelings of trust constitute an important element of a strong relationship (Cattell, 2001), the purpose of the article was to identify differences in ratings of factors influencing trust in university teachers and the immediate supervisor as perceived by Generation Z respondents from Spain, Poland and Turkey.

The following research questions were formulated:

PB 1: Which factors are most likely and which are least likely to influence respondents' trust in academics and in their immediate supervisor?

PB 2: Depending on nationality, are there statistically significant differences in respondents' ratings of the perceived importance of the various factors of trust in academics and the immediate supervisor?

PB 3: Is there a correlation between respondents' ratings of the importance of individual factors of trust in academics and the immediate supervisor?

The following research hypotheses were assigned:

H1: Regardless of nationality, the factors most influencing respondents' trust in both academics and immediate supervisor are sincerity and high level of competence.

H2: There are statistically significant differences in respondents' ratings of the perceived importance of the various factors of trust in academics and the immediate supervisor.

H3: There are strong correlations between respondents' evaluations of the importance of individual factors of trust in academics and the immediate supervisor.

Basic statistical measures and non-parametric statistics were used to answer the research questions and verify the hypotheses. Calculations were made using the Statistica 13.1 package.

The article is divided into several sections. The theoretical section briefly reviews the literature in terms of Generation Z. The next section describes the research methodology, and the following section presents and discusses the research results. The final section of the article includes a summary with conclusions and limitations of the conducted research.

2. Generation Z – characteristics

Generation Z, also known as Generation C (connected, communicating, content-centric, compurozed, community-oriented, always clicking, celebrity) (Żarczyńska-Dobiesz, Chomątowska, 2016), Generation M (multitasking) (Wiktorowicz et al., 2016; Gajda, 2017; Różańska-Bińczyk, 2022), Digital Natives, Generation Like, Screeners, Selfie Generation (Caumont, 2014), and iGeneration (from Appel's iPhone), represents a group of the youngest workers in the labor market with unique experiences and perspectives (Czyczerska et al., 2020), which contributes to the lack of complete information regarding its behavior and expectations (Lipka, 2022).

Agility, creativity and curiosity are regarded as their main characteristics (Oxford Economics, 2021). Generation Z, raised by Generation X, has been taught to have a practical approach to life, to find and develop qualities in themselves that enable them to achieve their goals, and to be competitive. This is a generation of realists who are also individualists (Ławińska, Korombel, 2023).

Representatives of this generation have very high digital competence – the world they were born into functions on the basis of smartphones and the Internet (Sladek, Grabinger, 2014). This is the first group of people who grew up in the era of the Internet, social media, electronic gadgets and cell phones (Różańska-Bińczyk, 2022). For them, cyberspace has the same value as physical space, which is reflected in the ease of sharing information about oneself online (Pandit, 2015) and the ability to build online relationships that often remain exclusively virtual (Jabłońska-Bilewicz, 2016).

For Generation Z, the online world is just as real as the real world. They do not hesitate to share personal information online and see it as an opportunity to make connections that would not otherwise be possible. However, this addiction to the Internet makes it difficult for them to function outside of it (Stillman, D., Stillman, J., 2017), leading to problems in establishing and maintaining personal relationships (Gajda, 2017), including relationships in the professional sphere.

However, this is not (contrary to many opinions) a generation living exclusively online - equally important to them (according to statements) are offline experiences and the need to establish relationships in the real world (Dentsu Aegis Network, 2019). They are, unlike Generation Y, socially oriented and open to new experiences (Wiktorowicz et al., 2016).

3. Methodology

Generation Z, Trust, as a multidimensional (van der Berg, Martins, 2013), complex and multifaceted construct, is also characterized by the lack of a clear definition (Rousseau et al., 1998; Tschannen-Moran et al., 2013; Tschannen-Moran, Hoy, 2000; McKnight, Chervany, 2001; Mayer et al., 1995; Blomqvist, 1997; Friman et al., 2002; Kharouf, Lund, 2019; Nienaber et al., 2015; Searle et al., 2018; Wasiluk, Tomaszuk, 2020; Büssing, 2002). For the purposes of the article, the definition of this concept was adopted as *the trustee's conviction that the trusted person will not let him down, will not take conscious actions that could hurt or harm him* (Wasiluk, Tomaszuk, 2022, pp. 61). The multidimensionality of trust determines the use of diverse measurement scales (Żądło, 2014). In constructing the research tool, the measurement scale of Mishra and Mishra (1994) was modeled.

The implemented scale (Table 1) was adapted for the purpose of the study, which was to determine the extent to which the various aspects affect the respondents' trust in (respectively) academics and immediate supervisor.

Table 1.

The measurement scale used

S	Statement
S1	I trust that an academic teacher/supervisor should be completely honest with me
S2	I trust that an academic teacher/supervisor should prioritize the interests of the university over his own
S3	I trust that an academic teacher/supervisor should keep the promises he/she makes
S4	I trust that an academic teacher/supervisor should be a competent person in his/her work
S5	I trust that an academic teacher/supervisor should always express true feelings on important issues
S6	I trust that an academic teacher/supervisor should look after my well-being
S7	I trust that an academic teacher/supervisor should have a significant share in the success achieved by a university
S8	I trust that I should be able to rely on an academic teacher/supervisor
S9	I trust that an academic teacher/supervisor should undertake actions that are a consequence of previous declarations
S10	I trust that an academic teacher/supervisor should share important information with me
S11	I trust that an academic teacher/supervisor should care about the future of the university
S12	I trust that an academic teacher/supervisor should help to solve important problems at the university
S13	I trust that an academic teacher/supervisor should have consistent expectations towards me
S14	I trust that an academic teacher/supervisor should be able to make personal sacrifices for the university
S15	I trust that an academic teacher/supervisor should be willing to acknowledge their own mistakes
S16	I trust that an academic teacher/supervisor should help the university in crisis situations

Source: compiled from (Mishra, Mishra, 1994).

Respondents were asked to indicate their position on each statement (separately for each subject), on a five-point Likert scale (1 - strongly disagree; 5 - strongly agree).

The scale was interpreted following Espina et al. (2017). The reliability of the scale was checked using Cronbach's α coefficient. The calculated statistics (0.79 for the measurement scale used to measure trust in academics and 0.84 for the immediate supervisor) indicate sufficient and high consistency of the items included, respectively.

The analyses presented here represent only a part of the research conducted (the total sample consisted of 1185 respondents from 21 countries), the purpose of which was to identify differences in evaluations of factors influencing trust in selected entities in the opinion of Generation Z.

The article focuses on the answers of respondents who are representatives of the three most numerous nationalities of the study - Spaniards, Poles and Turks. The characteristics of the respondents (N = 656) are included in Table 2. The respondents were people born after 1995, simultaneously studying and having experience in the labor market. The survey was conducted in late 2021 and early 2022 with a combined technique, using CAWI and PAPI methods. The methods used made it possible to achieve a high level of standardization and minimize the interviewer's influence on the respondents' opinions, as well as provide a sense of complete anonymity, which contributed to increasing the quality of the data collected (Malhotra, 2010).

Table 2.

Characteristics of respondents

Country of origin of respondents	Number (%) of respondents
Spain	342 (52.1%)
Poland	230 (35.1%)
Turkey	84 (12.8%)
TOTAL	656 (100%)

Source: compiled on the basis of the conducted survey.

Spaniards were the dominant group of respondents, while Generation Z representatives from Turkey were the least numerous.

4. Analysis of research results

The importance of the various factors influencing trust in academics is presented in Table 3. Analysis of the data allows us to observe differences in the perception of the factors with the highest impact on trust in the subject under analysis. Spanish students ranked consistency, sharing information and willingness to admit mistakes as the most important factors; Polish students ranked competence, keeping promises and, like the Spaniards, the ability to admit mistakes; while Turkish students ranked keeping promises (like the Poles), expressing true feelings and sincerity, respectively.

With regard to the least important factors, more similarities can be observed - all nationalities indicated putting the interests of the university above their own (least important for Spaniards) and the ability to make personal sacrifices (least important for Poles and Turks). The "Top 3" least important factors additionally included having specific expectations from students (indications from Spanish and Polish respondents) and concern for the well-being of students (indications from Turkish respondents). The least varied, as indicated by the coefficient of variation, were the responses of Polish students.

Table 3.*Evaluation of statements on trust in academics measurement scale by nationality of respondents*

Statements	Spain			Poland			Turkey		
	\bar{x}	M_e	V	\bar{x}	M_e	V	\bar{x}	M_e	V
S1	3.68	4	31.73	4.52	5	15.83	4.37	4	17.33
S2	3.54	4	32.46	2.96	3	33.57	3.33	3	31.01
S3	3.79	4	27.89	4.68	5	12.13	4.46	5	17.19
S4	3.88	4	26.85	4.80	5	10.07	3.95	4	26.32
S5	3.82	4	26.56	3.82	4	26.43	4.45	5	18.58
S6	3.64	4	28.69	3.59	4	28.17	3.30	3	35.78
S7	3.78	4	26.97	3.95	4	20.37	3.74	4	34.77
S8	3.78	4	27.20	4.22	4	18.23	3.77	4	25.80
S9	3.92	4	23.52	4.40	5	17.07	4.02	4	21.12
S10	3.91	4	26.46	4.24	5	21.48	3.89	4	36.33
S11	3.82	4	26.29	3.95	4	22.17	3.79	4	27.83
S12	3.73	4	28.60	3.93	4	21.54	4.00	4	22.63
S13	3.56	4	29.49	3.50	4	27.42	3.19	3	37.21
S14	3.55	3	29.08	2.66	3	40.32	2.81	3	49.57
S15	3.84	4	25.27	4.60	5	12.95	4.31	5	20.05
S16	3.73	4	29.66	3.76	4	22.55	3.93	4.0	20.83

Source: compiled on the basis of conducted survey.

The conducted Kruskal-Wallis test confirms that there are statistically significant differences in the ratings of individual statements on the trust in immediate supervisor measurement scale (Table 4) - as observed for 12 statements. Most differences were observed between Spanish and Polish representatives (with respect to 9 statements), followed by those between Spanish and Turkish representatives (with respect to 7 statements). The least statistically significant differences in respondents' answers occurred between Polish and Turkish respondents (differences occurred with respect to 5 statements).

Table 4.*Kruskal-Wallis test of statements on trust in academics measurement scale by nationality of respondents*

Statements	H	p	Statistically significant differences
S1	90.11	< 0.05	between Spain and Poland; between Spain and Turkey
S2	37.65	< 0.05	between Spain and Poland; between Poland and Turkey
S3	126.36	< 0.05	between Spain and Poland; between Spain and Turkey
S4	137.11	< 0.05	between Spain and Poland; between Poland and Turkey
S5	31.17	< 0.05	between Spain and Turkey; between Poland and Turkey
S6	6.35	< 0.05	between Spain and Turkey
S7	2.94	0.23	-
S8	29.19	< 0.05	between Spain and Poland; between Poland and Turkey
S9	43.32	< 0.05	between Spain and Poland; between Poland and Turkey
S10	14.04	< 0.05	between Spain and Poland
S11	2.06	0.35	-
S12	5.68	0.058	-
S13	6.55	< 0.05	between Spain and Turkey
S14	85.91	< 0.05	between Spain and Poland; between Spain and Turkey
S15	92.59	< 0.05	between Spain and Poland; between Spain and Turkey
S16	1.81	0.404	-

Source: compiled on the basis of conducted survey.

Similarly, the data collected with regard to trust in relation to the immediate supervisor was analyzed (Table 5). Again, the factors influencing the formation of trust differ depending on the nationality of the respondents. For Spaniards, the most important factors are assistance in crisis situations, concern for the future of the organization and competence (none of the factors mentioned were among the most important in relation to academics); for Poles, keeping promises, also competence and the ability to admit a mistake (for this nationality, these are also the most important factors in terms of forming trust in academics); for Turks, honesty, keeping promises and the ability to admit a mistake (here, too, a similar ranking of responses can be observed in relation to academics). H1 was verified negatively - although both sincerity and a high level of competence are among the most highly rated factors, but not by all nationalities, differences can also be observed depending on the subject of analysis.

With regard to the least important factors, as in the case of the survey of trust in immediate superiors, more similarities can also be seen in the responses of the different nationalities. The least important factor in the opinion of all the groups surveyed turned out to be the ability to make personal sacrifices for the organization, while the group of the three least important factors also included concern for the well-being of employees (according to all groups), specific expectations of employees (according to Spaniards and Turks) and putting the organization's interests before one's own (according to Poles). Similarly, as in the case of trust in academics, responses from Polish respondents were the least varied.

Table 5.

Evaluation of statements on trust in immediate superior measurement scale by nationality of respondents

Statements	Spain			Poland			Turkey		
	\bar{x}	M_e	V	\bar{x}	M_e	V	\bar{x}	M_e	V
S1	3.74	4	28.55	4.60	5	13.75	4.40	5	19.02
S2	3.77	4	27.33	3.27	3	33.03	3.68	4	31.06
S3	3.81	4	27.19	4.77	5	10.86	4.38	5	18.03
S4	3.84	4	25.60	4.77	5	10.31	3.86	4	27.34
S5	3.71	4	26.65	4.07	4	23.69	4.15	4	23.18
S6	3.69	4	29.54	3.78	4	25.86	3.20	3	39.01
S7	3.73	4	27.74	4.30	4	18.59	3.77	4	30.60
S8	3.74	4	28.11	4.48	5	15.28	3.83	4	29.43
S9	3.77	4	24.08	4.50	5	15.23	4.21	4	19.86
S10	3.83	4	25.02	4.35	5	18.99	3.73	4	36.16
S11	3.84	4	24.68	4.36	5	17.48	4.05	4	20.26
S12	3.81	4	28.02	4.33	4	16.50	4.11	4	24.79
S13	3.54	4	30.39	4.01	4	21.53	3.37	4	32.83
S14	3.42	4	31.29	3.22	3	36.21	2.94	3	43.64
S15	3.73	4	25.02	4.72	5	11.89	4.25	4	19.96
S16	4.06	4	23.96	4.21	4	20.71	4.14	4	21.24

Source: compiled on the basis of conducted survey.

The conducted Kruskal-Wallis test confirms that there are statistically significant differences in the ratings of individual statements on the trust in immediate supervisor measurement scale (Table 6) - as observed for 15 statements. Most differences were observed between Spaniards and Poles (with respect to 13 statements), followed by Poles and Turks (with respect to 9 statements). The least statistically significant differences in respondents' answers occurred between Spaniards and Turks (for 6 statements). This allows for positive verification of H2.

Table 6.

Kruskal-Wallis test of statements on trust in immediate supervisor measurement scale by nationality of respondents

Statements	H	p	Statistically significant differences
S1	109.00	< 0.05	between Spain and Poland; between Spain and Turkey
S2	28.43	< 0.05	between Spain and Poland; between Poland and Turkey
S3	152.10	< 0.05	between Spain and Poland; between Spain and Turkey; between Poland and Turkey
S4	156.4	< 0.05	between Spain and Poland; between Poland and Turkey
S5	28.09	< 0.05	between Spain and Poland; between Spain and Turkey
S6	13.06	< 0.05	between Spain and Turkey; between Poland and Turkey
S7	48.49	< 0.05	between Spain and Poland; between Poland and Turkey
S8	79.73	< 0.05	between Spain and Poland; between Poland and Turkey
S9	95.67	< 0.05	between Spain and Poland; between Spain and Turkey; between Poland and Turkey
S10	46.41	< 0.05	between Spain and Poland; between Poland and Turkey
S11	45.26	< 0.05	between Spain and Poland; between Poland and Turkey
S12	32.84	< 0.05	between Spain and Poland; between Spain and Turkey
S13	35.76	< 0.05	between Spain and Poland; between Poland and Turkey
S14	9.41	< 0.05	between Spain and Turkey
S15	170.46	< 0.05	between Spain and Poland; between Spain and Turkey; between Poland and Turkey
S16	2.83	0.24	-

Source: compiled on the basis of conducted survey.

Spearman's rank correlation analysis, conducted for the ratings of the statements of the trust in academics and immediate supervisor measurement scale (Table 7), allows us to observe that there is a positive correlation for each statement (for each nationality). However, an analysis of the r_s values shows that for the answers of Spanish respondents there are no strong relationships; for three statements - S1, S3 and S13 there is a moderate relationship; for the remaining statements there is a low or very low correlation. For Polish respondents, there is also no strong correlation; for thirteen statements (S1, S2, S3, S5, S6, S8, S9, S10, S12, S13, S14, S15 and S16) there is a moderate correlation. For Turkish respondents, one correlation of high strength (S1) and twelve of moderate strength (S1, S4, S5, S6, S8, S9, S10, S11, S12, S13, S15, S16) were noted. H3 was verified negatively.

Table 7.

Spearman's rank correlation for ratings of statements on trust in immediate supervisor and co-workers measurement scale by nationality of respondents

Statements	Spain		Poland		Turkey	
	p	rS	p	rS	p	rS
S1	<0.05	0.45	<0.05	0.53	<0.05	0.48
S2	<0.05	0.34	<0.05	0.47	<0.05	0.29
S3	<0.05	0.40	<0.05	0.41	<0.05	0.37
S4	<0.05	0.34	<0.05	0.34	<0.05	0.56
S5	<0.05	0.16	<0.05	0.54	<0.05	0.45
S6	<0.05	0.19	<0.05	0.61	<0.05	0.60
S7	<0.05	0.19	<0.05	0.38	<0.05	0.83
S8	<0.05	0.23	<0.05	0.54	<0.05	0.52
S9	<0.05	0.24	<0.05	0.55	<0.05	0.54
S10	<0.05	0.29	<0.05	0.55	<0.05	0.63
S11	<0.05	0.14	<0.05	0.38	<0.05	0.47
S12	<0.05	0.19	<0.05	0.46	<0.05	0.46
S13	<0.05	0.42	<0.05	0.56	<0.05	0.44
S14	<0.05	0.26	<0.05	0.57	<0.05	0.39
S15	<0.05	0.21	<0.05	0.41	<0.05	0.56
S16	<0.05	0.26	<0.05	0.48	<0.05	0.53

Source: compiled on the basis of conducted survey.

5. Summary

Generation Z is still powering the walls of higher education institutions and, at the same time, is already present in the labor market. Considering how diverse and still unexplored this generation is, this implies many challenges for the rest of those entities functioning in the aforementioned structures. The need to enter into relations with Generation Z requires, in addition to being open to diversity, ambiguity and uncertainty (Żarczyńska-Dobiesz, Chomętowska, 2016), also learning about the aspects of trust that are most relevant to it. In light of the analysis, the conclusion emerges that the aspects of trust relevant to Generation Z are more differentiated by the origin (nationality) of the trusting one than by the potential subject of trust. This is supported by the fact that, despite the significant virtualization of young people's lives, the nationality to which they declare belonging and in which they grew up influences the formation of the adult individual (Żarczyńska-Dobiesz, 2016; Gajda, 2017).

Although the limitations of the conducted research (lack of representativeness of the sample) cannot be overlooked, the obtained results can be a starting point for further considerations - especially in the aspect of working and studying in multinational teams. The emerging significant statistical differences in assessments of the importance of various aspects depending on nationality indicate the need for detailed research to understand how cultural differences affect the perception of trust in the workplace.

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CONTINUOUS IMPROVEMENT IN THE COMPANY UNDER CONDITIONS OF UNSTABLE EMPLOYMENT – THE PERSPECTIVE OF PRODUCTION DIRECTORS

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Purpose: The paper aims to identify the effects of unstable employment in the context of applying continuous improvement (CI) idea in manufacturing companies and the actions that are taken in such a situation.

Design/methodology/approach: To achieve the purpose of this paper, qualitative research was conducted, using the case study method. Production directors of three manufacturing companies were interviewed. The subject of the research was the realization of continuous improvement in conditions of unstable employment.

Findings: As a result of the research, it was established that:

- In the surveyed companies, employee departures and rotation are affecting the continuity of improvement activities.
- Companies apply various measures to secure the continuity of improvement activities, often also reacting *ad hoc*.
- The biggest and most frequently reported dilemma was whether to invest – or not – in employee development in CI area, knowing the risk of their departure.
- Employment instability accelerated the implementation of automation, robotization, and digitization. This creates a need to perform CI in new ways.

Research limitations/implications: Limiting the research to three case studies restricts the ability to generalize conclusions. The research conducted was of a pilot nature and the presented conclusions and observations apply to the studied group of manufacturing companies. It would be justified and cognitively interesting to conduct research in a broader sample of manufacturing companies, as well as exploring other sectors such as services or trade.

Practical implications: The paper examines the manifestations and effects of the impact of unstable employment on the application of CI and how companies deal with it. Attempt was made to determine whether this situation may imply any changes in the realization of continuous improvement in the near future. The obtained research results can help managers implement continuous improvement in such conditions.

Originality/value: The article explores how employment instability affects the CI process and the continuity of CI activities. A review of existing literature reveals a research gap in this area that warrants further investigation.

Keywords: continuous improvement, *kaizen*, employment instability.

Category of the paper: Research paper, case study.

1. Introduction

In recent scientific studies, much attention has been devoted to issues related to employment instability (e.g., Bąk-Grabowska, Grzesik, 2019; Bieńkowska 2014; Marciniak 2016) – caused by mass layoffs, the development of flexible forms of employment – as consequences of corporate restructuring, undertaking various optimization actions (such as cost reduction, including personnel costs) often being the result of various trends and phenomena occurring at the micro- and macroeconomic level. These analyzes often take the perspective of employees, and as a result, attention is paid to protecting their interests, satisfying their needs for security and development, the employee's well-being, caring for their psychophysical condition and support in the event of a job change.

Significantly less attention is paid to the perspective of companies, which currently struggle with employment variability and related problems and challenges such as: loss of employees, loss of human resources and production capacity, disruption or interruption of business continuity, the need to hire and train new employees.

Employment instability may have a greater impact on the functioning of enterprises implementing long-term strategies, ideas, concepts, and management methods whose application and maintenance require substantial investments in human capital. An example of such an idea is the continuous improvement (CI, Japanese: *kaizen*) “embedded” in such management concepts and methods as Lean Management, Total Quality Management, Six Sigma, Process Management, Project Management. A key role in the implementation of improvement activities is assigned to the “human factor,” so employment instability can have a significant impact on the CI system and the continuity of these activities. This raises the question of what are the manifestations and effects of this impact and how do companies cope with it? Does this situation imply any changes in the implementation of continuous improvement in the near future? A review of existing literature reveals a research gap in this area that is worth a closer look and should be filled.

The aim of this paper is to identify the effects of unstable employment in the context of applying continuous improvement idea in manufacturing companies and the actions that are taken in such a situation. Moreover, the author hopes that through empirical research it will also be possible to learn about the dilemmas faced by management practitioners and the opportunities they see in such situations. The article is based on the results of interviews with production directors of three selected manufacturing companies. These studies should be regarded as pilot studies.

The paper consists of the following parts: introduction, the role of the employees in realizing continuous improvement, methodology of own research and characteristics of the surveyed companies, presentation of own research results, and the summary.

2. The Role of Employees in Continuous Improvement

The goal of continuous improvement is to optimize enterprise activities, improve efficiency, enhance the value delivered to the customer, and increase competitiveness. *Kaizen* assumes a never-ending process of improvements in various aspects of the organization's operations carried out by the joint efforts of employees and executives at various levels of management.

Continuous improvement was popularized by Toyota, which incorporated *kaizen* into its TPS (Toyota Production System), which has become an inspiration for many companies to follow. However, solutions typical for the Japanese cultural circle must be adapted to local cultural conditions and labor market situations. Research results on the effectiveness of continuous improvement implementations show that the “human factor” belongs to the group of “key success factors for CI implementation” (e.g., Arnaiz et al., 2022; Brajer-Marczak 2021; Formento et al., 2013; Gonzalez Aleu, Van Aken, 2016; Jørgensen et al., 2007; Walentynowicz 2013).

Continuous improvement is carried out with and by people – thanks to their engagement, loyalty, and competencies they possess, it is possible to improve activities, processes, and products in the organization. CI needs employees who know the company and its processes well, care about improving the organization, understand customer needs, are familiar with CI methods and techniques, share common goals and values, want to develop, and believe that what they do makes sense. Developing the competencies, attitudes and behaviors needed for CI implementation, assimilating desired values and norms of *kaizen* culture by employees requires time, patience, investment in human capital and supporting systems. In the situation of employment instability, improvement activities initiated by predecessors must be realized in new, often different conditions.

In the continuous improvement, it is important to be consistent, not actionable, because without consistency in action it is difficult to maintain CI process, and the effects do not always appear immediately. How to deal with the negative effects of employment instability (as well as how to take advantage of its potential positive effects) while applying continuous improvement idea?

3. Methodology

To achieve the paper's objective, the author conducted own research to diagnose ways of applying continuous improvement idea in companies facing variable employment conditions. Because the phenomenon under study is complex and multifaceted, the author decided to conduct qualitative research that allows for a deeper understanding of the issue. The research

used the technique of structured interviews, in which production directors from three manufacturing companies participated. Limiting the research to three case studies restricts the inference possibilities and the ability to generalize conclusions. As noted in the introduction, conducted studies were of a pilot nature.

To achieve the research goal, detailed research questions were posed (cited in the next section containing research results) – they concerned, among others, reasons, manifestations, and effects of unstable employment with particular emphasis on their impact on continuous improvement. The questionnaire was sent to respondents a few days before the scheduled interview date to allow them to think about the issues raised and prepare for the conversations, which were conducted at the beginning of 2024.

Three manufacturing companies that have been pursuing the idea of continuous improvement for many years were selected for the study. The respondents asked for the anonymity of the companies, so for the purposes of the study they are identified as company X, Y and Z. Below is a brief description of the surveyed companies:

- Company X is a company with foreign capital operating in the food industry – the first production plant was established in the 1940s; the company currently employs approximately 400 people and has been practicing CI for 13 years.
- Company Y is a company with foreign capital from the automotive industry – established in the 1950s, employs approximately 1500 people, has adopted CI over 20 years ago.
- Company Z is a company with foreign capital, also from the automotive industry – founded in 2006, employs over 350 people, has been applying CI since the beginning.

4. Results of Own Research

Each respondent provided answers to all research questions included in the interview questionnaire.

4.1. Who (and for what reasons) leaves the production department and what are the consequences for the realization of CI?

In the companies studied, the highest turnover concerns the group of operators. Very often, these are employees from temporary work agencies. Respondents reported that it is currently difficult to find in their area a new employee for the position of operator who would be interested in working on a permanent basis. The reasons for operators leaving were most often higher wages and greater development opportunities offered by nearby companies. Newly hired employees often lack basic knowledge about lean, or this knowledge is very weak, and they need to be trained. This disrupts the continuity of improvement actions, “you often have to take two steps back, to initial training and standardization, in order to move forward again”.

“New employees are interested in doing their job from-to, i.e. what is within their responsibilities and nothing more - they do not care about optimization”. “Without working out the basics with a new employee, there is no possibility of implementing CI”. In companies X and Y, there is a rotation of operators on production lines. This sometimes creates a sense of temporariness of work in a new place, which according to respondents can result in decreased productivity and less engagement.

In companies X and Y, technologists, laboratory technicians, and specialists leave less frequently – if anything, the reasons for their departures were mostly financial issues and development opportunities. In company Z, several process engineers left, but their departures were probably not due to financial reasons – “I suspect that these departures were caused by perhaps too rapid promotion of some process engineers to the position of production manager. Then there was a problem with the formal authority of the new boss, and I think there may have been a suppression of the initiatives of the production engineers for fear of losing their own position”. These employees left looking for greater development opportunities elsewhere. Their departures caused a disruption in the continuity of CI “because when a process engineer leaves, it’s [then] firefighting – rather than process improvement”.

4.2. Did the CI manager or HR Business Partner (HRBP) leave (and for what reasons) and what were the consequences for the implementation of CI?

In company X, there was a change in the position of CI manager (due to maternity leave) – her duties were temporarily taken over by the plant manager, who carried out his previous tasks in parallel. As a result, the company “somewhat stopped developing in terms of CI implementation” – the deputy mainly implemented plans created by his predecessor, and there was a lack of new development activities. Upon her return, the CI manager took charge of "opening" large, strategic projects related to, for example, the digitalization of processes. The HRBP also left – “Perhaps we did not find the person we were looking for. The HRBP did not contribute much” – this position was not recreated, recruitment tasks were taken over by one of the specialists from the HR department, and training was handled by the CI manager.

Company Y did not record any departures from these positions, but it applies a tactic of rotating people in managerial positions so that they can look at the implementation of processes from the perspective of another department. Recently, the *kaizen manager* moved to the position of production area manager, and his position was taken over by the current technologist. The result is that he focuses more on technological solutions, those that “are closer to him in terms of skills, experience and knowledge”. *Kaizen* workshops or problem-solving sessions are conducted to a lesser extent than before.

In company Z, the CI manager left recently. “It was connected with the departure of process engineers, i.e., employees with whom he most often implemented *kaizen* projects”. After his departure, his position was not recreated; his duties were taken over by employees he had

previously trained. Continuous improvement is still being implemented, but in a more decentralized way – “we see that there is a lack of coordination of improvement actions”.

4.3. What "safeguards" are used in the company to ensure continuity of improvement activities?

Respondents from the companies studied listed similar “safeguards”: standards, procedures, competence matrices, substitution grids, mentoring. The director of company X added – “it is not a lean approach, but during recruitment we create buffers. It is an expensive solution, but it helps us minimize the risk of employees’ shortage and ensure continuity of actions, including improvement activities”.

The director of Z added: "the solutions we use are designed to eliminate the 'one man job' approach, there is always a person who is able to take over at least 50% of the employee's responsibilities in the event of greater turnover or departure". "After the increased turnover of production engineers, we have developed knowledge management: knowledge codification, knowledge location, risk analyzes and action simulations, e.g. in the event of engineers leaving".

4.4. How (with what) to retain departing employees?

The respondents replied that operators could be retained by offering higher remuneration, but this only works for a brief time and pay ranges do not always allow for this. Directors from companies X and Y, where more than half of the employees are 40+, replied: “Older employees care about job security and stability more than money. Maybe the competition will pay a little more, but here they can be sure of peace of mind, stability, understanding of their needs, and they can count on respect. They do not want to take risks”. “Belonging, peace of mind and a sense of security are important for employees with longer experience. We try to provide that for them, but maybe a seniority bonus could be introduced”. “We see that the shorter the tenure and the younger the employee, the weaker the bond with the organization”.

In the companies surveyed, young employees are offered better employment conditions in the development area: participation in projects, implementation of new processes, work on modern technologies, trips to fairs, training in robotics, automation – “young people know that this is the future”. Respondents emphasized that it is important to take care of the atmosphere in the group because potential conflicts with colleagues or with a superior can incline an employee to leave.

4.5. What is the biggest problem, threat in terms of employment instability and its consequences for the implementation of CI?

The respondent from company X cited the macroeconomic situation and competition as the biggest risks. New companies in the area have a large development potential, offer better wages, better positions – so there is a substantial risk of losing an employee in whom a lot has been invested.

The biggest problem, in the opinion of the respondent of company Y, is the loss of valuable people who are key to the implementation of CI. “It depends on many things; various factors can influence it; it’s not so black and white”. “If I lose people who had key knowledge in management, processes, continuous improvement, I will also lose time to rebuild that knowledge”. “If I don’t pass on knowledge to successors, I will lose it along with departing employees”.

According to a respondent from company Z, the biggest threat to the continuity of improvement actions is the departure of process engineers. “They are closest to CI, closest to the product and process and they have the knowledge that significantly affects the implementation of continuous improvement in production and delivering value for the customer”.

4.6. What dilemmas regarding the implementation of CI arise in connection with unstable employment?

A significant dilemma for the director from company X is whether to invest time and money in employee development or not? The respondent follows an “internal compass”. He only sends people with a long tenure – and who are known within the organization – to studies and trainings, agrees to finance specialized polytechnic or technical studies – then he has greater certainty that the employee will not leave for 3-4 years. The director usually does not agree to finance training that results in obtaining qualifications (certificates), e.g., for the welder or the gas technician. “I am convinced that such an employee will leave after obtaining the certificate. I would rather use an external company's service than risk an employee leaving”.

The dilemma for the director from company Y is “whether to send a new employee to trainings immediately or wait a bit and see if he doesn’t resign and then you will have to train someone else”. “This dilemma can be dealt with by sending two or three people for training in the same area and creating a safety buffer”. “If training concerns less valuable knowledge, then you have to bear the risk of an employee leaving”. “It’s a risk that needs to be calculated”.

For a respondent from company Z, the biggest dilemma also relates to investment in training: “what if we train a young engineer and he leaves? We train at the risk of him leaving”. The company decides to finance studies or additional training if an employee has at least two years of tenure and shows so-called “development potential” (showing willingness to develop, to continue learning).

In case of financing employees' studies, all companies protect themselves by signing so-called loyalty agreements with those employees.

4.7. In the situation of variable employment, are there any benefits perceived, or novel solutions being developed for CI implementation?

At company X, "We are now moving more towards the development of automation, digitization, robotization. What was once done by an employee can now be exported to modern solutions". "Companies providing such services are very open to cooperation, often offering free training". "Now we put more emphasis on technical training, machine operation, because we have less knowledge in this area". "Now it is harder to convince young people to follow lean activities like brainstorming, workshops, but they willingly go to trade fairs related to robotization or digitalization, etc. They know that this is the future".

The respondent from company Y sees the following benefits: "When you have been doing something for an exceedingly long time, you do not notice certain errors and limitations. The arrival of a new employee can revitalize existing solutions, e.g., when someone new says that something can be done in a different way". "Maybe you can give up certain things, and the company will not suffer, even though something has been done for years?" "Also, in the situation of an employee leaving, you can ask yourself whether it is still necessary to maintain (recreate) the position he held? And if so, whether we can save something in this situation? There should also be lean thinking here".

At company Z, departures and rotations of employees led to the development of competence matrices and procedure improvements, introduction of knowledge management and enhanced remote work system. The arrival of new employees also brought a "breath of fresh air" into continuous improvement, a new perspective, and fresh solutions. Employment instability during the pandemic accelerated automation and robotization of production. For example, company deployed mobile robots that replaced often departing employees at the position of "milkman" delivering parts on a forklift to production lines. Previous attempts to optimize this process over three years brought minimal improvement, so the decision was made to purchase three mobile robots that work on five lines in a three-shift system.

Respondents from all companies believe that "The world and people are changing, so to some extent the culture of *kaizen* and ways of implementing CI must also evolve", "You must do certain things differently with young people; they lean more towards individualism than collectivism; you must look for other solutions". Such changes have already occurred in the surveyed companies. For example, *kaizen* training using a smartphone was introduced (the training ends with questions in the form of a quiz); on-the-job trainings are conducted using a video recorded on a private YouTube channel (everyone has access to it via a QR code); less formal meetings over coffee – which employees greatly appreciate (they do not like to participate in e.g. *kaizen* workshops because "they are too formal") – result in many new improvements; breaks are organized for the so-called *kaizen time*; in production areas, canteens

and social rooms electronic kiosks were introduced that allow users to log in to a dedicated application and submit *kaizen* proposals as part of the employee suggestion program.

In conclusions, the following statements appeared: “In the current situation, it is necessary to reconcile the interests of different groups and adapt to the labor market”. “People want to work less and less hard. You must take a lean approach and get as much as you can out of these resources what you have”. “It is necessary to constantly develop and change, and we take advantage of various opportunities to do so”.

5. Summary

Amid employment instability, companies face the dilemma of simultaneously maintaining the status quo and changing (continuity vs. change). This situation creates challenges, risks, as well as new opportunities for the implementation of continuous improvement (CI). The research conducted in three manufacturing companies practicing continuous improvement allowed for the achievement of the paper’s goal and led to the following observations and conclusions:

- In the surveyed companies, employee departures (i.e., due to salaries and lack of development opportunities) as well as rotations and replacements occur, in each case somehow affecting the continuity of improvement activities.
- Companies apply various, sometimes costly, measures to secure the continuity of improvement activities, often also reacting ad hoc. Increased employee mobility stimulates the development of knowledge management.
- To retain an employee, if possible, higher remuneration as well as development opportunities are offered.
- The most frequently reported problems and threats are the loss of valuable human resources, loss of time to recreate those resources, and competition offering better working conditions.
- The biggest and most frequently reported dilemma was whether to invest – or not – in employee development, knowing the risk of their departure. In this case, various safeguards are applied, but sometimes companies bear this risk.
- The benefits of employment instability mentioned were the arrival of new employees with a new perspective and innovative ideas; and sometimes the resignation from recreating the positions from which employees left.
- Hiring new, young employees results in the need to find and develop new ways to implement continuous improvement.

- Employment instability in the studied companies accelerated the implementation of automation, robotization, and digitization. This creates a need to perform improvement activities in an environment with an increasing share of machines and devices and a smaller share of human participants.

The conclusions and observations presented in the article relate specifically to the studied group of manufacturing companies and should be considered as pilot studies. Conducting the research in a broader sample of production enterprises, as well as exploring other sectors such as services or trade, would be both valid and intellectually stimulating.

As mentioned in the introduction, operating under conditions of employment uncertainty is difficult for both employees and company managers. Job instability affecting employees may cause anxiety and job dissatisfaction, which in turn may result in a decrease in work commitment and reduced work efficiency. On the other hand, companies struggling with employee departures and generational exchange face the problem of destabilization and disruption of continuity of activities (including improvement processes). Such situations create a need for managers to seek new ways of acting that consider the interests of various parties - this allows the company to increase its ability to adapt and change while maintaining business continuity.

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TEAL MANAGEMENT? YES, BUT ABOVE ALL IN SOCIAL ORGANIZATIONS. CASE STUDY

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Purpose: The purpose of this article is to examine the feasibility of broadly implementing teal management within businesses. Through a critical review of existing literature, the authors express skepticism towards the widespread adoption of this management style in typical business settings. However, the article also delves into an engaging case study, highlighting a specific social organization where the application of teal management demonstrates more promising outcomes. The research findings indicate that teal management may be more effectively employed in social organizations, where its principles align more closely with organizational needs and culture. Ultimately, the article aims to present these research results and the derived conclusions, offering a nuanced perspective on the applicability of teal management across different types of organizations.

Findings: In the course of this work, it was found that the principles of teal management can be fully implemented in practice, especially within social organizations such as foundations and associations. This is because these organizations are driven by the passion and commitment of their members, aligning well with the core principles of teal management. Conversely, the application of teal management in business enterprises is more limited due to inherent conflicts over resources, power, and remuneration, which are not in alignment with the teal organization's ideals. Although some aspects of teal management are gradually being adopted in business settings, the full implementation remains challenging at the current level of human consciousness and organizational development.

Originality/Value: This paper provides new insights into the practical application of teal management principles, particularly within social organizations. It highlights the unique alignment between the goals of social organizations and the ideals of teal management, offering a nuanced understanding of why these principles may be less applicable in business settings. This work is valuable for organizational leaders, management theorists, and policymakers interested in innovative management practices and organizational development.

Keywords: teal organization, teal management, business, economic organizations, social organizations.

Category of paper: Case study, literature review.

1. Introduction

Recently, in the theory and practice of management, the concept of teal organization has become increasingly fashionable. Some researchers strongly glorify the possibility of using this concept in modern enterprises (Blikle, 2017; Głowacz, 2020; Laloux, 2015; Trzcionka, 2018; Wzorek, 2019), while some have some reservations (Holwek, 2017; Hopej-Tomaszycka, Hopej, 2018; Violinist, 2017; Wyrzykowska, 2019; Ziembicki, 2017). Therefore, the authors decided to look at this theory, studying the available literature on the subject and Internet sources. In this process, they used the method of logical inference. In the next stage of the research, the case of the functioning of a particular organization in practice was analyzed, which was suspected of operating in a teal manner. The study used participant observation, diagnostic surveys, and analysis of various information sources to describe the mechanisms of the organization's functioning (internal documents, Internet sources). As a result of this study, the authors concluded that this is a genuine case of full use of the teal organization's assumptions in practice but in a social organization. Therefore, based on the study results, it was concluded that the functioning of teal organizations in practice is possible at the current level of human development. However, above all, it is possible in social organizations. Therefore, the primary purpose of this article is to present and document these conclusions. Its structure has also been subordinated to this goal.

2. Basic assumptions of teal organization/teal management

The concept of Teal Organization was first introduced to the world literature by F. Laloux in 2014, who comprehensively described this management model based on research conducted on 12 different types of organizations in the book *Teal Organization. To Work Differently* (Warsaw: Studio Emka, 2015) (original title: *Reinventing Organizations*). He based this model on the conclusions resulting from various theories of human development, primarily human consciousness (K. Wilber, J. Wade and C. Graves), showing how the assumptions of the functioning of organizations and the social relations prevailing in them were shaped historically or evolutionarily. He marked the various stages of the development of human consciousness and, consequently, the models of organization dominant in this period (paradigms), with five different colours: red, amber, orange, green and teal. Virtually every article on teal organizations begins with a presentation of the assumptions of these conclusions (cf. Cimoch, 2021; Holwek, 2018; Januszko-Szakiel, 2020; Violinist, 2017; Trzcionka, 2018), so we will not elaborate on this topic in our publication¹.

¹ In C. Graves' concept of human development, developed by D.E. Beck, Ch. Cowan, called Spiral Dynamics, has other colors (purple or, for example, yellow) (Holwek, 2018). Laloux, on the other hand, narrowed it down to five basic paradigms, mentioning only the sixth - infrared (2015).

The concept of a teal organization, also known as teal management (Blikle, 2014; Wzorek, 2019; Głowacz, 2020; Sulich, Rutkowska, 2020), is not just a new term but a real innovation and a breakthrough in modern management. So, what are the basic assumptions of teal organizations/management?²

Moreover, again, in virtually every publication on this topic, the authors agree (Blikle, 2017; Holwek, 2018; Laloux, 2015; Wegner, 2023; Wyrzykowska, 2019), stating that they consist of:

1. Self-management – in these organizations, there are no managerial staff in the traditional sense. Instead, management is based on empowering relationships between employees and independent or group decision-making. These decisions are not only related to current work and its organization or innovations but also to recruitment, payroll, or significant purchases or investments (Holwek, 2018). These organizations are characterized by a lack of hierarchy and a flat and "slimmed-down" organizational structure. They have a flexible approach to roles and functions, as well as interchangeability and substitutability. "In the discussed organizations, the following support departments have disappeared or function only in a rudimentary form: controlling, procurement, human resources management, quality, risk management, and strategic planning. Depending on the needs, these functions are taken over by employees who deal with something else daily" (Holwek, 2018).
2. Evolutionary goal – in these organizations, there are no attempts to set rigid goals or budgets. They often function without budgets or precise financial goals. Goals are set evolutionarily in response to changing needs and conditions in the environment, in a team and bottom-up way. On the other hand, the purpose of the organization's functioning is often much more valuable than just business (visionary, missionary, social, transcendent). Also, it evolves depending on how the needs and conditions of the environment change. These assumptions are often seen as their financial successes. That is, it is not "making money", as E. Goldratt or M. Friedmann claim, that is the primary goal of economic organizations, but "serving the world". Moreover, the world repays them for it. As A. Blikle writes, when we act honestly and respond positively to our vocation, the universe does everything to help us" (Blikle, 2014, p. 3).
3. Striving for wholeness – "Work should be organized in such a way that it gives a sense of meaning in life, allows for development, offers space for creativity and innovation. Relationships should be shaped as partners rather than competitors, cooperate and support each other instead of competing, and build good relationships based on trust. The essence is to take care of the "good life" in the social area, not outside of work" (Kalwa-Rojczyk, 2018, quoted in Blikle, 2014). Yes, but how do you do it...? At the same time, some authors question the practical usefulness of these assumptions

² In this publication, we will use these names as synonyms interchangeably.

(Holwek, 2017; Hopej-Tomaszycka, Hopej, 2018; Wyrzykowska, 2019; Ziembicki, 2017), but more on this in the next point of the article. On the other hand, A. Blikle emphasizes that each teal organization is different in practice, and despite the fact that it operates based on similar principles or mechanisms, in fact, it builds its model of success and immanently differs from others (2014, p. 2).

As A. Skrzypek (2017) points out, the concept of a teal organization as a new type of organization sets a new paradigm for the self-managing organization. The basis of this paradigm is the empowerment of the employee, who gains a sense of importance for what he or she does in the company. This means a change in the relationship, as the employee becomes a partner and sometimes also a co-owner of the company, impacting the decisions made. In a teal organization, no leaders and individual employees take on functions depending on what they can do and the company's needs. A teal organization is based on trust, listening, and effective communication.

The above assumptions of the teal organization operating model can be briefly summarized as follows (Blikle, 2014):

1. everyone "does" what they can,
2. what they "do" must be needed,
3. employees take full responsibility for what they "do",
4. employees can change their work model, but remember to keep up with the above three points.

However, in the context of the mechanisms of the functioning of a teal organization, these principles are enigmatic. Therefore, in another publication, Prof. Blikle already gives different rules (Blikle, 2021):

1. "Do not look for the guilty party to punish him — look for the cause to remove it.
2. Don't expect perfection that can't be achieved — expect progress that is always possible.
3. Avoid competition, which destroys partnership – create conditions for cooperation.
4. Don't judge, because it destroys — appreciate, because it strengthens.
5. Don't say what's wrong — say what can be better.
6. Don't ask people what they could do better — ask what bothers them at work.
7. Don't build on control — build on trust.
8. Don't say that someone is bad – say how you feel about it (the so-called "I message").
9. Do not manage – create conditions for self-organization.
10. Be not an overseer—be a teacher, a moderator, and a student".

These principles make teal management much more understandable and, in practice, can constitute its "decatalogue".

According to F. Laloux, a teal organization is currently the most developed form of management. It assumes an innovative approach to cooperation based on social values and balance between people, the environment, and the economy while ensuring the highest organizational efficiency in given conditions (similar to Wzorek, 2019). However, we have some doubts about it.

3. Doubts about the assumptions of the "ideal" model of the teal organization and the possibility of extensive use of this concept in business

F. Laloux, A. Blikle and M. Wzorek give many examples of teal management in business (Laloux, 2024; Blikle, 2014; Wzorek, 2019). At the same time, Laloux emphasizes that in order to reflect the model of teal management fully or to meet the assumptions of a teal organization, it would be necessary to "merge into one" all of the 12 organizations he studied (Laloux, 2014, p. 77). Also, some of the organizations he surveyed, as a consequence, strongly departed from the model he postulated (Laloux, 2014, p. 76). M. Wzorek and A. Blikle give many examples of teal management in Poland, but there are still few examples of the general number of organizations operating in business. Therefore, the authors of the article do not doubt that, in exceptional cases, the teal management model can work in business organizations, but they have many doubts about the possibility of using it to a greater extent in these organizations (as follows: Holwek, 2018; Hopej-Tomaszycka, Hopej 2018; Kirov, Kirova, 2017; Wyrzykowska, 2019; Ziembicki, 2017). These doubts stem from their academic knowledge of effective management, their many years of experience as consultants and members of organizations, including in managerial positions, and their reflections on human nature, specifically for the issues raised in this article. Of course, as P. Drucker used to say, it is always likely that the authors are wrong, but they tried to support their conclusions with such arguments (logical and scientific) to minimize this probability.

Thus, the first observation that the authors would like to emphasize is the division of the three main principles of the teal organization into four:

1. Self-organization.
2. Self-direction.
3. An evolutionary goal.
4. Fullness of life.

The division and renaming of self-management into self-management is not a mere semantic change. It has far-reaching implications for the application of these principles in business. In their analysis, the authors highlight the stark difference between self-organization and self-management, as defined by J. Zieleniewski, R. Rutka, S.P. Robbins, and R.W. Griffin. This distinction is crucial and should be the focus of any discussion on teal.

When it comes to the issue of self-organization – dividing goals into specific tasks, determining the optimal way to perform tasks (regardless of whether they are incidental or repetitive tasks), and assigning tasks to team members and their performance – the authors fully agree that this can be done in many situations in practice in a democratic way. Examples of this can be self-organizing teams in agile project management, self-organizing work teams in the automotive or aviation industry (e.g. in Volvo in Sweden), various types of creative teams for

solving problems or implementing various types of projects (e.g. organizing a conference at a university), or finally teams for particular tasks in the army or police. However, it is necessary to have the appropriate competencies among the organization's members (Wyrzykowska, 2019). Doubts arise primarily about "self-employment", i.e. the selection of members to teams outside the organization in a bottom-up way - by employees - without ownership control. Perhaps in certain conditions or types of undertakings, "self-employment" is justified. However, in most cases, it may be threatened by nepotism, cronyism, selection of employees with inappropriate competencies, incompatibility of attitudes and values with the organization's ideas, or the appearance of undesirable people. Besides, it is difficult to imagine a company owner agreeing to hire new employees without his knowledge. Of course, the participation of team members to which a new employee is accepted in the "advisory process" is most advisable, especially HR specialists. However, we believe that the final employment decision should be made by the owner/manager of the company. Practice proves that this approach gives better results in most cases.

Self-organization is related to how internal structures are built (even temporarily) to perform tasks efficiently. On the other hand, management is a much more serious and important issue for the organization's functioning, which, in the case of teal organizations, is the so-called self-management. Moreover, Here, the question arises: Is self-management even possible? The definition of this concept shows that management is a process of efficient management of enterprise resources based on a set of specific activities (functions): planning (including in particular making appropriate decisions); organizing – that is, shaping appropriate conditions conducive to the implementation of plans; motivating (in short, arousing commitment), coordinating – facilitating cooperation; and control. As R. Rutka rightly emphasizes, management in an organization occurs when the manager can dispose of the resources included in it (acquisition, disposal, pledge, lease, employment, dismissal, or finally, ordinary exploitation).

Moreover, this results only from the competencies (permissions) of the resource owner or the rights assigned to another entity (intrapreneur manager) by the resource owner. In other cases, most often at lower levels in the organization, the phenomenon of management occurs. In theory, it consists of performing the same functions in the area of processes carried out in the managed unit (planning, organizing, motivating, coordinating and controlling), but only with the possibility of disposing of the entrusted resources (using them to perform tasks, without the possibility of disposing of them). So, what tasks in the management process can be delegated to ordinary employees without risking the organization's resources being misused and the tasks performed inefficiently?

In an organization, management can be divided into strategic and operational. In 2003, one of the article's authors wrote that as part of management processes, which is close to the concept of operational management, practically all (Walentynowicz, 2003). Except for good leadership (cf. Collins 2007). Moreover, this is also what happens in teal organizations.

However, the situation becomes more complicated within the strategic management process. Within this process, decisions are made with cardinal and long-term effects on the organisation's directions and ways of using resources (organization development). This type of responsibility should not be placed on the shoulders of ordinary employees, and the owner of private capital will rarely want to share such rights with them. Besides, do they have the proper knowledge and information to do so?

However, the issue of employee participation in the strategic management process is a different matter. In modern organizations, managers can and should value and incorporate their subordinates' opinions. This not only empowers the employees but also enriches the quality of the process. While managers retain ultimate responsibility, they should not wholly cede decision-making to their subordinates but rather foster a collaborative environment.

Therefore, the concept of self-management in teal organizations is more accurate in replacing the concept of self-management. An alternative definition of management states that it is a "voluntary or forced restriction of people's freedom of action, carried out to achieve the success of collective action. The essence of management is the coordination of collective efforts at the desired level" (Czermiński et al., 2001). Therefore, claiming that self-management brings better results is controversial, especially in economic organizations. Tasks in a team led by a leader are very likely to be performed better than without. Therefore, the article's authors believe there can and should be managerial positions in teal organizations, but in a different form than traditional ones (similar to Hopej-Tomaszycka, Hopej, 2018). The team can organize its work from the bottom up, and the employee can make decisions democratically or independently within the scope of the powers granted. However, these processes should be supervised by a specific person with absolute authority and elected by the team members (leader). In contentious cases, reaching a consensus in a process supported by such a person will always be faster than without such a person (Sypniewska, Baran, 2019). What is essential, however, is that the process of "coordinating collective efforts at the desired level" is approached by this person in a leadership way (co-setting goals and arousing commitment). K. Leja and A. Pawlak, following R. Greenlaf, call such an attitude "servant leadership" (Leja, Pawlak, 2021). The attributes of servant leadership are, m.in, "a vision and system of values conducive to diversity, absolute honesty, delegation of powers, supporting the personal development of subordinates, inspiring people and organizations to change, as well as mutual trust" (Leja, Pawlak, 2021, p. 18 quoted in Evans, 2005, p. 67). So, it is not a traditional management process.

It is also worth developing the managerial competencies of such people through various types of training initiatives because, as practice proves, the skills of suitable management, or especially leadership, are instead rarely found on their own³.

³ In practice, there is often a misconception that the skills of good management or good management are "sucked with mother's milk".

In order to support the thesis regarding the possibility of self-management and self-management in practice, the authors would like to cite several additional arguments. First of all, not all people are fully independent and are willing to take the initiative as part of performing various types of tasks. This is related to the so-called placement of the control point (J. Rotter's theory) and the so-called "internal controllability" and "external controllability" (D. Riesman and W. Reckless theory). Externally controllable people prefer someone to make a decision for them or assign them tasks, and then they can perform them even very conscientiously. People who are internally controllable or have an internal location of the control point show a higher level of agency, are willing to take the initiative and are not afraid to take responsibility (Jastrzębski, Baranowska, 2015). Most people have a mixture of these traits in different proportions. However, according to online sources, only about 17% of people are internally controllable, while people with complete externality are about 32%. Therefore, the conclusions from these theories indicate that even in teal organizations, there is a need for at least partial management.

Secondly, making decisions in a group (democratic) way usually takes much more time than in an individual way, and in business, the speed of decision-making is essential. Individual decisions are often more subjective than group ones, but the latter can be much more extreme (risky or safe). Therefore, the solution to the problem is a consultative way of making decisions, but you need a leader. An excellent example of how to make decisions in organizations is the Vroom-Yetton-Jago model (Vroom, Jago, 1988). Moreover, since more and more employees are increasingly educated, competent, and aware, the instructions of this model naturally guide leaders in making decisions in a team.

Another argument for the need for management processes in a teal organization (of course, in a slimmed-down form) is the phenomenon of the level of maturity of employees (Czermiński et al., 2001). Not all employees are competent or mature enough to independently decide how to perform tasks or take on various additional responsibilities. A notable example is people who are just starting to work in a given organization or people with a lower level of education. The authors trust that such people will also find a place in a teal organization but will require additional instruction, help or organizational support. You can try to solve these problems by assigning them direct tutors (in a teal organization, where they volunteer independently). However, a good leader's motivational or coaching role in this process will be unquestionable.

These conclusions also result from the situational leadership model of P. Hersey and K. Blanchard (Mirčetić, Vukotić, 2020). This model, considered one of the best models of this type, shows that complete independence, with a high level of trust, can only be entrusted to mature employees. Besides, not all people have such high moral qualities that we can have complete confidence in them. As K. Leja and A. Pawlak will confirm, not all employees fit into a teal organization (2021, p. 17).

The authors are also critical of the issue of performing work without defining the scope of tasks to be performed and the issue of the general level of formalization of the organization. One of the principles of teal management assumes that teal organizations function perfectly well without it (Laloux, 2015, pp. 113-116). In most cases, the tasks of employees and the rules of the organization's functioning should be set in writing, at least to a minimal extent (mission, organizational values, basic principles and procedures). However, R. Rutka postulates that in an optimal way because good management theory and practice prove that the optimal level of formalization of the organization is conducive to its effective functioning (cf. L. Greiner's concept). Moreover, what does optimal mean? This means that adapted to given needs and conditions – e.g. as it is defined in Toyota – "bureaucracy" that is favourable is favourable, and inhibiting – inhibiting. Therefore, it should only be conducive (e.g. good organizational standards) and written down and communicated to the addressees in an uncomplicated and understandable form (e.g. drawings, photos, simple descriptions) because without at least a flexible outline of tasks to employees, the direction of action or organizational values, even in good faith, they may forget something, overlook it or get lost. On the other hand, the authors do not object to the fact that this is determined by the broad participation of the company's employees (similarly: Hopej-Tomaszycka, Hopej, 2018, pp. 238-239; Liker, 2022, pp. 191-194).

The last aspect of the theory of teal organizations with which the authors disagree is the issue of self-determination of the amount of remuneration, with limited possibilities to question this process (Laloux, 2015, pp. 159-161). This is one of the most sensitive topics in classic management, and the entire "staff" of scientists and practitioners is working to solve this problem. This is a delicate issue because in Western countries, due to the high level of "wage mark-ups", the relationship between the final value of the employee's salary and the cost to the organization is at least very subjective, if not conflicting. For example, in Polish conditions, an average full-time employee costs the organization a min. 180% of what he receives is net to his account. Therefore, in most cases, employees will always believe that they earn too little, and employers will believe that employees cost them too much, directing their activities towards alternative contracts (the so-called junk contracts). Such a situation in organizations often gives rise to conflicts. Completely letting go of the control of the managers over this process will most likely lead to even greater conflicts. Moreover, rising living costs, energy, natural resources, real estate, and simple inflation will deepen these conflicts.

Profit is essential for the functioning of enterprises. Profit is revenue minus operating costs (to put it simply), which are greatly influenced by remuneration costs. Therefore, someone must be the guardian of these costs, and no one can do it better than a competent, aware and right-thinking manager. In our opinion, the answer to this challenge is to determine the amount of remuneration in a consensual manner – negotiated by both parties to the contract, taking into account the conditions and capabilities of a given organization, a given employee or a given type of work. Professional tools can be used in this process, such as the UMEWAP method,

but this requires at least two parties to the contract – the employee and the company owner – even if the employee is more of a partner than a subordinate.

At the same time, the authors have nothing against the fact that the financial surpluses generated by the organization's members are divided democratically. On the other hand, the claim that there should be no bonuses or various types of awards in teal organizations is considered irrational by the authors (Wyrzykowska, 2019, quoted in Iwko, Pisarska, 2019). Perhaps some employees may care less about salary than working conditions, but various types of bills in private life "will not pay themselves". In addition, J.S. Adams's theory of justice and practice lead to conclusions about the low usefulness of the egalitarian approach in the motivation process. Therefore, a leader helps set fair salaries and thus maintaining high motivation in a teal organization.

The last issue the authors would like to address is the usefulness of teal management in production organizations. Of course, some aspects of the concept of employee leadership or decision-making participation can be used. However, it is not easy to imagine a situation where employees would independently determine the shape of structures and processes in conditions where they are determined, especially in apparatus or processing and assembly processes in the flow form. Anyway, the reader can imagine for himself what it would lead to.

Therefore, the authors believe that in economic organizations, where profit-making and resource efficiency are of cardinal importance, teal management may work, but only if the aspects mentioned above are considered, more so in service and knowledge-based enterprises than in manufacturing. The author's experience shows that human nature is even more particular than egalitarian and sometimes unreliable (and even often). That is why they stand guard over what has been presented above. Currently, most societies must be more mature to bestow privileges such as those postulated by the described concept. Perhaps someday (in the distant future), as the propagators of this concept trust (by the assumptions of the Spiral Dynamics model), but not yet (Wyrzykowska, 2019; Holwek, 2018).

4. The Case of Successful Use of Teal Management Theory in Practice

Although the authors have many doubts about the possibility of using the complete assumptions of a teal organisation's "ideal" model in business, the situation may be different for social organizations (non-profit organizations, third-sector organizations).

The Lean Education Foundation was established in Gdańsk in 2018. Its originator and founder is Joanna Czerska, PhD, Eng. from the Gdańsk University of Technology - lecturer, trainer, Lean consultant and owner of a thriving training and consulting company, LeanQ Team. It was not established to run the foundation itself and all related matters but because it was an excellent instrument for achieving social goals through the Young Lean Leader program,

which Joanna had established three years earlier. The Young Lean Leader competition - as a nationwide training program for high school students in an interesting, fun and at the same time developing form, was the materialization of the fulfilment of its author's dreams. The people running the competition very quickly concluded that it would function much more efficiently and effectively under the aegis of the foundation. A foundation is a much more beneficial organizational and legal form for implementing social goals than a limited liability company. As the founder recalls, "in order to achieve social goals, in the formula of a foundation, it is much easier to cooperate with institutional partners - primarily public administration bodies - and to obtain the necessary funds". Thus, for the 9th edition in Poland, the Young Lean Leader (<https://www.leaneducation.pl/m%C5%82ody-lean-lider>) competition has been running and developing.

From the very beginning, the competition was carried out in the form of volunteering. At the same time, the foundation's establishment strengthened its structures and organized the mechanisms for sharing knowledge, passion, and commitment of Lean Management enthusiasts. Currently, the competition/foundation gathers around a dozen permanent members (the so-called headquarters), and several dozen volunteers participate in it partially, most often teachers of competition groups, jurors, students helping organize semi-final and final games, and cooperating companies. Many of these people/companies have been cooperating with the competition for years. From the very beginning, the main patron of the competition has been the University of Gdańsk, and its permanent partners are also the Gdańsk University of Technology, Poznań University of Technology, Lean Management Polska Association, Belma Accessories Systems Sp. z o.o, Lubiana SA, Warner Bros Polska and others. Cooperation with the foundation and participation in the competition is voluntary.

The competition lasts nine months – from September to June of the following year. However, the work on it lasts for an uninterrupted year because even before the end of the previous edition, preparations for the next edition begin. The competition is divided into three stages. The first one – shaping knowledge and attitudes and arousing creativity, is carried out in teams of 10 students, under the supervision of teachers and substantive coordinators, as a decision-making game in students' schools. Several dozen student groups from all over Poland have participated in the yearly competition for several years. The second stage – deepening knowledge and "strengthening team bonds" - includes the process of preparing for the course of all-day, stationary semi-final games. As part of them, students perform a variety of tasks in teams. They occur in Sopot at the Faculty of Economics of the University of Gdańsk and one of the universities in southern Poland – in Wrocław or Poznań. The third stage is the "crème de la crème" of the competition. The ten teams awarded in the previous stages carry out real consulting projects in practice in companies. Based on their results, the final games are held at the beginning of June each year, and the competition winners are selected. This stage aims to develop specific practical skills among the participants. It should be mentioned that

each stationary semi-final and final game is a great event, experience, and joy for the young people and the organizers taking part in them.

In this way, for nearly nine years of the competition, the foundation has gained several thousand young Lean adepts, many of whom continue their adventure with Lean at university and later, perhaps also in their professional lives. This is the primary mission of the foundation: "to infect Lean Management, Kaizen and a positive attitude towards creativity, teamwork and respect for the positive values of young people". That is, to pass on the positive energy of volunteers to the young generation. The main assumptions and values of the foundation are presented in Table 1.

Table 1.
Foundations of the Lean Education Foundation

OUR MISSION		OUR VISION		
We create an environment to develop the universal attitudes and competencies sought by top employers		The combined communities of business practitioners, schools and universities co-create curricula that are used in elementary schools, vocational schools, technical schools, high schools and universities		
Our SPIRIT. Our VALUES				
Team	Positive attitudes	Honesty and openness	Respect	Integrity
We accept and are guided by the values of the Foundation. We are attentive to each other and our needs. We motivate each other to take action. We are interested in the progress of others' work and offer support. We make sure our messages are understood by the recipient. We demonstrate a willingness to learn and grow. We share knowledge.	We show an attitude of YES We are enthusiastic about the world We search for positive sides in every new proposal. We engage wholeheartedly in carrying out the tasks we have taken on. We take for granted that each of us has good intentions.	We are open to new proposals. We submit ideas. We give simple feedback. We do not take offense at each other. We report when we can't perform something. We actively listen to each other.	We respect that everyone has a life outside the Foundation. Everyone has the right to their opinion. We address each other with dignity and respect. We do not let emotions take precedence over the message.	We admit our mistakes. We accept the possibility of making mistakes. We report our unavailability. We keep our self-declared commitments. We report our unavailability. We keep our self-declared commitments.

Source: Foundation materials obtained during the study.

The structure of the foundation is task-oriented. It results from the main objectives of its activities and the basic tasks to be carried out in connection with the competition. Individual tasks are taken on by the foundation members voluntarily, and they are responsible for them in a "dignified" manner. Volunteers do not receive any remuneration for their work. As one of the respondents wrote: "the main remuneration of the members of the headquarters is the energy we get from observing how what we do affects our participants. An additional element of

motivation is self-fulfillment, because everyone in the foundation has unlimited opportunities to achieve their private development goals." In addition to their own time, energy and knowledge, volunteers often devote their financial resources (for trips, accommodation, implementation of various types of work, etc.). Therefore, as confirmed during the survey, the effectiveness of implementing tasks in the foundation, measured by the ratio of expenditures to the results obtained, is very high. The effectiveness of implementing tasks in the foundation is also very high. This is due to, firstly, the knowledge that volunteers have – after all, they are Lean experts daily, and secondly, the way work is organized in the foundation. The quality of the effects of the activities carried out by the foundation can be evidenced by, m.in others, statements of people cooperating with it: <https://www.youtube.com/watch?v=TFNmmQ4O85Q>, or the participants of the competition themselves: https://www.youtube.com/playlist?list=PL0pqiMyb_B3eA07u8AfMF_rDiMCd_BZOYSG. The organizational structure of the foundation, which simultaneously presents the scope of tasks carried out in the foundation, is presented in Figure 1. The foundation's volunteers voluntarily accept individual roles, tasks, and responsibility for them.

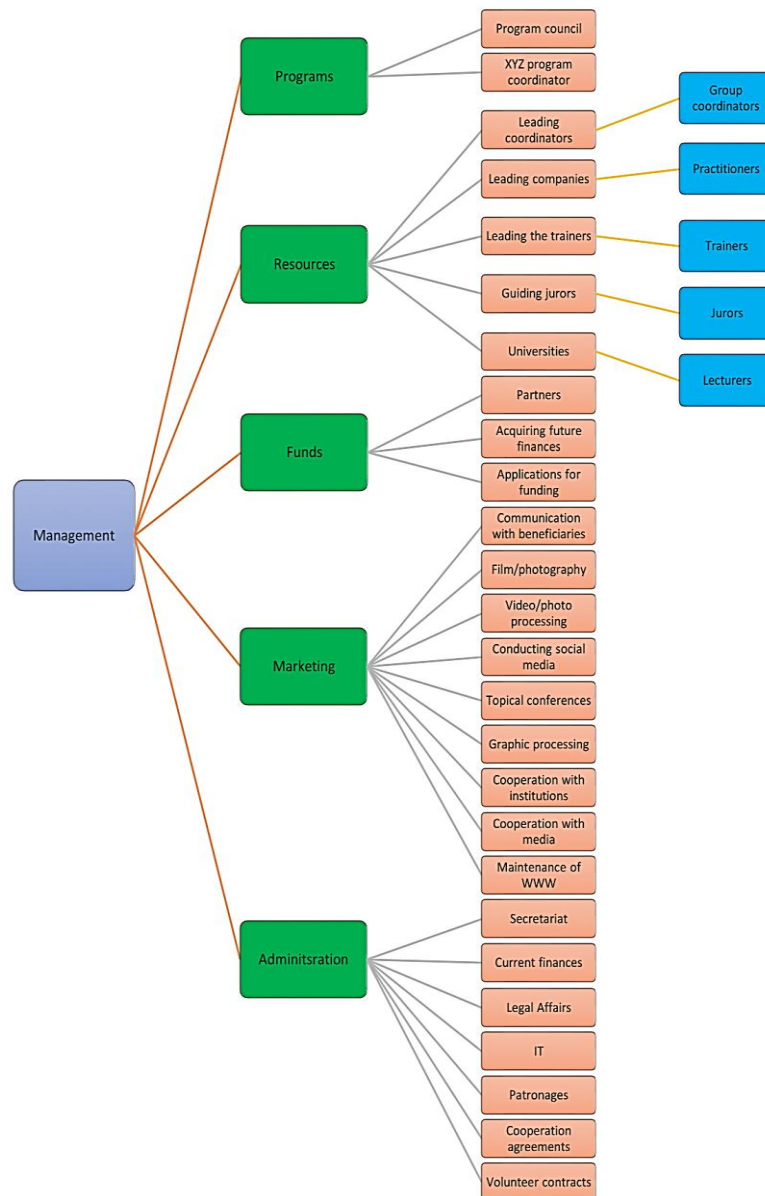


Figure 1. Organizational structure of the Lean Education Foundation.

Source: Lean Education materials obtained during the study.

Even though the scope of the foundation's activities covers the whole of Poland, the central volunteers (the foundation's headquarters) meet online every week to discuss the essential progress in the implementation of tasks and how to respond to possible difficulties. In their activities, the foundation members use the idea of "scram" and organizational and remote work tools such as online Kanban board, Trello, Slack, Google Meet, Google Drive, etc. Thanks to this, being a volunteer of the foundation, you can learn how to use these tools effectively, which is very helpful in your professional and private life. In addition, the foundation uses FB as a social media, e-mail as a communication tool, and a website and FB as a promotional tool. Twice a year, stationary conventions of the "headquarters" volunteers are organized (in January and July), during which the foundation's development decisions related to the Young Lean Leader program are made democratically. In addition, they meet in

person during various types of training or stationary games. The team of volunteers cooperating with the foundation on a "loose" basis is fluid, but the turnover in the team of regular volunteers is very low (10-20% per year). Unfortunately, the relationships with the organization voluntarily are not as stable as on an economic basis, so we estimate that the level of fluctuation in the foundation is not high. All the time, the person who brings the primary energy to the foundation and is its undisputed leader is Dr. Czerska. As she emphasizes, "In order not to inhibit the creativity of volunteers and not to impose anything on them (in the case of this type of activity, it would be pointless), the management of the foundation is carried out on the principles of teal". As other respondents also say, "The Foundation operates on the principles of a teal organization. Each member of the headquarters is assigned to manage a given part of the organization; it is about the scope of duties. These responsibilities are reviewed and changed at least once a year depending on the availability and interest of individual members". A considerable advantage of this model is that everyone will always find something for themselves, depending on their current energy, motivation and availability of time".

A great curiosity and, at the same time, a test of the team's efficiency turned out to be the fact that at the outbreak of the COVID-19 pandemic (in March 2020), the members of the foundation faced the dilemma of how to remotely continue what was planned to be implemented in a stationary manner in enterprises? The problem was, of course, solved very quickly. The 2019-2020 competition of the year was completed remotely. The 6th edition of the competition had to be conducted similarly. As befits a well-managed organization – the organizers of the competition, even in this challenging period for everyone "managed", but as they unanimously confirm, this form is very unfavourable for fulfilling the competition's assumptions, atmosphere and effects.

The Lean Education Foundation is a shining example of teal management in action. It operates successfully, achieving its goals with efficiency and effectiveness. This case is a testament to the practical application of teal management, particularly in social organizations or those at the intersection of social and business sectors, such as schools and universities. The success of the Lean Education Foundation should inspire confidence in the principles and practices we uphold.

5. Summary

As this article has proven, it is possible to use the assumptions of teal management entirely in practice, but more so in the case of social organizations (primarily foundations and associations) than in business. Why? One of Teal's fundamental assumptions is that people will participate in the organization to pursue their passions. Yes, and this is why social organizations are created. Business, on the other hand, is all about profit.

Moreover, this already gives rise to rivalry and conflicts. Conflicts about resources, power, and remuneration. Moreover, this is different from what a teal organization is about. Therefore, the authors think that at today's level of development of human consciousness, it is impossible to fully use the principles of teal management in economic organizations (although management in these organizations is becoming more and more democratized year by year). Under certain conditions and in certain types of enterprises, the principles of teal management can be used more, but in others, they can be used less. However, as the analyses in this article show, it still needs to be completed⁴.

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THE INFLUENCE OF LONG-TERM EMIGRATION ON THE HUMAN CAPITAL DEVELOPMENT

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Purpose: The purpose of this paper is to demonstrate the impact of long-term emigration on the development of human capital.

Design/methodology/approach: The study used a quantitative approach, where the method for obtaining data was a survey. A quantitative study conducted on a sample of 160 Polish men and women.

Findings: A study showed a significant impact of emigration on the enrichment of the emigrants' human capital, which is expressed by an increase in the level of hard and soft competences, as well as an increase in the level of formal education. Almost all the respondents showed an increase in the level of competences (by 20% on average), with the greatest improvement in knowledge and skills in the area of foreign language skills (increase by 38%), knowledge of specialised computer programmes (increase by 36%) and increase in competences related to effective communication (increase by 22%). Furthermore, 41% of the respondents upgraded their education during their long-term stay abroad through formal education.

Research limitations/implications: The main research limitation relates to the size of the obtained sample and the fact that the sample is not representative, therefore the conclusions cannot be generalised to the entire population of Polish emigrants.

Practical implications: Working abroad in an international environment significantly contributes to the rapid and substantial development of both specialized and social competencies. This underscores the validity of not only hiring expatriates but also investing in development programs associated with temporary stays abroad.

Social implications: Emigration contributes to the development of social competences related to, among others: effective communication and building relationships, which is beneficial from the perspective of interpersonal relationships, not only professional ones.

Originality/value: The paper presents the increase in competences that occurred due long-term emigration and the groups of competences that improve to the greatest and least extent.

Keywords: migration, international migration, emigration, long-term migration, human capital development.

Category of the paper: Research paper.

1. Introduction

The international migration has specific effects, both positive and negative, which are most often analysed in the literature from the perspective of the inflow and outflow of population. The main effects of migration at the macroeconomic level include those related to changes in the demographic structure, the abundance and potential of the labour market, as well as those in terms of socio-cultural changes (Organiściak-Krzykowska, 2023). The positive effects of migration in the individual dimension include higher living standards, acquisition of new professional and language skills, life stabilisation and better prospects for professional development. On the other hand, in the socio-economic dimension, these benefits include the acquisition of new competences and life experiences or a reduction in the level of unemployment (Sakson, 2023). Thus, international migration contributes to the development of human capital both from an individual perspective and from the perspective of the economy as a whole. Thus, the aim of this article is to assess the impact of long-term emigration on human capital development, thus demonstrating the positive relationship between long-term international migration and human capital enrichment. This issue is relevant both in the microeconomic dimension, i.e. from the individual point of view of individuals - migrants who increase their knowledge and skills capital, as well as their current and future employers who benefit and will benefit from the competences developed by migrants through their employment, but also in the macroeconomic dimension, i.e. whole economies in terms of the human potential available to nations.

2. Emigration as a type of investment in human capital

Investment in human capital is understood as the set of activities which, by allocating resources in people, affect future monetary and physical income (Becker, 1975). In other words, investment results in the accumulation of human capital, increasing the pool of knowledge and skills embodied in people, which occurs as a result of specific activities. The most important forms of investment in human capital include (Łukasiewicz, 2009):

- investment in health care, which influences people's vitality as well as life expectancy,
- formal education at all levels of compulsory education,
- higher education for adults,
- on-the-job training,
- population migration,
- research.

One form of investment in human capital is migration, understood as a temporary or permanent change of residence of individuals or entire population groups (Fehler, Cebul, Podgórzńska, 2017). Treating the migration as a form of investment stems from the fact that migrants are influenced by the numerous attracting factors that immigrant countries are characterised by. These are related to opportunities to get to know a new culture, learn a foreign language or acquire knowledge and skills in a foreign market (Wickramasinghe, Wimalaratana, 2016). These motives coincide with neoclassical microeconomics, which emphasizes the role of individual actors in the market game who strive to make rational decisions that maximize their profits and minimize their costs, which in the context of migration means treating them as individual investments in possessed human capital resources. From this perspective, migration is an opportunity to acquire new skills, in spite of being economically unprofitable, nevertheless being an important element of personal development (Isański, 2015).

Emigration, as a rule, involves gaining professional experience in the economies of developed countries, enabling migrants to benefit from skills they would not acquire in their home market (Stark, Fan, 2007). But the positive impact of migration related to skills development will only occur for the sending country if the majority of migrants return to their country of origin after some time with valuable experience (Sakson, 2023). On the other hand, third countries, to which the migrant will move at a later stage, after only a few years abroad, can also benefit. This issue fits into the concept of "brain circulation", i.e. a situation in which a migrant treats going abroad as an opportunity to gain experience that he or she can then use with other employers in the next country of destination. Currently, this type of migration is gaining importance among the educated population of the global North, where a migrant, usually from a developing country, richer in knowledge and skills acquired in a highly developed country, returns to the country of origin or emigrates to the next country (Chen et al., 2022). It is estimated that return migrants may account for about 25% of international migration flows globally (Azose, Raftery, 2019). Research on a sample of Polish men and women shows that 21% of them plan to return from long-term emigration to their home country and 12% of them intend to move to a third country (Wesołowska, 2019), indicating an intensification of population flows between countries and thus a larger pool of beneficiaries of human capital investment in the form of migration. Moreover, support for employee movement between countries is one of the measures promoted by the European Union as part of its educational policy, which aims to realise the concept of lifelong learning on the one hand and to stimulate EU economic growth on the other (Drobny, 2017).

3. Methodology of own research

The study used a quantitative approach, where the method for obtaining data was a survey. A survey questionnaire, which was distributed electronically, was used to obtain data related to the broad impact of emigration on human capital enrichment and development. Among the questions included in the survey were those concerning the level of competences before and as a result of a long-term stay abroad (5-point Likert scale), the level of formal education before emigration and the current one after at least one year abroad, the work experience and qualifications acquired, as well as the development methods used by the emigrants abroad. This is complemented by statistical data characterising the respondents, such as age, gender, country of destination or number of years spent abroad. The data was acquired before the coronavirus pandemic, so the conclusions relate to economic conditions not limited by pandemic restrictions. The on-line survey questionnaire was made available to groups of Poles abroad, mainly in the European Union, but also outside the EU, including the United Kingdom, Norway, Switzerland and the United States. As a result, it was possible to obtain 160 responses from respondents meeting the criteria related to the type of stay abroad, the characteristics of which can be found in Table 1.

Table 1.

Characteristics of respondents (N = 160)

Criterion	Characteristics	Number of responses	Percentage of respondents
Sex			
	Woman	126	79% ¹
	Men	31	21%
Age			
	18–25 years old	9	6%
	26–30 years old	49	31%
	31–35 years old	41	26%
	36–40 years old	23	14%
	> 40 years old	38	24%

¹ The reasons for the higher proportion of women among the surveyed persons are primarily to be found in the slightly higher share of women in long-term emigration than men (CSO, 2013, 2023a), which, according to data from the 2021 National Census, amounted to 51.6% of women compared to 48.4% of men (CSO, 2023b); a doubled frequency of women going abroad for education there - according to 2011 National Census data, this was 86.4 thousand of women compared to 38.6 thousand of men (CSO, 2013); and a doubled percentage of migrant women with tertiary education - according to 2021 National Census data, this was 209.9 thousand of women compared to 107.4 thousand of men (CSO, 2023b), which is related to the theme of human capital development research; the occurrence of the phenomenon of feminisation of migration, i.e. the increasing participation of women in international migration processes, but also a change in the nature of the mobility undertaken by them, which is now increasingly associated with women's active participation in the labour market and their autonomous entry into employment, and less driven by family matters (Castles, Miller, 2011; Pawlus, 2017; Schmoll, Beauchemin, 2017; Bartnik, 2019); women's greater willingness to participate in surveys (Moore, Tarnai, 2002; Smith, 2008).

Cont. table 1.

Number of years abroad			
	1–3 years old	40	25%
	3–5 years old	29	18%
	> 5 years old	91	57%

Source: own elaboration.

Based on an analysis of the available literature on the subject, the following research hypothesis was formulated: "Long-term emigration contributes significantly to the development of migrants' human capital". In order to verify the research hypothesis, the following research questions were posed:

1. What level of hard and soft competences did the emigrants have before their long-term stay abroad?
2. What level of hard and soft competences did the emigrants possess in connection with their long-term stay abroad?
3. Which competences have been developed the most by the emigrants?
4. Which competences have been developed the least by the emigrants?
5. How did the emigrants improve their formal competences while abroad?
6. What percentage of emigrants upgraded their formal education as a result of their long-term stay abroad?
7. What kind of formal certification of their competences, other than education-related, do the emigrants have?

On the one hand, the research questions indicate the areas of human capital development, i.e. the increase in competences and formal education, and on the other hand they operationalise the hypothesis and allow for its testing.

The main research limitation relates to the size of the obtained sample, which, in view of the scale of the phenomenon of emigration of Polish women and men, could have been larger, as well as the characteristics of the examined population, in which women predominate, which makes inference on the entire population not justified. The sample is not representative, therefore the conclusions cannot be generalised to the entire population of Polish emigrants, and the conclusions refer only to the examined sample. Another important limitation of the study is the specificity of the data obtained regarding the assessment of the level of competences among migrants before their emigration and after their long-term stay, which is subjective data.

4. Long-term emigration and human capital development - research results

The research carried out indicates an increase in the average level of all the competences studied, i.e. specialist knowledge connected with the profession or profession, foreign language skills, general computer literacy (Office package, e-mail, Internet), knowledge of specialist

computer programmes (e.g. accounting, graphics, logistics, business), competence connected with effective communication (interpersonal communication, persuasion, providing feedback), competence in interpersonal relations (conflict resolution, building long-term relationships), competences related to cooperation with people (coordinating tasks, motivating others), competences related to decision-making and action planning (analytical thinking, working under pressure, setting priorities) and competences related to efficiency and resourcefulness (goal orientation, overcoming difficulties, self-development orientation). The largest increase was observed in relation to knowledge of a foreign language (38%), knowledge of specialised computer programmes (36%) and competences associated with effective communication (22%). On the other hand, competences connected with efficiency and resourcefulness (10%), general computer skills (11%) and competences connected with interpersonal relations (12%) showed the smallest increase. Furthermore, the average level of all competences of emigrants before leaving the country was 3.42, and as a result of long-term emigration it rose to 4.05, i.e. by 20%. In addition, the analysis of the individual data shows that 94% of the surveyed emigrants developed their competences in at least two areas.

Table 2.

Average level of competence before and as a result of long-term emigration

	Average level of competence before going abroad	Average level of competence as a result of emigration	Nominal difference	Percentage difference
Specialised knowledge relating to the profession learned or performed	3,35	3,89	0,54	16%
Knowledge of a foreign language	3,13	4,3	1,18	38%
General computer skills	3,91	4,33	0,42	11%
Knowledge of specific computer programs	2,29	3,11	0,82	36%
Competence related to effective communication skills	3,33	4,05	0,73	22%
Competence related to interpersonal relations	3,67	4,12	0,45	12%
Competence related to cooperation with people	3,63	4,17	0,54	15%
Competence related to decision-making and action planning	3,66	4,25	0,59	16%

Source: own elaboration.

Another studied area concerning the development of human capital among emigrants was the methods of improving their competences, which included both formal education at secondary and higher education level, but also participation in other forms of education, which ended with obtaining a confirmation (certificate or attestation) of their competences.

In relation to the first option, out of the total surveyed population 41% of respondents (66 persons) upgraded their formal education by obtaining a higher education degree or by completing a second bachelor's degree during their stay abroad. Upgrading their formal education, e.g. from vocational to secondary level, from secondary to higher education level,

from higher education of the first degree to higher education of the second degree, as well as from higher education of the second degree to higher education of the third degree (doctorate), was indicated by 41% of the respondents in the study group (27 people). On the other hand, 59% of the respondents (39 persons) who upgraded their education did so by completing their studies abroad at the level they had before the decision to emigrate, e.g. having a master's degree, they completed another course of study abroad at an identical level to the one they had before, but in a different professional area. Detailed characteristics of this population can be found in Table 3.

Table 3.

Type of formal education as a result of long-term emigration abroad

Formal education level	Number of people	Percentage of respondents
no increase in formal education	94	59%
increase in formal education	66	41%
including:		
a second course of study at the same level	39	59%
increase in educational level	27	41%
including:		
up to secondary education level	6	22%
up to higher education of the first degree	8	30%
up to higher education of the second degree	10	37%
up to higher education of the third degree	3	11%

Source: own elaboration.

As regards the second possibility, i.e. using other methods of improving formal competences than completing education or university studies at a given level, 65% of respondents (103 persons) indicated taking courses or training courses ending with formal confirmation of their competences, such as knowledge of foreign languages (59%), specialisation in a given professional area (41%), having licences to perform a given profession (26%) or having computer skills (15%). What is more, 54% of the respondents had other types of confirmation of their competences not falling within the scope listed above. The detailed characteristics of this population can be found in cont. Table 4.

Table 4.

Type of formal attestation of competence other than a secondary or higher education diploma

Type of formal attestation	Number of people	Percentage of respondents
certificate confirming knowledge of foreign languages	61	59%
certificate/attestation confirming specialisation in a given field	42	41%
professional entitlement	27	26%
certificate confirming computer skills	15	15%
other certificates or attestations	56	54%

Source: own elaboration.

The above results indicate, on the one hand, an increase in the level of hard and soft competences among migrants and, on the other hand, their efforts in the area of formal education in the form of secondary and higher education, as well as taking additional courses and trainings to broaden their knowledge and skills.

5. Discussion

Research confirms that long-term migration contributes to the increase of migrants' human capital, and also provides an opportunity for formal educational upgrading. Such conclusions are indicated by R. Palalić et al. (2021) based on an analysis of the effects of student emigration from Bosnia and Herzegovina, as well as U. Pauli and R. Osowska (2018), where more than 82% of the Polish migrants they studied developed their knowledge and skills as a result of their stay abroad. As K. Andrejuk (2024) points out, the upgrading of formal education by migrants during their stay abroad and obtaining a diploma from a foreign school/university affects their situation in the labour market, so that they acquire more attractive positions, which puts them in a better position than strictly labour migrants, and also increases their chances of running their own business successfully. Moreover, the very fact of studying outside the country of origin gives the advantage of higher adaptation skills to a culturally diversified environment.

Also A. Jastrzębska (2015) indicates the benefits related to the development of competences among re-emigrants with the differentiating factor of this collective being the period of stay abroad. Those with longer periods of emigration showed higher levels of acquired cultural² and social³ capital. Furthermore, in the context of the sending country, the gaining of new experience in foreign markets by long-term emigrants, the development of language competences or the acquisition of contacts is sometimes referred to as the "return of innovation". It results both in them developing their private knowledge and skills capital, but also in them becoming attractive candidates in the home labour market (Sakson, 2023). An example of this use of developed competences is provided by migrants who set up their own business after returning to their home country. Almost 52% of the entrepreneurs who returned from emigration indicate that the knowledge they gained abroad was crucial or very important in setting up and running their own business (Pauli, Osowska, 2018). This confirms the positive impact of emigration on the growth of knowledge among expatriates and its subsequent use when taking the invention of running their own business.

² Cultural capital is associated with professional and personal development.

³ Social capital refers to social competencies such as building new networks of connections and contacts acquired by going beyond one's existing environment.

Research and the model proposed by S. Contreras (2013) show that migration induces investment in human capital development in the broadest sense. However, this takes place in a different way than simply through competence gains in the migrants themselves. This observation is particularly true in poorer countries, where the monetary transfers transferred from migrants to their households are partly channelled into the education of the household members, so that they and the sending country also benefit from emigration. This relationship, on the other hand, does not exist for rich countries. The impact of emigration is also observed in the area of improved health among migrants and their families due to greater awareness and the ability to transfer additional income not only to current consumption, but also to investments in nutrition, health and self-development (Yang, 2009). These examples refer to the macroeconomic dimension of the positive impact of emigration on the potential of the nation in the sending country, where, thanks to the income received, living conditions, health and education levels in the sending country improve.

6. Summary

Despite the presence of disagreements and discussions in the literature regarding the value of emigrants' professional experience for their home country upon their return, it is important to note that competence development occurred in connection with emigration, as it was the main decision triggering subsequent employment and education behaviour. The study confirmed statements in the literature on the positive impact of long-term emigration on the development of human capital, which manifests itself in both the individual and socio-economic dimensions. Almost all of the migrants surveyed (94%) are characterised by an increase in various types of competence, professional and social competence, where the average level of competence increase is 20%. On the other hand, 41% of those surveyed have also increased their formal education by completing the level of education they had before going abroad or higher. Furthermore, 65% of the people surveyed also received another form of education, most often in the form of training and courses, which also ended with the acquisition of formal certification of the competences acquired. Furthermore, 65% of those surveyed received another form of education, most often in the form of training and courses, which also resulted in formal certification of the acquired competences. The research results presented in this article indicate the important role that long-term emigration plays in the development of human capital.

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ERGONOMIC INTERVENTIONS IN SHAPING THE SUSTAINABLE DEVELOPMENT OF ORGANIZATIONS

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Purpose: The aim of this article is to predict the impact of selected ergonomic interventions (EIs) on the variables of sustainable development of organizations (SDOs) in small and medium-sized enterprises in the fish food production industry.

Design/methodology/approach: The study employed repetitive questionnaire assessments and workplace evaluations, including the use of measuring devices. The prediction results were compared with the evaluation of the ergonomics of the implemented EIs in the organization.

Findings: Promising prediction results were obtained regarding the employee's task load. The predictions indicate the validity of applying EIs more broadly to achieve benefits for SDO. The results show a positive impact of automation on reducing the overall task load.

Research limitations/implications: A limitation of the study is the sample size due to employment in a small enterprise and the limitations of the FCM Expert program.

Practical implications: The study provides an analysis of the possibilities of applying ergonomic interventions (EI) in the fish food production industry and can be used to support decision-making in organizations that prioritize sustainable development.

Social implications: The subject matter addressed in this study is important for ensuring human well-being by shaping appropriate working conditions.

Originality/value: The originality of the study lies in the creation of a model for predicting the impact of ergonomic interventions (EI) on sustainable development outcomes (SDO) in the niche food industry of fish food production.

Keywords: management, sustainable development of organizations, small and medium-sized enterprises, ergonomic interventions, fuzzy cognitive maps.

Category of the paper: Research paper and Case study.

1. Introduction

1.1. Sustainable development of the organization

The concept of sustainable development (SD) refers to meeting the needs of the present generation without compromising the ability of future generations to meet their own environmental, social, and economic needs in the short, medium, and long term. This concept has been extended to the organizational level, resulting in the notion of sustainable development of organizations (SDO). There are numerous reasons for balanced efforts toward SDO, encompassing economic, social, and environmental dimensions (Bolis, Brunoro, Sznalwar, 2014). The social dimension is often considered the weakest and most neglected in current research (Gajšek et al., 2022). The SDO concept is defined through various interpretations and approaches, highlighting its complexity. SDO associated with the social dimension includes aspects of work. Sustainable work is perceived as work that enhances organizational performance while promoting the professional development and health of employees (Bolis et al., 2013), justifying efforts to integrate ergonomic research with SDO (Bolis, Brunoro, Sznalwar, 2014).

SDO (Sustainable Diversity Optimization) is a process optimization aimed at minimizing losses associated with achieving specific economic and social benefits (Poon et al., 2016). The main motivators of SDO are increasing organizational efficiency and improving company image. The importance of SDO in achieving workplace diversity is emphasized. Organizations leverage the power of diversity as a foundation for developing sustainable competitive advantage. Additionally, factors promoting the development of a sustainable environment conducive to attracting and retaining a diverse workforce are noted (McCann, Kohntopp, 2017). The organization's ability to retain its workforce in the face of demographic decline (Kowalczyk, 2024) is one of the key challenges, especially for niche industries with high workforce demands. One such challenge in Poland is the production of fish food – this constitutes a research gap, as there are few articles dedicated to this activity.

1.2. Ergonomic interventions in SDO

Haslam & Waterson (2013) argue that there is synergy between SD (and hence SDO) and ergonomics. Ergonomics focuses on well-being at work and understanding employment practices, SD-oriented products, and efficient work systems aiming to ensure occupational safety (Steimle, Zink, 2006), through optimizing interactions of anthropotechnical systems. Dekker et al. (2013) argue that SDO must consider the complexity and challenges in solving ergonomic problems. A sustainable future requires a paradigm shift involving greater diversity of dispersed systems. There is a need to integrate macro- and micro-ergonomic approaches for effective interventions addressing causes of safety, quality, and work productivity issues (Genaidy et al., 2009). Scott (2009) notes that ergonomic interventions (EI) should uplift

societies. The integration of ergonomics and SDO has resulted in the concept of green ergonomics integrating social and environmental aspects in a bidirectional relationship (Thatcher, 2013). Understanding these specific interactions and their interconnectedness is crucial (Poon et al., 2016). It should be noted that not only EI management applies to SDO. The concept of SD is also used to ensure, among other things, the desired ergonomics of organizational processes, making them more flexible (Sarbat, Oz Mehmet, 2020). EI is one of the main factors contributing to gaining a competitive advantage, sometimes determining market survival (Grabowski, Muraszkiwicz, 2017). Ergonomics through EI influences work improvements, stimulates organizational productivity growth, employee well-being, and supports environmental changes (Bolis, Brunoro, Szelwar, 2014).

SDO depends, among other things, on sustainable quality of production, products, workplace, social, environmental, and economic factors, achieved directly or indirectly through considerations including ergonomic factors (Cinar, Bilodeau, 2022). Furthermore, ergonomic factors relate to the 17 SDGs in the workplace (Gajšek et al., 2022). Hence, ergonomic risk factors and the applied EI related to them are linked to SDO.

EI within the framework of SDO modeling are actions and solutions aimed at improving the quality of human-machine-environment interactions, and involve (Wróbel, Hoffmann, Czarnecki, 2020):

1. enhancing specific products, organizational processes, IT systems, or services, etc.,
2. innovations, such as new products, services, or applications resulting from innovative combinations of existing elements - synergistically enhancing the overall quality of the solution, or
3. inventions - fundamentally defining a new level of quality for a given solution.

Ergonomic interventions (EI) are implemented within organizations at the strategic, tactical, operational, and task levels. Interventions are introduced in relation to and through their distinctive resources (Marilungo et al., 2017) and resource relationships.

1.3. Purpose and scope of the article

The issues introduced in the management of EI in the context of SD in small and medium-sized organizations lead to setting a research objective. The aim of the article is to predict the impact of selected ergonomic interventions on variables of organizational sustainable development in small and medium-sized enterprises in the fish food production industry. Prediction includes scenarios resulting from managing EI and SDO. The scope of the article includes the application of fuzzy cognitive maps (FCM) and the following specific objectives: 1) selection and assessment of SDO characteristics for selected job positions and tasks, 2) selection of EI based on the assessment of SDO variables of analyzed tasks, 3) assessment of the impact of EI on SDO variables, 4) building a knowledge base and simulation models, 5) simulation implementation and evaluation of the impact of EI on SDO, 6) discussion of the obtained results and further research directions.

The article is divided into 5 chapters. Chapter 1 presents the background, rationale, aim, and scope of the study. Chapter 2 focuses on describing the research subject, including the SD and EI variables of the studied organization. Next, Chapter 3 outlines the methodology and scope of the research. The results obtained are discussed in Chapter 4. The work concludes with Chapter 5, which discusses the findings.

2. Production Process and EI in Shaping SDO

2.1. Variables of the Production Process and SDO

Sustainable Production Management (SPM) (the production process) is an integral part of business strategies that create durable and ethical production models. However, workplace and production issues such as delivery delays and assembly line stoppages exist. Moreover, working in unhealthy environments leads to stress, frustration, and anxiety. These issues contribute to a lack of competitive advantage, coupled with shift work, low human resource productivity, and insufficient well-being, which pose barriers to Sustainable Workplaces (SW) (Realyvásquez-Vargas et al., 2020).

Sustainable health and mental well-being are crucial for achieving Sustainable Development Objectives (SDO), especially for small and medium-sized enterprises. Health and mental well-being are particularly associated with SDG goals 8, 9, and 11: economic growth and prosperity, sustainable communities, innovation, and workplaces (job positions) (Cinar, Bilodeau, 2022). The research conducted in the article focused, among other things, on SW in job positions such as: 1) jar filling and capping station; 2) cooking station for products; 3) blanching and cooling station for products (Fig. 1).

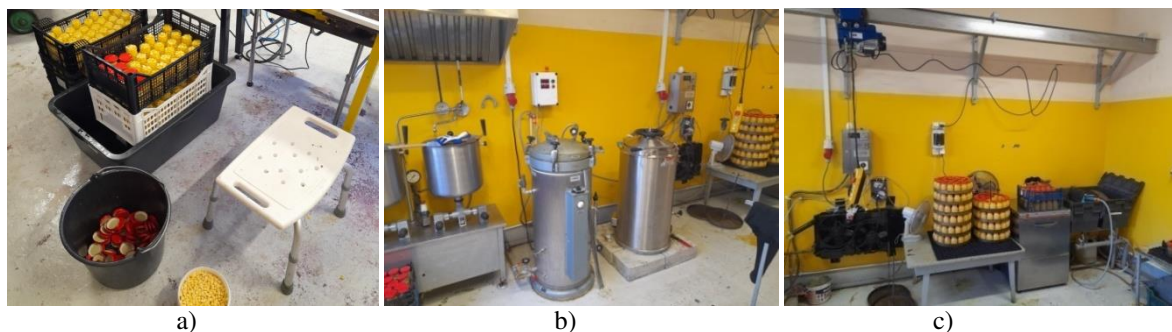


Figure 1. Workstations: a) filling and capping jars workstation; b) cooking products workstation; c) sterilizing and cooling products workstation.

Source: own study.

Table 1 lists the most frequently performed tasks and activities of the manufacturing process at selected workstations within the studied organization.

Table 1.
Tasks and activities (selected scope)

No. Task	Task	Examples of the most frequently performed tasks
1.	pouring fillings into jars	retrieving the sieve and scooping contents from the bowl; emptying the contents from the bottom of the crate and setting the crate aside on the floor
2.	filling jars with contents	staining and topping up water in the jar; fetching the bucket with the contents and pouring off excess water
3.	hand tightening jar lids	screwing on the jar lid and placing it on the content base; picking lids from the bucket and placing them on the jars
4.	removing jars from the boiler	retrieving and mounting sleeves on the hoist hook for jar contents; adjusting pressure in the samovar and standing
5.	cooling jars	transferring cooked jars with contents into crates; washing the content base pad with a hose

Source: own study based on research in the organization in question.

As presented by Cinar and Bilodeau (2022), there are no standard frameworks for ergonomic indicators. Furthermore, there is a limitation on quantitative indicators in ergonomic assessment. According to the research of Lin, Efranto, and Santosa (2021), the best ergonomic indicators encompass well-being, safety issues, workplace comfort, musculoskeletal health, and environmental factors.

The dictionary definition of a sustainable system suggests that it is a system capable of enduring indefinitely (Costanza, Patten, 1995). However, this definition does not answer the questions: 1) which sustainable system should be considered; and 2) what time frames are considered sustainable (Costanza, Patten, 1995) in the context of ergonomic factors (Thatcher, Yeow, 2016). Table 2 presents the classification of selected SDO variables based on a literature review and organization.

Table 2.
Variables of sustainable manufacturing process

Variable of the manufacturing process	FCM variable symbol	FCM model variable
on-time delivery	C1 C2	task completion on time operation/task delay time
time complexity and variability of operations/ tasks	C3 C4	operation/task execution time task variability
resource consumption	C5 C6 C7	electricity consumption water consumption reported health complaints
waste generation	C8 C9	produced waste: a) glass b) organic waste
downtime	C10	downtime
product quality	C11 C12 C13 C14	percentage of correct products out of 100 produced in a task: a) color and size assessment of fill b) proportion assessment of fill c) lid tightening assessment d) packaging cleanliness assessment
performance	C15	number of manufactured products
efficiency	C16	number of products produced/resources used + waste generated
productivity	C17	level of efficiency over time

Cont. table 2.

environmental noise	C18	environmental noise level (peak A-weighted sound level at workstation)
height of work surfaces	C19	minimum height of work surface [cm]
	C20	variation in height of work surface [cm]
mass and size of moved objects	C21	mass of moved objects (REBA method)
access to workspace	C22	accessibility – forced body position
frequency of object movement	C23	frequency of object movement
task and activity complexity	C24	average NASA-TLX rating
workload severity	C25	workload severity (Heart Rate – HR measurement)
breaks for recovery	C26	assessment of work pace enforcement
temperature of the means of work	C27	maximum temperature of working means [°c]
worker mental workload	C28	mental workload
	C29	physical workload
	C30	time workload
	C31	performance workload
	C32	effort workload
	C33	frustration
postural workload	C34	postural workload (REBA method)

Source: own study based on literature (footnotes in the text under the table).

Referring to SPM variables, Fazlollahtabar (2016) notes that on the assembly line where product deliveries were delayed, the cause was poor production efficiency. Regarding downtime and failures (Sonmez, Testik, Testik, 2018), researchers confirm that they decrease productivity and production efficiency (Ren et al., 2015), leading to increased losses and costs (Sonmez, Testik, Testik, 2018). Downtimes contribute to delays. Downtimes result from raw material shortages (Realyvásquez-Vargas et al., 2020), which are a critical issue (Peng, Zhou, 2018).

One of the main determinants of the mentioned workplace indicators is workstation design. Workstation design affects body posture (Kushwaha, Kane, 2016) and workers' movements (Gaudez, Gilles, Savin, 2016), leading to musculoskeletal disorders, thereby impacting productivity and well-being (Gómez-Galán et al., 2018) and causing high production costs (Realyvásquez-Vargas et al., 2020). Additionally, material handling processes, inefficient movements, and body postures negatively affect product quality, generate long production cycle times, and result in inefficient use of human resources (El-Namrouty, Abushaaban, 2013). Repetitive movements can cause fatigue and loss of concentration, increasing the likelihood of errors, affecting productivity and safety (Yeow et al., 2014). Anthropometric workstations reduce raw material consumption and extend the use of technical facilities (Realyvásquez-Vargas et al., 2020).

2.2. EI in fish food production

During the research in the organization, two EI were implemented (Fig. 2). Ensuring high quality of SPM and SW both before and after implementing EI requires continuous improvement, monitoring, and ergonomic analysis. Real-time monitoring of employees' status and recording their actions allows diagnosing the causes and consequences of changes in work situations, providing data for decision-support models. Diagnosis forms the basis for optimizing work processes, which is crucial for improving productivity and reducing costs in modifying work systems to enhance safety and ergonomics (Romero et al., 2016; Butlewski et al., 2020). Measuring operator reactions generates knowledge about interactions and possibilities for system modifications based on objective data (Peruzzini, Grandi, Pellicciari, 2020).



Figure 2. Complex systems of polygamous holes made from one cluster to several coal deposits.

Source: own study and <https://tiny.pl/djccf>.

Regarding the SDO variables of the analyzed tasks, potential ergonomic interventions (EI) were identified (Table 3), which were considered in the study.

Table 3.
Selected ergonomic interventions

Task (tab. 1)	EI No	EI
T1	1	using manual trays for measuring input material
	2	using automated equipment (dispenser)
T2	3	using liquid measuring device
	4	using automated equipment (fluid dispenser/filler)
T3	5	using automated equipment (jar capper)
	6	using automated lid feeder
T4	7	thermal and waterproof gloves
T5	8	setting the sterilizer at a height of 1.2 m
	9	using automated air blower above the counter
	10	using pneumatic balancer with gripper
	11	using a loading robot

Source: own study.

3. Method and scope of research

Regarding the purpose of the study and the research subject, the method and scope of the research were selected. The method, tools, and scope of the research are defined by the applied procedure to achieve the specific objectives of the study (Chapter 1.3), which involved:

1. systematic literature review concerning SDO variables and the impact of SDO variables and EI in companies in the fish food production industry; ResearchGate and Scholar databases were utilized; initially, 208 articles were collected; 83 articles were used;
2. selection of tasks and EI based on the assessment of SDO characteristics in workstations; evaluation of 16 tasks at 6 workstations; data suggesting EI implementation for most tasks was obtained; this article focused on the first 5 tasks of the production process; SDO assessment was conducted using an evaluation questionnaire consisting of 18 questions (for variables C1-2, 5-17, 22-23, and 26 – Table 2) with a 5-point rating scale, where 1 indicated the weakest value and 5 the strongest value of the variable (the scale was complemented by the response: no variable); characteristics of other SDO variables (Table 2) were established based on workstation studies and adopted rating scales; daily work photography was used, noise measurement (IM-02_m meter), workload measurement (Polar H10 meter), task load assessment (NASA-TLX; 9 measurement trials), and postural load assessment (REBA method); concerning the objective of the study, assessments of individual tasks were compiled and quantified using linear transformation method (Figure 6);
3. assessment of the impact of EI implementation on SDO variables – based on questionnaire assessment (5-point impact rating for previously defined relationships – according to literature review) of company employees before EI implementation and based on implemented EI (EI5 and 7) and workstation assessments;
4. construction of models for the interaction of SDO and EI variables using fuzzy cognitive mapping (FCM) method and FCM Expert application;
5. simulations and evaluation of the impact of EI on SDO.

The work was concluded with a summary of the obtained results and identification of further research directions.

4. Research results

4.1. Results of workplace studies

Acoustic conditions in the production hall vary depending on the tasks and remain within acceptable limits. The highest noise levels occur during task number 5 (80 dB). Significant

differences in task completion time were observed in tasks 5, 4, and 3 (Figure 3). The implemented EI only slightly reduced the duration of tasks. In the case of task 3, this was due to transferring only part of the tasks from the worker to the device.

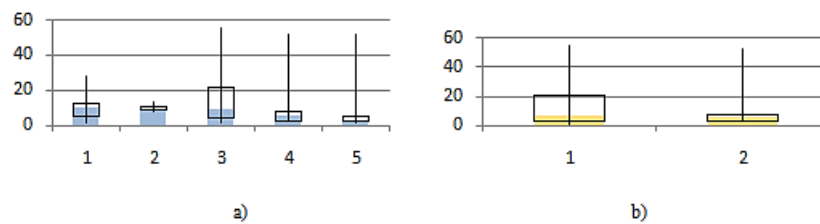


Figure 3. Duration of activities [s] for tasks T1-5: a) before EI; b) after EI (1 refers to EI5; 2 refers to EI7).

Source: own study.

The variation in task load assessment results for the studied tasks before the implementation of EI is presented in Figure 4 (blue charts). It should be noted that in task 3, the task load assessments (mental, physical, and effort load) are highest; the longest time load occurs in tasks 2 and 4; task 2 also has the highest performance requirements, and the highest noticeable frustration was observed in task 4.

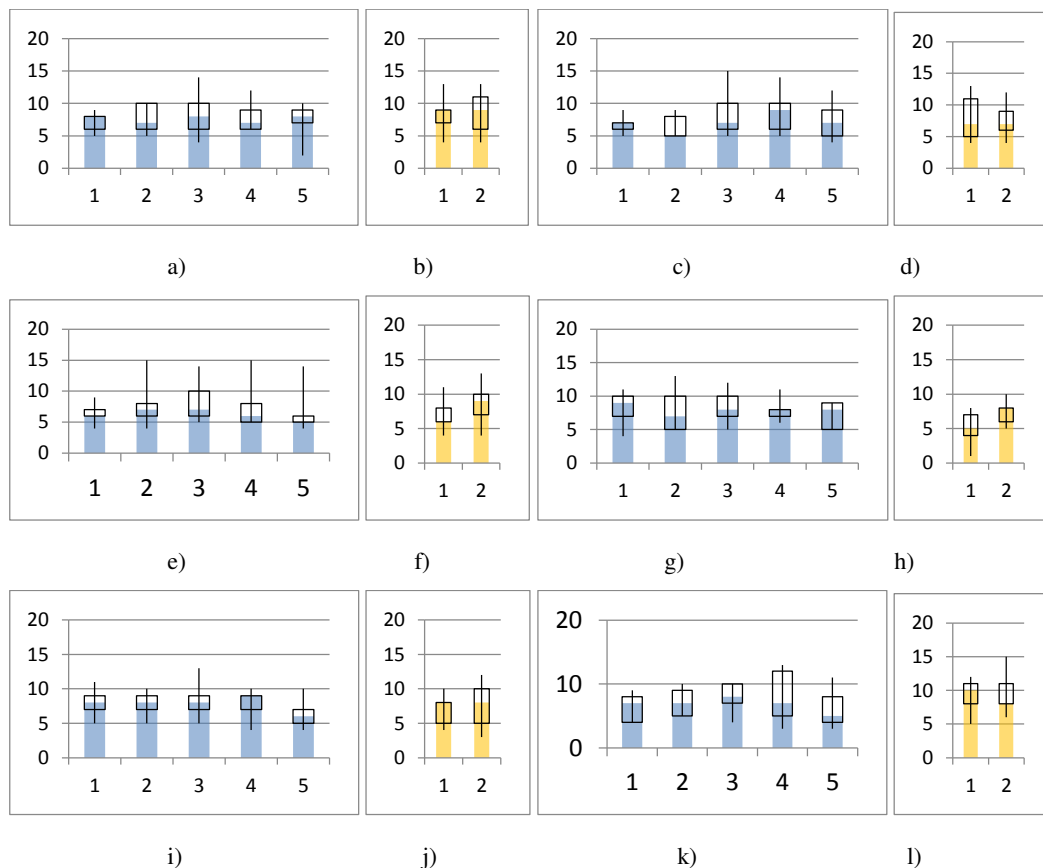


Figure 4. Task load according to NASA-TLX during tasks T1-5: a), b) mental load; c), d) physical load; e), f) temporal load; g), h) performance load; i), j) effort load; k), l) frustration and stress load (blue charts represent assessments before EI; orange charts represent assessments after EI).

Source: own study.

There was a noticeable decrease in temporal load (for task 3), while for task 4, the temporal load increased. There was also a significant reduction in performance and effort load for task 3. However, frustration slightly increased for task 4 with EI7 and for task 5 with EI5 (Figure 4 – orange charts).

There was no clear change in workload severity based on HR measurement. Both before and after EI implementation, the results generally ranged between 80 and 105 HR.

The results of postural load are presented in Figure 5.

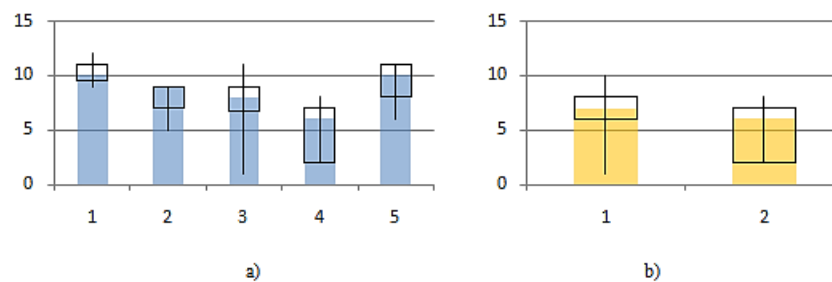


Figure 5. Differentiation of postural load according to the REBA method during the execution of tasks T1-5: a) before EI; b) after EI.

Source: own study.

The implemented EIs did not noticeably affect the reduction of postural load (Figure 5).

4.2. Quantification of the results from workplace studies and questionnaires

Individual results of SDO variables were compiled, and the results of measurement studies were subjected to linear transformation, establishing the differentiation of characteristic values of SDO variables for the studied tasks (Figure 6). Quantification of SDO variable characteristics was dictated by achieving required values in the FCM method. Values of SDO variables were determined based on the median [S] (Table 5), which serve as input data for simulations.

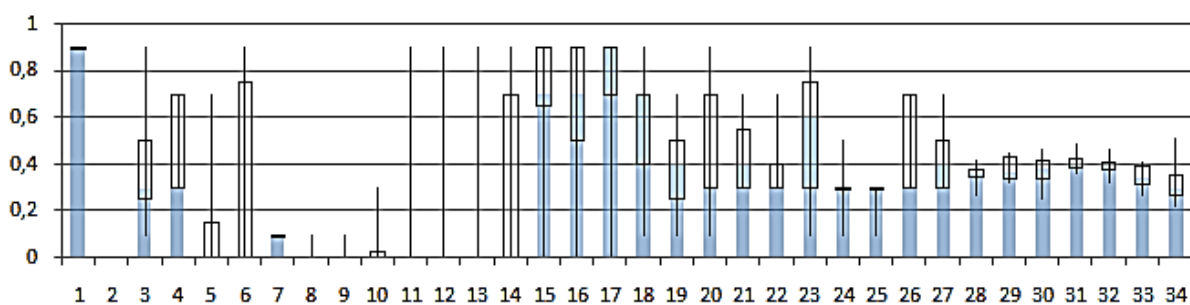


Figure 6. Differentiation of SDO characteristics based on the averaged assessment results of tasks 1-5.

Source: own study.

The quantified average impacts of EI on SDO variables are presented in Table 4.

Table 4.*Quantification of averaged impacts of EI on SDO variables according to employee assessments*

	EI										
	1	2	3	4	5	6	7	8	9	10	11
3	-0,2	-0,9	-0,1	-0,9	-0,6	-0,6	0,9		-0,6	0,2	-0,4
4	0,1	-0,5	0,2	-0,5	-0,6	-0,5	0,1		-0,6		0,3
5		0,8		0,8	0,7	0,4			0,7		0,7
6			-0,2	-0,7							
7		-0,1		-0,2	-0,3	-0,2	-0,7	-0,5		-0,6	-0,3
9	-0,5	-0,5									
10		0,1		0,2	0,1	0,2			-0,1		0,2
11	0,4	0,2									
12	0,6	0,9	0,4	0,9							
13					0,4						
18		0,7		0,5	0,6	0,7			0,9		0,6
19								0,6			
20											-0,8
21	-0,1	0,2	-0,1	-0,8		-0,2			-0,2	-0,9	-0,9
22		0,2		0,5	0,4	0,4	-0,1	0,8	0,7	-0,3	0,7
23	-0,2	-0,8	-0,1	-0,9	-0,6	-0,3			-0,6		-0,9
24	0,3	0,3	0,1	0,2	0,1	0,1	0,1		-0,3	0,2	0,3
25	-0,2	-0,6	-0,2	-0,6	-0,6	-0,6		-0,7	-0,3	-0,7	-0,9
26		0,3		0,6	0,1		-0,1		-0,5		-0,6
27							-0,7				-0,8
28	-0,2	0,2	-0,1	0,4		-0,2	-0,1		-0,3	0,2	0,3
29	-0,2	-0,6	-0,1	-0,8	-0,3	-0,6		-0,7	-0,4	-0,7	-0,8
30	-0,2	0,4	-0,2	0,7	-0,7	-0,7		-0,4	-0,5	0,2	0,4
31	0,2	-0,3	0,1	-0,3	-0,3	-0,7		-0,3	-0,2	0,2	-0,3
32	-0,2	0,3	-0,2	-0,8	-0,7	-0,4		-0,7	-0,3	-0,7	-0,7
33	-0,2	-0,2	-0,1	-0,3	-0,5	-0,3	-0,5	-0,3	-0,4	0,2	0,2
34	-0,1	-0,6	-0,1	-0,7		-0,5		-0,7	-0,4	-0,7	-0,8

The variables of SDO on which EI have no impact were omitted from Table 4.

Source: own study.

4.3. The construction of a knowledge base using the FCM method

Prediction models of the impact of EI on SDO variables were built based on the FCM method using the FCM Expert application (Nápoles, Gonzalo et al., 2018). The concepts of maps represent SDO variables and EI (Tables 2 and 3). Only relationships were selected that describe interactions characterized by: 1) an increase in the value of concept C_i input and an increase in the value of concept C_i output, 2) an increase in the value of concept C_i input and a decrease in the value of concept C_i output. In accordance with the objective of the study and the scope of prediction, 11 maps were constructed. All maps were based on the same data selected for prediction scenarios (Chapter 4.4).

Table 5.
The prediction results

Model variable no	Initial values of task variables 1-5 [S]	Initial values of variables for tasks 3-4	Simulation scenario												
			1	2	3	4	5	6	7	8	9	10	11		
C1	0,9		0,12	0,13					0,54	0,71					
C2	0		0,89	0,80					0,34	0,19					
C3	0,3		0,88	0,87					0,52	0,01					
C4	0,3		0,75	0,52					0,67	0,09					
C5	0		0,90	0,89					0,85	1,00					
C6	0,3		0,71	0,73					0,84	0,72					
C7	0,1		1,00	0,97					0,23	0,30					
C8	0		0,63	0,63					0,61	0,61					
C9	0,1		0,76	0,72					0,16	0,15					
C10	0		0,89	0,87					0,68	0,81					
C11	0		0,05	0,15					0,74	0,69					
C12	0		0,05	0,15					0,85	0,93					
C13	0		0,05	0,13					0,63	0,74					
C14	0		0,05	0,15					0,63	0,63					
C15	0,9		0,01	0,01					0,95	0,97					
C16	0,7		0,03	0,08					0,65	0,73					
C17	0,9		0,49	0,30					0,69	0,81					
C18	0,7		0,63		0,63						0,63	0,99			
C19	0,3		0,72		0,72						0,84	0,68			
C20	0,3		0,63		0,63						0,63	0,37			
C21	0,5		0,63		0,63						0,29	0,13			
C22	0,3		0,55		0,55						0,71	0,98			
C23	0,5		0,70		0,74						0,67	0,02			
C24	0,3		0,87		0,82						0,89	0,86			
C25	0,3		1,00		1,00						0,86	0,11			
C26	0,7		0,97		0,94						0,83	0,68			
C27	0,3		0,63		0,63						0,40	0,37			
C28	0,38	0,42/0,4	0,98	0,84	0,95	0,57	0,74							0,60	
C29	0,37	0,43/0,44	0,99	0,89	0,96	0,16	0,03								0,53
C30	0,39	0,42/0,39	1,00	0,98	0,95	0,43	0,50								0,40
C31	0,4	0,42/0,4	0,96	0,87	0,87	0,69	0,11								0,53
C32	0,39	0,42/0,39	0,99	0,82	0,98	0,15	0,07								0,40
C33	0,36	0,39/0,4	1,00	0,98	0,98	0,34	0,20							0,47	0,47
C34	0,39	0,36/0,25	0,97	0,73	0,95	0,18	0,05								

Source: own study.

Table 6 presents the results of the impact of individual EI on employee task load variables.

Table 6.
The results of predicting individual EI impacts on employee task loads.

Model variable no	EI										
	1	2	3	4	5	6	7	8	9	10	11
C28	0,57	0,69	0,60	0,74		0,57	0,60	-	0,53	0,69	0,71
C29	0,57	0,43	0,60	0,37	0,53	0,43	-	0,40	0,50	0,40	0,37
C30	0,57	0,74	0,57	0,80	0,40	0,40	-	0,50	0,47	0,69	0,74
C31	0,69	0,53	0,66	0,53	0,53	0,40	-	0,53	0,57	0,69	0,53
C32	0,57	0,71	0,57	0,37	0,40	0,50	-	0,40	0,53	0,40	0,40
C33	0,57	0,57	0,60	0,53	0,47	0,53	0,47	0,53	0,50	0,69	0,69
C34	0,60	0,43	0,60	0,40	-	0,47	-	0,40	0,50	0,40	0,37

The bolded results indicate improvement or comparable ergonomic outcomes due to the implementation of EI compared to the initial values of SDO variables.

Source: own study.

5. Summary

Comparison of the results from workstations evaluated after the implementation of EI and the predicted impact of EI on task load reveals that the model demonstrated high prediction accuracy. Only for a subset of variables, accurate predictions were not obtained. The evaluation of the predicted impact of EI on production process variables or workstations requires adjustments. Nevertheless, a large portion of the results aligns with general knowledge, indicating that the developed prediction model is reliable. The originality of this work lies in the creation of a prediction model for the impact of EI on SDO within the niche food production industry for fish.

By comparing the data from tables 5 and 6, it can be observed that the application of a greater number of EIs will positively influence ergonomics and thus SDO. The use of automated solutions, which generally improve ergonomics and SDO, can be particularly beneficial in this regard. However, the application of automation may adversely affect mental and time-related workloads.

The limitations of the study include the research sample size due to the scale of employment in a small enterprise and the limitations of the FCM Expert program, particularly the constraints related to the transfer functions of concept values. The functions are the same for all relationships, which is a limitation.

The study provides an analysis of the potential application of EI in the fish food production industry and can serve as a decision-making aid for organizations focused on sustainable development. Continuous improvement of the organization and its methods, including further research on the impact of EI on SDO, is necessary. Predictions of the impact of SDO variables, including ergonomic ones, can serve as an alternative in supporting SDO management for small and medium-sized enterprises that do not have advanced decision support systems and highly automated production lines

The topic addressed in this study is important for ensuring human well-being by shaping proper working conditions and efficiency, as confirmed by the extensive literature cited in the introduction of the work.

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FEELING OF HAPPINESS AND ORGANIZATIONAL COMMITMENT AS ASSESSED BY CONTEMPORARY EMPLOYEES

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Purpose: The aim of the publication is to present the opinions of contemporary employees on the relationship between their sense of happiness at work and their organizational commitment. **Design/methodology/approach:** The article predominantly focuses on the discussion of the determinants of the sense of happiness. The article is interdisciplinary in nature, as it intertwines findings from the fields of psychology, management, philosophy and social sciences. The research was based on the qualitative methodology. Polling the views on the relationship between the indicated constructs was conducted using the CAWI survey conducted in November 2023 on a sample of 220 Polish employees.

Findings: Research results prove that modern employees perceive the existence of a correlation between their sense of happiness in the workplace and organizational commitment.

Research limitations/implications: The sociodemographic diversity of the participants in the study (e.g. age, gender, etc.) may, to some extent, distort the obtained results. In the future, the research sample should be expanded to confirm the obtained results and the in-depth interview technique should be additionally used. It is also suggested to develop a new measurement tool that will allow for the formulation of more precise conclusions using advanced statistical methods.

Practical implications: Being happy at work is important to modern employees, unlike the attractiveness of remuneration, the role of which in the process of creating a sense of happiness at work gives way to good relations with the managerial staff. Happy employees are dominated by the emotional component of organizational commitment.

Originality/value: The issues discussed in this article fill the research gap regarding the identification of the interdependence existing between the sense of happiness at work and organizational commitment, thus expanding the area of knowledge about organizational behaviour in the presented area.

Keywords: happiness, eudaimonia, employees' sense of happiness, organizational commitment of employees, human capital management.

Category of the paper: Research paper.

1. Introduction

The concept of the importance of the broadly understood happiness in the context of human capital management is generating more and more social interest, while in the scientific community it has gained special importance in research in recent years (Galván Vela et al., 2021; Fitriana et al., 2022). The indicated imperative appeared in those explorations mainly as a motivational component in the actions of individuals and social collectives, but it was also a leitmotif of politics, economics and contemporary thought (Rando Cueto et al., 2023).

Current trends in the area of exercising control over human capital emphasize the role of employee happiness, indicating this determinant as a key factor for achieving organizational success. Research on work psychology and management increasingly proves that the level of happiness in the workplace is integrally related to commitment, productivity, and loyalty of employees to the organization (Walczak, 2023). Happiness also influences employees' decision to stay in their organisation (Charles-Leija et al., 2023).

Recognizing the discussed topic, it can be noticed that despite the fact that the issue of happiness in its construct has been addressed from various perspectives and in multilateral correlations, the scientific discourse still lacks research assuming the interdependence between employees' sense of happiness and their organizational commitment. Undoubtedly, the existing scientific resources in this field are valuable and worthy of attention, but there are not many studies among them that would treat the problem of the importance of happiness in relation to organizational commitment. Therefore, an attempt was made to identify the views of contemporary employees regarding their sense of happiness at work and organizational commitment, as well as the interdependence between the above-mentioned constructs, which is the main goal of this publication. The article focuses mainly on the presentation of the determinants of the sense of happiness in the employee environment, and its structure includes first of all a theoretical part, focused on the essence of the concepts constituting the pillars of the selected topic, i.e. the sense of happiness and organizational commitment, and an empirical part, which includes: description of the research methodology, presentation of the research results, discussion and summary.

2. Reception of happiness – different approaches to eudaimonia

The issue of happiness, both in the literature and in the commonly accepted terminology, is considered from many perspectives, and on the scientific level it deviates from the criterion of unambiguity. Research on happiness is undoubtedly an interesting field. However, it is also extremely difficult to explain, causing heated discussions and controversial polemics, including

discussions on the relationship between happiness and particular models of economic development, satisfaction with life, and satisfaction with its various elements (Gierańczyk, Leszczyńska, 2019).

Reflection on happiness should start with linguistic analysis, explaining what the searched word means in order to discuss it logically later (Chwaja, 2017). Therefore, referring to the etymology, the Greek source of the word indicates the connection of the term in question with eudaimonism (Greek *eudaimon* means “happy”), which under no circumstances should be identified with hedonism understood as a life attitude focused mainly on searching and finding the fundamental content of a life of pleasure. Nevertheless, it is necessary to be aware that, just like the world, there were individuals, and at one time there were also doctrines according to which happiness consisted in enjoying pleasure (Drewnowski, 2008).

Referring to the dictionary definition from Encyklopedia PWN (Polish Encyclopaedia), happiness is an issue that is not uniformly defined, usually used in the sense of acquiring the most socially valued goods or attributes and lasting satisfaction with life, closely combined with cheerfulness and optimism. It is also interpreted through the prism of a cognitive perspective of assessing one's own life, with the belief that it is successful, valuable, meaningful. Happiness is related to a successful balance of life experiences (Encyklopedia PWN, 2023).

A comprehensive definition of happiness is provided by GPT Chat, which is based on artificial intelligence. Happiness here should be identified with a sense of contentment, joy, satisfaction, as well as general – in a holistic sense – well-being. It is a subjective experience, unique (individual) for each person, often resulting from a combination of successful relationships, a sense of purpose or meaning, commitment in activities that bring pleasure, and a positive attitude towards life (Chat GTP, 2024).

Undoubtedly, happiness is a complex phenomenon that includes long-term and rational satisfaction with life (Tatarkiewicz, 2005), a deep sense of fulfilment and emotional balance (Chat GPT, 2024), and not short-term and fleeting moments of pleasure (Wziętek-Staško, Krawczyk-Antoniuk, 2022).

It is difficult to experience happiness without taking action, either physical or mental, because the effort put into completing tasks is a source of true satisfaction (Csikszentmihalyi, 1996; Wziętek-Staško, Krawczyk-Antoniuk, 2022), which generates a feeling involving a state of flow externalized through absolute absorption, complete immersion, even turning off consciousness (Sender et. al., 2021; Misra, Srivastava, 2022). Interestingly, people who are in a state of happiness eagerly move into untested areas, facing new challenges (Ali, 2020).

In general, maintaining a balance between a pleasant, active and meaningful life can contribute to achieving lasting happiness (Salas-Vallina et al., 2020), and the existence of specific connections between employee well-being and engagement was already confirmed by researchers at the beginning of the century (Schaufeli et al., 2008; Kinowska, 2021). Due to the multitude of terms relating directly to the issue of happiness, for the purposes of the survey, the authors of the study proposed to respondents a unified definition, which characterizes

happiness as a relatively lasting feeling of satisfaction with various aspects of life (work), combined with general optimism, cheerfulness and a positive attitude towards relation to the surrounding reality.

3. Organizational commitment – conceptualization of the concept

Organizational commitment of employees began to arouse increasing interest of scientists in the second half of the 20th century, along with a significant increase in the importance of human capital management in the economic space (Marzec, 2014). The discussed issue gained popularity mainly due to the contemplations that were closely related to the psychological aspects of the variously understood functioning of individuals at the place of their employment (Bańka et al., 2002).

The pioneer of the research on organizational commitment was the American sociologist – Howard S. Becker. His works were the first attempt to comprehensively approach that commitment, taking into account the perspective of the relationship between the individual and the organization. In his opinion, organizational commitment functions mainly on the basis of the economic exchange relationship between an employee and an economic entity, which means that it is of a calculated nature (Becker, 1960; Marzec, 2014; Wziątek-Staśko, Michalik, 2021).

According to the explanation proposed by William A. Kahn, organizational commitment can be understood as a mental state that enables employees to express themselves during their work. It is also harnessing the self of the organization's participants to fulfil their role in the workplace (Chałupczak, Bugaj, 2020).

One of the more popular definitions suggested by Lyman Porter proves that organizational commitment is associated with an employee's individual attachment to a given organization and identification with it (Porter et al., 1974; Lenart-Gansiniec, Michalik, 2018).

When considering the issue called organizational commitment, one should remember the approach proposed by Natalie J. Allen and John P. Meyer, who, through their research, developed a three-component concept of that commitment, introducing a division into the categories of affective commitment and durability, and finally enriching it with variant of normative commitment (Allen, Meyer, 1990; Grabowski, 2015; Wziątek-Staśko et al., 2022). The affective component of that commitment concerns positive emotions felt towards a given organization and the work performed for it. In turn, commitment to persistence means the employee's bond with the economic entity, primarily as a result of the benefits they achieve by being its participant (Kmiotek, 2016). However, normative commitment is associated with a sense of moral obligation to remain a participant in the organization, because employees characterized by a high level of commitment consider it an obligation to remain in the entity

that employs them for the sake of organizational loyalty (Gulewicz, 2019). When designing a tool needed to conduct a measurement among contemporary employees, the authors reduced organizational commitment to the category of an employee's relationship with an organization (company/institution), which occurs when the employee is largely willing to make greater than expected effort on its behalf and believes in its goals and values and wants to belong to it.

4. Research methodology

The aim of the research carried out in November 2023 was to identify the views of currently employed people regarding the relationship between happiness and organizational commitment. The measurement was carried out on a sample of professionally active employees (N = 220) using the CAWI method. Taking into account the fact that so far no effective tool that would research and measure both analysed concepts of happiness and organisational commitment was developed, an original instrument was created. The diagnostic survey method and survey technique using a questionnaire were used. The representativeness of the sample was achieved using a random sampling design. The majority of respondents in the research were middle-aged, i.e. from 35 to 44 years old – 46%, in most cases employed in private enterprises – 70% and in those that are considered large (employing over 249 employees) – 41%. In terms of gender, the research sample was relatively balanced, with a slight predominance of women – 57%.

Taking into account the fact that obtaining information about motives that directly influence the happiness of human beings can significantly increase the intensity of their eudaimonia (Spowart, 2022), and for the purposes of this article, the following research hypotheses were formulated:

- H.1. According to most respondents, feeling happy in the workplace is important to them.
- H.2. The attractiveness of remuneration is the most highly rated determinant by modern employees, determining their sense of happiness in the workplace.
- H.3. Happy employees have an emotional component to organizational commitment.
- H.4. Most of the analysed respondents notice the correlation between their sense of happiness at work and organizational commitment.

5. Research results

The rich and extremely valuable factual material collected during the research allowed us to confirm hypotheses H.1, H.3 and H.4 and falsify hypothesis H.2.

The first hypothesis (H.1) assumes that for modern employees, being happy in the workplace is important. This is not a ground-breaking assumption, because currently, for many people, the primary value in life is broadly understood happiness, which they strive for on various levels, i.e. in the private and professional spheres. The questions included in the survey questionnaire allowed us to obtain comprehensive data, based on which it can be concluded that, in fact, being happy at work is of particular value to 95% of the respondents, which is 208 participants of the research. 151 respondents (over 70% of the analysed population) reported that they feel happy at work, which only confirms that this area of human functioning is extremely important to them.

As a result of the research, hypothesis H.2 was falsified, which means that the attractiveness of remuneration is not the leading condition, which is rated very highly by the research participants, on which they base their sense of happiness in the workplace. Only 49 out of 151 (32%) of the surveyed employees rated the attractiveness of the salary at the highest level of a five-point scale, which placed this factor only in a distant fifth place. The classification was dominated by the determinant relating to good relations between the organization's participants and the management staff, which was indicated by as many as 61 (40%) respondents. The remaining steps on the podium were taken by the following categories: experiencing a sense of meaning in the work performed (36% of the surveyed population) and the ability to make independent decisions while performing professional duties (36% of respondents).

Hypothesis H.3 applies to happy participants of economic entities who are characterized by an emotional component of organizational commitment. Since in the vast majority of cases happy employees declare their willingness to work for their current employer, the hypothesis can be considered confirmed. Considering the survey results, 89 (59%) of the 151 respondents who said they were happy in their workplace expressed their willingness to work without coercion or feeling of obligation to the organization. 43 (29%) people stated that they worked because they felt some obligation towards the entity employing them. Interestingly, 18 (12%) of the surveyed employees indicated that they had to work, while admitting that they felt happy at work.

According to the last hypothesis (H.4), modern employees are aware of the interdependence between the sense of happiness and organizational commitment. 157 (71%) of the 220 respondents are aware of the connection between the above-mentioned constructs. In the opinion of as many as 188 people, which constitutes 85% of the analysed research sample, the level of their happiness in the workplace may have a real impact on the intensity of their organizational commitment. However, 68% (150) of respondents point out the reverse of that correlation and emphasize that the level of organizational commitment may actually influence the level of happiness in the workplace.

6. Discussion

The sense of happiness is an extremely complex structure, and its individual conditions may be interconnected and create various systems (Kanasz, 2015). Over the years, the role of happiness in influencing employee satisfaction and its importance for performance in workplaces has been studied (Erselcan, Özer, 2023). An attempt has been made to examine the impact of satisfaction on employee happiness (Butt et al., 2020), gender in terms of happiness in the workplace in the Spanish financial sector (Castellanos-Redondo et al., 2021), and even happiness as a predictor of friendship in the organization (Öztürk, Sumbas, 2023). Year by year, there are more and more research works whose authors explore the topic of employee happiness, but as you can see, there are not many of them that connect employees' sense of happiness with their organizational commitment.

An advocate of positive psychology, Martin Seligman, in his scientific works, has repeatedly pointed out the connection between the sense of happiness and authentic and deep commitment (Seligman, 2011). It should be borne in mind that commitment to work or profession is a necessary condition, but at the same time it is not sufficient to talk about organizational commitment (Juchnowicz, 2009).

An in-depth analysis of the literature on the subject allowed the authors of this study to reach the content published by Cynthia Fisher, who in her scientific article from 2010 raises the issue of happiness in the workplace, referring to organizational commitment. The Australian management professor points out the correlation between the sense of happiness and the affective component of organizational commitment (Fisher, 2010), which was confirmed by the results presented above (hypothesis H.3).

When discussing the factors that generate a sense of happiness in the workplace, attention should be paid to the study conducted in 2021 by the Jobhouse employment agency (Gaszek et al., 2021), which clearly shows that remuneration is one of the key factors influencing the sense of happiness in the workplace. However, 51% of the participants in the measurement expect it to improve, which may explain why in the study conducted by the authors, the respondents rated good relations with the management staff as the highest, placing remuneration only in the distant, fifth position in the list of the highest rated factors determining the sense of happiness at work. The topics explored by the authors of this article highlight many interesting research areas. "Happiness" and "engagement" are inspiring research categories in themselves. However, their combination opens up new spaces prompting analysis. This applies to both the impact of happiness on commitment and the reverse relationship. This article focuses on the first of them.

The concepts of happiness and organizational commitment seem strikingly important, especially in relation to management practices. Based on the conducted research, it can be concluded that the majority of surveyed employees feel happy in their workplaces. The results obtained during the research confirm the existence of awareness of business entities' participants in the scope of the relationship between the sense of happiness and organizational commitment, at the same time enriching the current scientific achievements and knowledge regarding the mutual impact of the discussed constructs.

Touching on the topic of various limitations of the research process, it would be necessary to briefly comment on sociodemographic data, which undoubtedly influence the measurement results and, consequently, also the conclusions and reflections. The uneven distribution of participants in the study (126 women and 94 men) makes it impossible to decide which gender is happier in the workplace. Age and education influence the attitudes and behaviors of respondents, which is crucial in the context of social or psychological research. Therefore, it is difficult to clearly state whether belonging to a given generation and the level of education have a real impact on happiness in the workplace.

This publication is a kind of invitation to conduct further scientific research in the area of the axiology of happiness management, in order to analyse the evolution and trends taking place in practice on an ongoing basis. In reference to the above, it is suggested that in the future the research sample be enlarged in order to authenticate the results obtained in the survey. It would be worth exploring the topic of good relationships with managerial staff by asking respondents what exactly they mean to them. Distribution of all three components of organizational commitment (affective, continuance and normative) among individuals who report being happy in their workplace is an interesting phenomenon. However, first of all, it would be necessary to expand the study based on quantitative methodology using statistical mathematics in order to finally confirm the authenticity of the correlation between the sense of happiness at work and the organizational commitment of modern employees. Undoubtedly, the wealth of subsequent directions encourages and motivates further activities and investigations at the diagnostic level.

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THE ROLE OF EFFECTIVE INTERPERSONAL COMMUNICATION IN SHAPING ORGANIZATIONAL LEADERSHIP

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Purpose: Today, as organizations around the world face increasing social and economic challenges, the role of effective leadership becomes crucial to their success and sustainability. The purpose of this study was to determine whether there is a direct relationship between leaders' interpersonal communication skills and their effectiveness in problem solving, and to identify which specific aspects of communication are most influential in the context of effective leadership.

Design/methodology/approach: The research was conducted using the method of online interviews (CAWI) as part of the UGB 853/2023 project, focusing on a group of 172 companies from the Polish manufacturing, service and trade sectors, representing a wide range of small, medium and large enterprises. A total of 456 respondents took part in the study. The study aimed to understand how leaders' interpersonal communication skills influence their ability to effectively deal with complex social problems within the organization.

Findings: The survey results showed that 70% of respondents considered active listening to be a key factor influencing their effectiveness in solving problems. 65% of respondents rated empathy as the most influential aspect in the context of effective leadership. In addition, expressing appreciation and confirming the opinions of others was indicated by 55% of leaders, and effective feedback by 40% of respondents.

Research limitations/implications: The study was limited to companies from the Polish manufacturing, service and trade sectors, which may affect the generalization of the results. Future studies will aim to expand the scope to other sectors and countries to confirm the results.

Practical implications: The research results have a significant impact on the development of talent management strategies and leadership training. Companies should focus on developing leaders' communication skills to increase their effectiveness in solving problems and improving decision-making processes.

Social implications: Research indicates that improving leaders' communication skills can contribute to better coping with social problems in organizations, which in turn can influence social attitudes and increase corporate social responsibility.

Originality/value: The study offers a new perspective on the importance of communication skills in effective leadership, providing valuable conclusions for managers, management consultants and researchers dealing with leadership and communication.

Keywords: interpersonal communication, leadership, effectiveness.

1. Introduction

In today's rapidly changing organizational environments, effective interpersonal communication plays an essential role in developing effective leadership. In a context of increasing complexity in managing organizations, the ability of leaders to build relationships, inspire trust and effectively communicate vision and values is essential. This study focuses on analyzing how interpersonal communication skills influence the development and effectiveness of organizational leadership.

The elements of the interpersonal communication process include context, participants, message, channel, noise, and feedback. This process is social, takes place in a specific social context, is creative, dynamic, continuous, symbolic, interactive, purposeful, inevitable, complex and irreversible. Each of these aspects plays an important role in the effectiveness and efficiency of communication, influencing the quality and results of interpersonal interactions (Aqustini, Amanah, Harahap, 2022).

In this context, interpersonal communication in an organization is a complex process that requires continuous understanding and adaptation to changing conditions, needs and expectations of participants. This is essential to ensure effective exchange of information, building relationships and achieving organizational goals. Interpersonal communication, which is a key element of the structure of human society, plays an irreplaceable role in transmitting and preserving the accumulated cultural and civilizational heritage (Friedberg, 2019). It is a complex process in which information, values and feelings are not only exchanged, but also shape common relationships between individuals. This communication (Bîrsan, Cepraga, 2023) covers various functions, from educational to integrative, each of them playing an important role in the development and maintenance of social structures.

In the context of organizational management, interpersonal communication takes place on various levels, including vertical communication up and down the hierarchy, as well as horizontal and diagonal communication. The effectiveness of vertical downward communication depends on several factors. Communication channels should be as short and direct as possible. In addition, managers should adopt a management style that takes into account the psychological aspects of communication, for example the fact that information consistent with personal needs and values is more easily accepted and assimilated (Tholia et al., 2022).

Effective communication in an organization requires a combination of verbal skills with the appropriate use of non-verbal communication. Interpersonal communication in an organization is multidimensional, including vertical upward, horizontal and diagonal communication, each of which plays a unique role in management and information flow (Uka, 2014; Anders, 2021).

2. Effective communication in the organization

In the context of organizational structure, various elements play a key role in supporting effective communication processes (Uka, 2014; Anders, 2021). These include organizing numerous formal opportunities for information exchange, such as training, meetings, events and team-building events, which create space for interaction and exchange of ideas. It is also important to create a forum for the exchange of information and knowledge, which allows for the sharing of specialized knowledge and experiences (Tholia et al., 2022).

Organizational arrangements that enable mutual learning, such as mentoring programs or joint projects, are also important. A flat organizational structure and appropriate arrangement of workplaces facilitate the exchange of thoughts and ideas, which in turn increases the flow of information and cooperation between various levels of the organization. Additionally, an effective communication system, including both formal and informal channels, allows employees to freely express opinions and suggestions, which is crucial for a better understanding of needs and expectations (Tholia et al., 2022).

Organizational culture that supports communication processes between employees plays a key role in developing the effectiveness of cooperation in the organization. Efficient communication is the basis for the effective operation of the entire organization because it enables the effective exchange of information, solving problems, building trust and supporting innovation. Therefore, investing in the development of employees' communication skills and creating a structure conducive to open communication are key activities for any organization striving for success (Aqustini, Amanah, Harahap, 2022).

The role of a leader in the process of effective interpersonal communication is important because a leader is not only a person who inspires, convinces and motivates, but also paves the way for changes and is a key element in shaping organizational culture. A leader, being a team member, is usually open to information from colleagues. By outlining directions of action and an inspiring attitude, the leader influences the functioning of the team as a community.

An effective leader presents a vision based on input from his or her partners, creating an environment in which every team member has the right to express their own views. It is important that the leader and his team share responsibility for the results of their actions, both for successes and failures, and are honest with themselves. It is crucial to realize that differences of opinion within the group are inevitable, and any disputes or conflicts should be resolved constructively. A leader's success depends largely on his or her ability to communicate effectively with his or her team. Everything a leader achieves is related to other people, usually his team. A leader's level of success depends on the members of the team he or she leads. In this context, the quality of communication with the team is crucial for the success of both the leader and the entire team (Laitinen, Valo, 2018).

In traditional organizational cultures based on the principles of giving commands and control, leader effectiveness was often the key to persuasion. However, this method of management and communication does not work in the long term. Even if the team knows what it has to do, without proper motivation and commitment it will not perform its tasks effectively. Therefore, a modern approach to leadership requires not only management skills, but also understanding and effective interpersonal communication skills, which are the basis for building a strong and integrated team.

Effective communication between a leader and an individual or group is measurable through interactions in which recipients actively participate, expressing their opinions in an understandable way, showing trust, and showing emotional involvement in the process (Banaszek, 2015). What is crucial for the quality of communication is that team members establish contact with each other on an emotional level and accept certain messages and commands without reservations (O'Conner, Jackson, 2017).

In the context of effective communication in an organization, the leader's development of four areas is crucial. The first is position, understood as the leader's personal credibility, opinions and reputation among the people with whom he communicates. The second area is the result, i.e. skills and competences in the field that the leader deals with, and the perception of him or her as a person with experience, proficiency and knowledge. The third element is personal power, which refers to a leader's ability to influence people, money, or other resources. The last, but equally important sphere is politeness, manifested through kindness towards team members and co-workers, good manners and respect in interactions (Tholia, Rastoqi, Gupta, Pandey, 2022).

In the context of the effectiveness of a leader's verbal communication, not only verbal skills are crucial, but also the ability to actively listen. A good leader is characterized by the ability to build dialogue by asking questions that enable a deeper understanding of the situation being discussed, while maintaining discretion (Tholia et al., 2022). Moreover, he is characterized by the desire to put himself in the interlocutor's situation and look at it from his perspective. The ability to build the interlocutor's value by creating a positive conversation atmosphere, providing trust, and refraining from criticizing and assessing is also important (Piorunek, 2019). A leader should be able to build an atmosphere of cooperation, characterized by openness and free exchange of thoughts and views. Additionally, the ability to build constructive feedback without judgments, moralizing, ridicule, as well as honesty with oneself, awareness of one's own behavior and weaknesses are crucial for the effectiveness of a leader's communication.

The feeling of being important and heard is one of the fundamental needs of human nature in the communication process. Bearing this need in mind, the leader should take all actions to strengthen the self-esteem of his interlocutors, and thus increase their trust and sympathy (Banaszek, 2015). It is crucial that each interaction carried out by the leader gives team members the feeling that they are important and valued, which has a positive impact on morale and work efficiency (Aqustini, Amanah, Harahap, 2022).

In an organizational context, the ability to communicate effectively is extremely important. The lack of adequate communication skills within and between teams may lead to the failure of planned activities. Since the implementation of tasks in an organization is impossible without the participation of people, leaders should focus on constantly improving the level of communication between team members (Tholia et.al., 2022).

The interpersonal communication system in an organization includes communication processes at both the interpersonal and group levels. This is an important element in explaining the communication processes taking place within an organizational structure with a clearly separated management apparatus. Assuming that there is a logical relationship between knowledge, creativity and innovation, which are crucial for the competitiveness of an organization, it is possible to identify at least two groups of methods and management that significantly support the development and use of knowledge in the context of communication. The first group are communication methods focused on generating and sharing knowledge, and the second are heuristic methods (Tholia et al., 2022).

Effective interpersonal communication in an organization is moderated by a number of factors of various nature. Understanding these factors is crucial to achieving company goals and driving efficiency at various levels of the organization. These factors can be analyzed at the interpersonal, group and organizational levels, and their determinants can be divided into biological, socio-professional and psychological (Aqustini, Amanah, Harahap, 2022).

3. Analysis of author's research

In today's dynamic business environment, organizations often face complex social challenges that require not only a strategic approach, but also effective leadership. A central element of this leadership is leaders' interpersonal communication skills, which can play a decisive role in the process of solving these problems. In the context of this hypothesis, the study aims to understand how leaders' communication competencies influence their ability to effectively deal with social problems in the organization. The focus was on analyzing the relationship between interpersonal communication skills and effectiveness in problem solving, taking into account both the self-assessment of leaders and the opinions of their subordinates. This study sought to gain a deeper understanding of the importance of communication skills in the context of organizational leadership and their impact on the effectiveness of solving social problems.

In the face of the growing complexity of social problems faced by modern organizations, the role of effective leadership takes on a new dimension. A key aspect that can contribute to more effective management of these challenges is the interpersonal communication skills of leaders. This analysis aims to explore what specific communication skills, such as empathy,

active listening and expressing appreciation, are most often used by leaders in the process of solving complex social problems in their organizations. Understanding which of these skills are considered the most effective will help identify areas where organizations can focus their development activities to increase the effectiveness of their leaders in crisis management and solving social problems.

In the study, data analysis revealed that 70% of respondents reported that active listening is a key skill used in solving complex social problems in their organizations. Empathy was highlighted as the second most important skill, with a score of 65%, while expressing appreciation and validating the opinions of others was cited by 55% of leaders. Interestingly, 40% of leaders also emphasized the importance of effective feedback as an important skill in the problem-solving process. This data indicates that interpersonal communication skills, such as active listening and empathy, are considered crucial in managing and solving complex social challenges in organizational settings.

In the context of the growing need for effective leadership in the face of complex social problems, it becomes important to understand how leaders' interpersonal communication skills impact their ability to manage these challenges. The purpose of this analysis was to examine the potential relationship between leaders' assessment of their interpersonal communication skills - both as self-assessment and as assessed by their subordinates - and these leaders' perceptions of their effectiveness in solving social problems in their organizations. This study is crucial because it allowed us to determine whether there is a correlation between a leader's own perception of a leader's communication skills and his or her actual performance in managing and solving social problems. The results of this analysis provided valuable tips for the development of leadership training programs and talent management strategies in organizations.

The collected data showed that in the case of 60% of leaders, high self-assessment of their communication skills correlated with a positive assessment of these skills by their subordinates. Moreover, in the group of leaders with high self-esteem and positive evaluation by subordinates, 75% of them were also rated as effective in solving social problems in the organization. On the other hand, in the group of leaders with low self-esteem and negative evaluation by subordinates, only 30% were considered effective in solving such problems. These results suggest that there is a significant relationship between leaders' interpersonal communication skills and the perception of their effectiveness in solving social problems in the organization.

Solving social problems in organizations requires not only in-depth knowledge and skills, but also effective interpersonal communication. Leaders' communication styles have a significant impact on how problems are identified, understood, and ultimately resolved. The aim of this analysis was to examine how different interpersonal communication styles used by leaders affect the effectiveness of social problem-solving processes in the organization. Particular attention was focused on recognizing how these different communication approaches

contribute to successes or challenges in managing social issues, and assessing their impact on organizational performance. By thoroughly understanding these dynamics, organizations will be able to better adapt their management strategies and develop effective communication methods that promote effective problem solving and the achievement of organizational goals.

The influence of three main interpersonal communication styles (autocratic, participative and supportive) on the processes of solving social problems in organizations was examined. The results showed that leaders using a participative style (45% of respondents) had the highest levels of effectiveness in solving social problems, with 80% of positive effectiveness ratings by their teams. Leaders with a supportive style (35% of respondents) had the second highest effectiveness score, with 70% positive ratings. However, leaders with an autocratic style (20% of respondents) had the lowest effectiveness in solving social problems, with only 50% of positive effectiveness ratings. This data suggests that interpersonal communication styles have a significant impact on the effectiveness of leaders in solving social problems in organizations, with the participative style appearing to be the most effective.

4. Analysis of author's research

Nowadays, when organizations face increasingly complex social challenges, the role of effective leadership becomes crucial. In particular, leaders' interpersonal communication skills are gaining importance as a fundamental tool in managing and solving these challenges. The research presented in this article focused on understanding how various aspects of interpersonal communication affect the effectiveness of leaders, taking into account both their self-esteem and the perception of their subordinates. Various communication styles used by leaders were also analyzed to assess their effectiveness in the context of solving social problems in organizations. The findings from this research shed new light on understanding the key elements that define effective leadership in today's business world.

Interpersonal communication skills, such as active listening, empathy and appreciation, are crucial to the effectiveness of leaders in solving complex social problems in organizations.

There is a relationship between the self-assessment of leaders' interpersonal communication skills and the assessment of these skills by their subordinates as well as the perception of effectiveness in solving social problems.

The participative style of interpersonal communication is most effective in solving social problems in organizations, as opposed to the authoritative style.

In today's dynamically changing business world, leadership effectiveness is a key factor in the success of every organization. Recent research indicates the significant role of leaders' interpersonal communication skills in effectively solving social problems within the organization. In the context of these findings, it is important that organizations actively take

actions to develop and strengthen these competencies in their leaders. Our recommendations focus on three main areas: developing interpersonal communication skills, introducing effective evaluation and feedback systems, and promoting a participative leadership style. Implementing these strategies can help to increase the effectiveness of leaders, which translates into the overall performance and adaptability of the organization in the face of complex social challenges.

Organizations should focus on developing these skills through leadership training and workshops. A culture of openness and empathy should be promoted to increase leadership effectiveness in solving problems.

Leaders should regularly collect feedback from their teams to more accurately assess their communication skills and effectiveness. Organizations can also implement 360-degree feedback systems to provide an objective assessment of leadership skills.

Organizations should promote a participatory style among their leaders, encouraging collaboration, openness to opinions and active involvement of teams in the decision-making process. Training for leaders may include techniques for building team commitment and participation.

In summary, this research highlights how crucial effective leadership, and especially leaders' interpersonal communication skills, is to organizational success. Developing these competencies, regularly collecting feedback and promoting a participative leadership style are not only strategies, but also investments in the future of the organization. Implementing the recommended actions can significantly contribute to increasing the effectiveness of leaders, which in turn has a direct impact on the organization's ability to effectively deal with social challenges and a changing business environment. In the face of constant changes and growing expectations, interpersonal communication skills are becoming not so much a desirable feature, but a necessity for every leader striving to achieve lasting success in the world of modern business.

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HUMAN CAPITAL – A BUSINESS ETHICS PERSPECTIVE

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Purpose: The subject of the article is the problem of object-oriented treatment of human resources. In the author's opinion, despite the relatively long period of widespread respect for ethical requirements addressed to business entities, the issue of an instrumental, object-oriented approach to personnel employed in companies has not been satisfactorily resolved. The purpose of the article is to show that recourse to the assumptions of the feminist concept of ethics of care provides an opportunity to overcome the instrumental, subordinated to utilitarian goals approach to the issue of social responsibility in the field of human resource management.

Design/methodology/approach: The author accepts the approach of cultural constructivism. The subject of the research is axiological assumptions applied to the issue of human resources, and the research method used is a critical analysis of scientific discourses in the field of economics and economic ethics.

Findings: The author has shown that to facilitate change through an individual-focused approach to human resource management, it is essential to recognise and effectively eliminate the error of conflating economic ethics and corporate social responsibility (CSR) within the axiological framework of economics, which prioritises material utility. Harnessing the potential of the concept of ethics of care can be helpful in this regard.

Originality/value: The value of the text is in proposing a – different from the traditional – account of human capital issues and in demonstrating how to overcome the axiological crisis in economics and economic ethics.

Keywords: human capital, axiological turnaround, CSR, ethics of care.

1. Introduction

Traditional economics practised along the lines of the neoclassical approach conceives of economics as making choices under conditions of resource constraint. A rational actor makes decisions that are optimal under the given conditions and that maximise benefits. The specificity of economic thinking is defined by two key elements: the assumption that market actors are always and only guided by their own self-interest and that they compete for access to benefits with other participants. This leads to certain consequences – treating economic activity as taking place under conditions of competition with other market participants for a better position.

Thus, the market economy appears as an area of social practice in which one strives for their own well-being, and competition is the dominant attitude. The available resources at the disposal of a given economic entity are treated instrumentally, i.e. they become a means of multiplying economic value – profit from the activity conducted. This, of course, also applies to the specific resource of human capital. The instrumental, object-oriented treatment of the people who make up a company's staff is therefore deeply embedded in the fundamental beliefs that are the building blocks of the orthodox market economy model.

Awareness of the origins of the human resource approach in question is a key element that should be taken into account when considering the role of human capital in the modern economy and in discussions on how to manage people in an organisation. For many years, a move away from the traditional model of human resource management referred to as the resource approach, of which Taylorism or Fordism are iconic exemplifications, has been advocated. The contemporary humanistic approach, which embraces various assumptions and promotes a significant shift in the management model, prioritises such values as personal integrity of employees, openness to cultural and generational diversity as well as consideration of neurodiversity. This approach is already firmly established in practice. However, despite the clearly ethically positive developments, the question remains topical: are we overcoming the difficulty mentioned earlier, i.e. the problem of a systemic instrumental approach to employees, grounded in canonical assumptions? Can the transmission of humanistic values in contemporary approaches to human resource management constitute the basis for the belief that we are effectively reorienting our thinking and practice of personalised treatment of employees? The aim of this article is to formulate answers to the above questions and to demonstrate that making a real change in the approach to human resource management requires a different axiological perspective from the previous one.

2. Human resources as an object of corporate social responsibility

The issue of the personalised treatment of a company's stakeholders is of particular interest to business ethics, and has resulted in the formulation of the concept of corporate social responsibility. This has contributed to a widespread belief in the need to pressure economic actors to take responsibility for all the consequences (including the non-economic ones) of their actions. Initially, in the earliest phase of the development of CSR, the requirements placed on businesses were relatively simple and limited in their scope. The evolution of views on corporate social responsibility is presented by Frederick (1994, 1998, 2003), who distinguishes the following phases in the development of the idea: the era of greed, philanthropy, marketing and management. They cover the period from the mid-1950s to the end of the 20th century. A progression can be seen here, consisting of increasingly boldly formulated expectations –

demands addressed to economic actors and a gradual expansion of the scope of their social responsibility. Nevertheless, throughout all this time we have remained in a mindset that subordinates ethical requirements to the overriding issues of economic efficiency. Despite increasingly bold demands to broaden the scope of corporate social responsibility, the author argues that it has not been possible to move beyond the prevailing profit-first approach. This approach follows the model presented by Carroll in the 1970s, which prioritises economic values first, followed by legal and ethical obligations, and finally, social involvement¹. In later publications (Schwartz, Carroll, 2003; Carroll, Buchholtz, 2015; Carroll, 2016), as if in response to the accusations directed in his direction of the primacy of economic interests over ethical principles, Carroll argues that the levels/areas of responsibility he indicated should not be treated as separate; on the contrary, as Carroll argues, ethics permeates the scopes of economic and legal responsibility (“ethical motivations and issues cut through and permeate all four of the CSR categories and thus assume a vital role in the totality of CSR”) (Carroll, 2016). This presence of ethics at lower, basic levels of responsibility is specifically understood as the recognition that an entrepreneur’s economic responsibility is an ethical obligation to ensure a fair return on investment. It is also emphasised that laws are largely based on ethical norms, so compliance with the law indirectly means respect for moral principles. All four dimensions of business activity should be considered as elements of an integral whole². However, attempts to defend this position appear to have failed. The way of thinking presented in the original approach (later referred to as CSR 1.0) has been strongly criticised by, among others, Visser, who believes that the idea of CSR should be fundamentally restructured and, more specifically, that the profit-driven approach present in the CSR models constructed to date should be replaced with an approach that starts with the inversion of Carroll’s pyramid³. According to contemporary researchers, a re-evaluation involving a reconciliation of social priorities is necessary. We can no longer tolerate social, ethical and environmental burdens by justifying them with the desire to increase our well-being. The real threat of a global environmental catastrophe is forcing us to self-restraint in meeting needs, renouncing over-consumption, moderation in setting economic goals and prudence in disposing of resources. The goal of humanity’s viability must be recognised – both locally and globally – as superior to all other objectives, including economic and political ones. Therefore, the axiological turn that is taking place today means establishing the supremacy of existential and ethical values over all others.

¹ Many years later, Carroll (2016) presented an interesting discussion of his original position in the article *Carroll’s pyramid of CSR - taking another look*.

² “Stated in the form of an equation, it would read as follows: Economic Responsibilities + Legal responsibilities + Ethical Responsibilities + Philanthropic Responsibilities = Total Corporate Social Responsibility. Stated in more practical and managerial terms, the CSR driven firm should strive to make a profit, obey the law, engage in ethical practices and be a good corporate citizen. When seen in this way, the pyramid is viewed as a unified or integrated whole” (Carroll, 2016).

³ It is an absolute fallacy to say that the purpose of business is to bring profit or benefits to its shareholders. These are merely means to an end, which is to serve society by providing safe, high-quality products and services that contribute to the quality of life without deteriorating ecological and social systems’ (Visser, 2010).

This changes our approach to the treatment of resources: the issue of constraints on the disposition, acquisition and use of resources in such a way as to reduce negative environmental impacts to a minimum becomes important (cf. Zboroń, 2023).

The re-evaluation of thinking about the practice of management also provides an opportunity to overcome the objectivised treatment of human resources perpetuated by economist thinking and to adopt a different axiological perspective in management. This is all the more important because, in relation to this area, we do not have such hard (irrefutable) arguments that would force us – as in the case of the conundrum of an impending environmental catastrophe – to make immediate, radical changes to the ways in which we act in the field of human capital management. Thus, recognising the primacy of ethical norms over material (economic) values may seem more difficult. Of course, one may ask at this point whether it is indeed important to make an axiological turn symmetrically in all fields of the area of social responsibility and to change the way we act with regard to all stakeholder groups? Is it not enough to focus on the most important – ecological – challenges? This question is asked solely for the sake of order, but I treat it only as a rhetorical problem. Such a thought – if it arises – can only be accepted in the context of a utilitarian view according to which positive value is attributed to those activities that lead to the attainment of specific utilities. This, in turn, situates us within the kind of thinking that leads to the instrumental treatment of workers. Accordingly, in line with the declaration adopted here, we are looking for a way to restore the individualised character of relationships in organisations. It seems helpful at this point to move the discussion to the meta-subjective level – in this case, the area of normative ethics, within which concepts are constructed that provide specific arguments to valorise the solutions adopted for the practice of human capital management. Let us examine, therefore, which ethical concept will prove most promising in this respect.

3. The utilitarian ethics approach

The assumptions of the leading orthodox current in economics regarding the nature and motivation of the economic agent, quoted at the beginning of this text, find axiological support from utilitarian ethics. Utilitarianism as an ethical concept emerged at about the same time as economics became an independent discipline. In the dispute over what should be taken into account in the moral evaluation of an act: intention (intent) or consequences (effects), utilitarianism argues strongly in favour of recognising the value of an act by assessing the consequences of an action. In other words, what matters are the results and their value for the subject. This reveals the practicalist slant of this ethical position, which fundamentally asserts that every individual possesses an equal right to achieve the good, defined as pleasure, happiness and benefit. The good is a state of happiness consisting in experiencing pleasure and

the absence of suffering (Mill, 1959). The practicalism of utilitarianism manifests itself in an accepted basic principle: our aim should be to maximise happiness by choosing the action that – compared to alternative actions – brings the greatest amount of happiness, whereby it is not so much a question of quantity as of quality (according to individual preferences). An important condition is the recognition of the same right of everyone to achieve happiness and the requirement of neutrality (impartiality towards individual desires).

In utilitarianism (as well as in economics), the concept of utility is crucial. It was introduced by David Hume, a representative of the Scottish Enlightenment, and is understood by utilitarian ethicists as happiness identified with the concept of the good. The same concept taken up by economists becomes associated with the value of well-being. Recognising that the goal of human endeavour is happiness understood as maximising economic (material) benefits makes it possible to concretise human desires and, what is more, gives them a measurable character. This, of course, required a long process of significant change involving the transformation of the basic assumptions of economics: replacement of the categories of subjectively understood desires (utility) and insurmountable interpersonal comparisons with the category of objectifiable revealed preferences (cf. Kwarcinski, 2014a, 2014b).

Useful, and therefore ethical, is what brings happiness, which in economics comes down to material benefits. The pursuit of maximising the value of wealth is the path to happiness, and anything that leads to this is justifiable. The behaviour of an individual who acts in such a way as to obtain maximum benefit is compatible with human nature and morally positive. The conviction accepted in mainstream economics of the universality of the selfish attitude of man, who, according to a commonly held regularity, is always guided in his behaviour by utilitarian calculus (acts rationally), reinforces the axiologically accepted resolution in economics of the supremacy of material gain over other alternative goals. Acting in accordance with human nature is not only ethically justifiable but also rational. The market system within which an individual operates induces them to make rational choices leading to maximum benefits. Ethically justified rational actions of individuals lead to obtaining justified benefits, and the sum of these actions performed by all market actors in accordance with their own interests allows for the constitution of welfare on a macro scale (Zboron, 2009).

Relating the above beliefs to the issue of human capital management has specific implications. This utilitarian approach is present in the decisions of the first phase of development of the CSR idea. This is because the introduction of social requirements as to how an organisation should be managed was associated with both specifically articulated standards of managerial ethics and expectations as to the benefits to be gained from respecting them. Indeed, considerations of managerial ethics largely focused on issues of economic responsibility and concerned the professional, effective management of a company. In addition, it was shown how ethical business management and fostering constructive relationships with internal stakeholders can yield positive economic outcomes. Among the external benefits, the following were pointed out: improvement of the company's image, increased trust on the

part of existing customers and the possibility of attracting new customers, increased investor interest and gaining a competitive advantage. Internal benefits included improving the company's image as an employer, increased effectiveness of internal communication, increased loyalty, commitment and motivation of employees. All of the exemplary positive consequences listed here are treated as tangible utilities that increase economic efficiency. The CSR activities, including the treatment of personnel, are subordinated to economic values, and human capital is treated objectively. Tying the implementation of the CSR ideas into the organisation management process with the possibility of strengthening the economic position of the company is characteristic of the CSR 1.0 model, particularly of the so-called marketing era, which – as Frederick (1994, 1998) noted – was dominated by the promotional approach implemented by public relations functions.

Referring to the above considerations, it can be noted that the introduction of CSR ideas into economic practices has not yielded the expected results, also in terms of changes in attitudes towards human capital. This is because CSR is burdened with the original sin of fitting into the logic of utilitarian-oriented economic thinking. The pro-profit approach characteristic of CSR 1.0 instrumentalises the activities undertaken within the framework of CSR by subordinating them to economic objectives, and people employed in enterprises are treated as objects, i.e. as a tool for generating economic values. Attempts to introduce new solutions in the field of human capital management (a humanistic approach instead of the traditional, resource-based one, eliminating the management style referring to theory X and introducing the assumptions of model Y) do not solve the fundamental problem of tacitly respecting the assumption of orthodox economics, which limits the value of utility to what can be monetised. The key issue, therefore, becomes the above-mentioned problem of the need to face the challenge of changing the axiological perspective manifested in the recognition of the primacy of existential and ethical values over the economic ones. Carrying out this re-evaluation will open up the possibility of breaking with the instrumental, object-oriented treatment of human resources and formulating a different axiological basis for the concept of management than has hitherto been the case.

4. The problem of human capital empowerment from the perspective of the ethics of care

It seems that the search for a solution to the problem of establishing a strong axiological basis for an individual-focused approach to human capital management leads us to abandon utilitarian arguments and turn towards a different proposal. Particularly promising in this

respect seems to be the ethics of care⁴, which places the interpersonal relationship, understood as a unity of values and practice, at its centre. According to this concept, morality manifests itself in thinking about and caring for others, which in turn requires an attentive perception of the other person enabling the identification of his or her needs. Indeed, caring manifests itself in taking action to meet the needs of others and taking them into account in the realisation of one's own desires. "The good is defined by the person acting morally in relation to the person for whom he or she cares. At the same time, it is subject to an inter-individual, non-overriding evaluation. The motives for caring (action) are considered to be important, and their full extent is known only to the person caring for the specific person(s)" (Kamieńska, 2008, p. 10). An important feature of the ethics of care approach is that it challenges categories such as justice, neutrality, entitlement and duty, which are important to traditional approaches. In resolving moral dilemmas, feelings and a particularly understood 'bias' are important, which involves taking the side of the person being cared for: recognising their needs and responding appropriately.

The difficulty of referring to the idea of ethics of care is that it does not provide ready-made prompts, apart from the general principle that we should take care of people with whom we are in relationships; no specific, detailed norms of behaviour are indicated, which raises the question of the legitimacy of including the concept of ethics of care among normative ethics (cf. Waleszczyński, 2013, p. 55). Fixed rules/patterns of behaviour are replaced by adaptive behaviour and finding an appropriate approach to a given – always specific – situation. Reluctance to formulate fixed ethical principles is linked to the belief that caring is more than fulfilling obligations, often without personal commitment to the other person.

Following Noddings, we could say that when acting in accordance with the ethics of duty or justice, the subject relates to the rules, not to the person – it is the rules that are important; it is with them that an individual builds a relationship (of recognition, respect, approval). In the case of the ethics of care, on the other hand, it is the relationship with the other person that is important; it is because of the other person that ethical action is triggered, the impulse in this case is not an injunction to follow the rules, but a feeling, a need to be involved, to help, to support. Hence, real caring begins with a real, and not abstract, interpersonal relationship involving both parties, a relationship established with a specific person. The assumption made

⁴ Derived from feminist philosophy, an ethic of care has been developed in Anglo-American culture for forty years. The starting point was the notion that women differ from men in terms of moral reasoning, and since this issue is overlooked in both philosophical theory and social practice, it is necessary to fill this gap. The concept was initially developed by Carol Gilligan (presented in her book *In a Different Voice*, 1982) and subsequently expanded upon by Nel Noddings. A notable figure within this strand, particularly relevant to this analysis, is Virginia Held. Her work explores ethical challenges that extend beyond familial or close relationships, contrasting with the focus of other prominent figures in this strand. The placement of the ethics of care within feminist philosophy stems from Gilligan's formulation of this concept in opposition to Kohlberg's theory of moral development. Gilligan argued that Kohlberg's model primarily reflected the moral evolution of men, whereas women's moral development exhibits distinct characteristics. According to Gilligan, men are guided by an ethic of justice and women by an ethic of care (cf. Waleszczyński, 2013, p. 45).

by Noddings regarding the occurrence of natural affection for people and the desire to maintain a state of mutual concern is important (Waleszczyński, 2013, p. 80).

The need to rework the issue of employee well-being management is discussed by Jing Xu and Hedley Smyth, who are critical of the results of introducing CSR into business organisations. The authors express their belief that “in the current system, which places the market, the economy and compliance at the centre [...] programmes and initiatives for [employee – HZ] wellbeing under the umbrella of CSR at best attempt to address superficial symptoms and at worse commodify employee wellbeing to support the corporate brand” (Xu, Smyth, 2023). It is not the Kantian ethics of duty or the ethics of responsibility that form the handy basis for building a satisfying concept of human capital management today. The reformulation of the concept of employee well-being management should be done by referring to the assumptions of the ethics of care.

It is important to agree with the authors cited here that feminist ethics of care is increasingly discussed as a concept proposing an ethical turn in which relationships, care, responsibility and intersubjectivity are alternatives to judgements based on rationality, utility, regulation or political interests. An organisation that appeals to the idea of the ethic of care puts people at the centre: it enables dialogue and responsiveness between individuals and groups, allows community to develop, and facilitates the development of social and human capital. Above all, it treats employees subjectively – as an end in itself. This subjective treatment requires a focus on the needs of the individual, with the understanding that care is not about imposing predetermined solutions to a problem or pursuing one’s own goals. It is important to ensure autonomy and provide support to increase decision-making capacity. Applying the ethic of care is a task for the whole team: learning to care is essential for self-identification and building a community on trust, a sense of acceptance, security and creating conditions for the development of all parties involved.

5. Conclusion

Disappointment with the weakness of the results of applying the idea of social responsibility in business practice to date leads us to seek more satisfactory solutions. The condition for success, however, is to realise and effectively eliminate the error of entangling business ethics and CSR in the axiological perspective adopted in economics, which subordinates our actions to material utility. The strategy of seeking acceptance of CSR by demonstrating its potential positive impact on business economic outcomes seems to be a dead end in which the original concept of CSR is stuck. The possibility of solving the impasse lies in reversing our thinking about preference ordering. This is pointed out by many CSR researchers. New concepts are emerging (e.g. Porter and Kramer’s CSV idea or Hausner’s company-idea) that reject the

mistakes of CSR 1.0 and the unsatisfactory proposals of CSR 2.0. It is also important to realise that the utilitarian approach to the idea of corporate social responsibility should be rejected. Turning our attention to the potential of the ethics of care, which approaches issues of ethical relations differently from traditional systems, can bring about the desired results.

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THE MICRO SPATIAL DIVERSITY OF THE LEVEL OF ENTREPRENEURSHIP IN A PERIPHERAL REGION

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Purpose: The aim of the paper is to identify the degree of diversity of entrepreneurship at the micro spatial level in a peripheral region.

Design/methodology/approach: The paper is based on a quantitative approach. Hellwig's linear ordering method was used to test the research hypotheses. The analysis is based on data from the Bank of Local Data of the Central Statistical Office for all of the 71 municipalities (NUTS-5) from the Opolskie Voivodeship, Poland, for the years 2015, 2020 and 2022.

Findings: The results of ranking municipalities on the basis of the Hellwig's aggregate measure, the classification of municipalities according to their level of entrepreneurship and the analysis of micro spatial distribution of this level in the region provide evidence that entrepreneurship varies in a peripheral region, with the level of entrepreneurship likely to shift between within a short time span.

Research limitations/implications: Although the paper provides an insight into the degree of diversity of entrepreneurship at the micro spatial level in a peripheral region, it is limited to data from certain years. Therefore, it may not allow to observe plausible changes in the level of entrepreneurship that may occur over time. In order to provide more comprehensive insights, further analysis should be done using a dynamic approach, based on data covering the entire period 2015-2022. In addition, the results of the ranking are likely to be sensitive to the variables used to construct the Hellwig's aggregate measure. It is therefore advisable to test the hypothesis with different sets of variables. It would also be interesting to examine the extent to which the level of entrepreneurship is determined by the regional micro-spatial distribution of factors affecting entrepreneurial activity.

Practical implications: The results for a peripheral region can provide a basis for practitioners and policy-makers to develop and implement solutions for a type-specific entrepreneurial policy across micro-spatial locations.

Originality/value: The article contributes to the recent literature on regional entrepreneurship by exploring the ways in which entrepreneurship is different in a micro-spatial peripheral environment.

Keywords: micro spatial diversity, level of entrepreneurship, peripheral region, Hellwig's linear ordering method.

Category of the paper: Research paper.

1. Introduction

Entrepreneurship has become an important driver of economic growth (Urbano et al., 2020) through its impact on innovation and job creation (Carree, Thurik, 2008). Thus, the development of countries and regions was found to be closely linked to their ability to foster entrepreneurship (Audretsch, Keilbach, 2004). The level of entrepreneurship depends strongly on a number of factors that facilitate entrepreneurship, with some regions being more conducive to the creation and growth of new businesses than others (Mueller et al., 2008; Malecki, 2009). Previous research argued that regional differences in entrepreneurial activity are remarkably persistent over time (Fritsch, Wyrwich, 2014; Pylak, Sosnovskikh, 2024), opening up a debate about the diversity of national and regional contexts and types of entrepreneurship to promote or not.

However, while most studies focus on developed regions and country-level data, there is a consensus that there is still a lack of comprehensive evidence on the extent to which entrepreneurship may differ in a peripheral region. In particular, little is known about how it varies at the micro spatial level. This seems particularly important for entrepreneurship and business support policies and the need to tailor such policies to the local business environment. Therefore, this paper aims to fill this gap by identifying the degree of diversity of entrepreneurship at the micro spatial level in a peripheral region. To achieve this goal, Hellwig's linear ordering method was applied to data from the Bank of Local Data of the Central Statistical Office for all of the 71 municipalities (NUTS-5) from the Opolskie Voivodeship, Poland, for the years 2015, 2020 and 2022.

The article contributes to the ongoing debate on regional entrepreneurship by examining how entrepreneurship differs in a micro spatial peripheral setting. The findings suggest that geographical location is important for the entrepreneurship at the micro spatial level. It also provides evidence that, over a relatively short time span, there are differences in the degree to which particular municipalities in a peripheral region have been entrepreneurial.

The remaining paper is organised as follows. The next section is a review of the literature and development of the research hypothesis. In the next sections the research methodology is described and the results and the discussion are presented. Concluding remarks and suggestions for future research are given in the last section.

2. Literature review

While there is an established literature on entrepreneurship in developed regions, with a strong focus on knowledge spillovers and innovation as drivers of new firm creation and

development (Acs et al., 2013), there is a smaller but growing focus on peripheral regions (Zygmunt, 2018; Urbano et al., 2020; Miłek, 2023). However, given that each region has specific characteristics regarding its innovative capacity (Zygmunt, 2022), which affect economic growth in different ways, this can significantly determine the level of entrepreneurship. This seems to be particularly relevant for peripheral regions, which often lack knowledge-generating organisations and well-developed networks of knowledge providers (García-Rodríguez et al., 2016) and need to seek resources and capabilities to stimulate entrepreneurship to support economic development. This may be especially important as the motivation for entrepreneurship in the periphery tends to be based on needs rather than opportunities, due to the lack of significant alternative employment (Meccheri, Pelloni, 2006). As necessity entrepreneurs are, as Bergmann and Sternberg (2007) emphasise, ‘pushed into entrepreneurship’ (p. 39), they often have access to fewer capital and knowledge-based resources, which is likely to reduce the success of the venture and consequently have less impact on the economic development of the region (Bergmann, Sternberg, 2007). It is also argued that when entrepreneurial advantages are created in such lagging regions, they tend to be short-lived (Benneworth, 2004), with most talented entrepreneurs vulnerable to out-migration to more developed regions (Kaufmann, Malul, 2014), which can lead to a deepening of peripherality.

In peripheral regions, as in more developed ones, there may be a tendency for entrepreneurship to become spatially concentrated, leading to varying levels of entrepreneurship. This may be because regions are often not internally homogeneous, with varying rates of entrepreneurship determinants such as human capital, growth motivation, and locational conditions like the level of competition or the density of local industry (Huggins et al., 2017). Indeed, as Ortega-Argiles (2022) observed for several developed and developing European countries, all of them face interregional differences in entrepreneurship, albeit to varying degrees. It may depend on whether a region is urban, rural or urban-rural. Although it is argued that rurality does not necessarily imply peripherality (Baumgartner et al., 2013), there is some evidence that rural areas are often peripheral and that building rural entrepreneurial capacity is needed to positively influence entrepreneurship levels (North, Smallbone, 2006), as such regions frequently suffer from structural problems and are constrained by a weak socio-economic environment, distance from markets and knowledge, and an ageing population (Pato, Teixeira, 2016). On the other hand, there may be an ‘agglomeration effect’ associated with urban areas, related to the spatial concentration of richer network linkages, a wider range of business services and industrial density, and the diffusion of knowledge (Acs, Varga, 2005). Urban areas may therefore exhibit higher levels of entrepreneurship. Given that the regional spatial context can be a constraint or a facilitator of entrepreneurial activity, it can be argued that location plays an important role in entrepreneurship. This may indicate differences in the level of entrepreneurship within a peripheral region at the micro spatial level. Therefore, it can be hypothesised:

H1: The level of entrepreneurship varies at the micro spatial level in a peripheral region.

3. Methods

A quantitative approach was used to identify the degree of diversity of entrepreneurship at the micro spatial level in a peripheral region. This approach was widely used in previous studies on entrepreneurship in regions (Korber, McNaughton, 2018; Sternberg, 2022), as it allows to precisely capture the characteristics of individuals or groups and to describe the phenomenon numerically (Stockemer, 2019).

A key issue to be addressed in research on the level of entrepreneurship is the ambiguity of how it should be measured. This is due to the complexity of entrepreneurship and, consequently, the different ways in which it can be conceptualised (Ferreira et al., 2019). As the level of entrepreneurship can be represented by a number of heterogeneous variables, Hellwig's linear ordering method was used to test the research hypothesis in order to avoid undercoverage and self-selection bias. This method makes it possible to provide a single aggregate measure of the level of entrepreneurship as a synthetic representation of several features describing an object (Bał, 2018) and orders the objects according to the phenomenon under study (Malina, 2020), and was used in previous research on entrepreneurship in regions (Jaśkiewicz, 2020). Such an aggregate measure is obtained by determining the distance between the reference object and the observed objects for data from each year separately, and is calculated as follows (Hellwig, 1968):

$$d_{i0} = \sqrt{\sum_j^m (z_{ij} - z_{0j})^2} \quad (1)$$

where:

d_{i0} – the distances of the objects from the reference object ($i = 1, \dots, n$),

z_{ij} – the standardised value of the j -th variable for the i -th object ($i = 1, \dots, n; j = 1, \dots, m$),

z_{0j} – the coordinates of the reference object ($j = 1, \dots, m$).

In order to calculate the standardised value of the j -th variable for the i -th object, the following formula was used:

$$z_{ij} = \frac{x_{ij} - \bar{x}_j}{s_j} \quad (2)$$

where:

x_{ij} – the value of the j -th variable for the i -th object,

\bar{x}_j – arithmetic mean of the observations of the j -th variable,

s_j – standard deviation of observations of the j -th variable.

The coordinates of the reference object were determined on the basis of the following formula:

$$z_{0j} = \begin{cases} \max_i\{z_{ij}\} & \text{for the stimulant variables} \\ \min_i\{z_{ij}\} & \text{for the destimulant variables} \end{cases} \quad (3)$$

The aggregate measure was established using the following formula:

$$q_i = 1 - \frac{d_{i0}}{\bar{d}_0} \quad (4)$$

where:

q_i – the aggregate measure,

$d_0 = \bar{d}_0 - 2s_d$, where: \bar{d}_0 – arithmetic mean of the distances of the objects from the reference object; s_d – standard deviation of the distance between the objects and the average distance from the reference object,

other as described above.

It is assumed that $q_i \in [0; 1]$, where $\max\{q_i\}$ indicates the highest similarity to the reference object and $\min\{q_i\}$ indicates the lowest similarity to the reference object. If an object is very different from the others, q_i can be outside $[0; 1]$ (Malina, 2020). On the basis of q_i , a ranking of the objects can be made, where the highest position indicates the best objects in terms of the phenomenon under study.

The aggregate measure can be used to group objects into classes of similar level, based on the following criteria (Nowak, 1990):

the highest level: $q_i \geq \bar{q}_i + s_{q_i}$,

high level: $\bar{q}_i \leq q_i < \bar{q}_i + s_{q_i}$,

moderate level: $\bar{q}_i - s_{q_i} \leq q_i < \bar{q}_i$,

low level: $\bar{q}_i < q_i < \bar{q}_i - s_{q_i}$

where:

\bar{q}_i – arithmetic mean of q_i ,

s_{q_i} – standard deviation of q_i ,

other as described above.

The hypothesis was tested using data from the Polish Central Statistical Office's Local Data Bank for the years 2015, 2020 and 2022. The choice of years for the study was purposeful, in order to consider the most recent situation (2022), to include the period of the COVID-19 pandemic (2020), and to allow the assessment of changes in the studied population in the long term (2015). The focus on the Opolskie Voivodeship provides an interesting research context, as it is the smallest of the 16 voivodeships in Poland in terms of population and area. It is one of the voivodships with a low gross domestic product per capita and, according to the Polish

Central Statistical Office, one of the fastest depopulating regions in Poland. It covers 71 municipalities (NUTS-5), including 3 urban, 35 rural, and 32 urban-rural.

The following variables were used to construct the aggregate measure of the level of entrepreneurship (Table 1).

Table 1.

Synthesis of variables describing the level of entrepreneurship

Variable	Description	Nature
X1	Enterprises registered in the REGON registry per 10 000 inhabitants	Stimulant
X2	Enterprises per 1 000 working age population	Stimulant
X3	Enterprises newly registered in the REGON registry per 10 000 inhabitants	Stimulant
X4	Newly registered enterprises in the private sector of the national economy per 10 000 inhabitants	Stimulant
X5	Newly registered enterprises per 10 000 working age population	Stimulant
X6	Enterprises deregistered from the REGON registry per 10 000 inhabitants	Destimulant
X7	Individuals with economic activity per 10 000 inhabitants	Stimulant
X8	Sole proprietors per 100 working age population	Stimulant
X9	Sole proprietors newly registered and deregistered from the REGON registry	Stimulant
X10	Share of deregistered enterprises in the total number of enterprises registered in the REGON registry	Destimulant
X11	Share of newly registered enterprises in the creative sector in the total number of newly registered enterprises	Stimulant

Source: Own elaboration based on Local Data Bank.

4. Results and Discussion

Descriptive statistics of the variables are presented in Table 2.

Table 2.

Descriptive statistics

Variable	Mean	St. dev.	Min	Max
X1	909.43	226.58	517	1849
X2	147.50	40.63	76.2	317.7
X3	58.22	16.27	24	122
X4	53.83	14.87	23	100
X5	94.53	27.91	37	211
X6	40.22	16.56	12	94
X7	690.69	159.84	375	1180
X8	11.19	2.86	5.77	20.28
X9	154.10	60.56	61.5	425
X10	4.53	1.80	1.6	11.2
X11	5.31	3.53	0	16.67

Source: Own calculation.

In order to confirm the discriminatory ability of the variables the coefficient of variation was used. For all variables, this was greater than 10%, indicating that the variables had adequate discriminatory ability. A correlation matrix between the variables was also calculated for each year analysed. This was done to check for strong collinearity between the variables. It was necessary to eliminate some of variables due to the strong correlation between them (Pearson correlation coefficient > 0.7). Therefore, the following variables were considered for further analysis: X3 – enterprises newly registered in the REGON registry per 10 000 inhabitants, X6 – enterprises deregistered from the REGON registry per 10 000 inhabitants, X9 – sole proprietors newly registered and deregistered from the REGON registry, X10 – share of deregistered enterprises in the total number of enterprises registered in the REGON registry, X11 – share of newly registered enterprises in the creative sector in the total number of newly registered enterprises.

The results of the calculation of the aggregate measure and the categorisation of municipalities according to the level of entrepreneurship in the respective years are presented in Table 3.

Table 3.

Ranking of municipalities according to Hellwig's aggregate measure in 2015, 2020 and 2022

NUTS-5 code	Municipalities	2015		2020		2022	
		No.	q_i 2015	No.	q_i 2020	No.	q_i 2022
1611073	Opole	1	0.61	14	0.35	3	0.47
1609042	Komprachcice	2	0.46	40	0.24	24	0.32
1601011	Brzeg	3	0.44	45	0.22	26	0.31
1609032	Dobrzeń Wielki	4	0.42	46	0.22	33	0.26
1611063	Zawadzkie	5	0.42	65	0.05	55	0.16
1608023	Gorzów Śląski	6	0.42	27	0.30	62	0.12
1601022	Skarbimierz	7	0.39	18	0.34	50	0.20
1601052	Lubsza	8	0.36	13	0.35	21	0.33
1603062	Reńska Wieś	9	0.34	1	0.46	63	0.10
1608072	Zębowice	10	0.33	9	0.38	61	0.13
1603052	Polska Cerekiew	11	0.32	71	-0.05	54	0.17
1608013	Dobrodzień	12	0.31	3	0.41	38	0.23
1609073	Niemodlin	13	0.31	6	0.40	16	0.35
1604013	Byczyna	14	0.30	64	0.06	51	0.19
1610032	Prudnik	15	0.30	49	0.22	44	0.21
1605023	Krapkowice	16	0.30	25	0.30	22	0.33
1608033	Olesno	17	0.30	12	0.35	3	0.42
1609122	Tułowice	18	0.27	29	0.29	11	0.38
1611053	Ujazd	19	0.27	11	0.36	53	0.18
1606012	Domaszowice	20	0.27	48	0.22	56	0.16
1609112	Tarnów Opolski	21	0.26	5	0.40	43	0.21
1609103	Prószków	22	0.25	21	0.33	2	0.56
1602043	Kietrz	23	0.25	50	0.21	68	0.06
1609132	Biała	24	0.25	58	0.13	59	0.15
1608043	Praszka	25	0.25	17	0.34	49	0.20
1605013	Gogolin	26	0.24	38	0.24	30	0.27
1602033	Głubczyce	27	0.23	24	0.32	52	0.19
1609012	Chrzastowice	28	0.21	23	0.32	8	0.41

Cont. table 3.

1603042	Pawłowiczki	29	0.21	66	0.03	67	0.06
1609052	Łubniany	30	0.21	15	0.35	12	0.37
1607063	Otmuchów	31	0.21	32	0.28	18	0.33
1602022	Branice	32	0.21	59	0.11	17	0.34
1609092	Popielów	33	0.21	41	0.24	28	0.29
1604023	Kluczbork	34	0.20	19	0.33	9	0.39
1609062	Murów	35	0.20	70	-0.02	31	0.26
1606052	Wilków	36	0.20	53	0.17	69	0.01
1606023	Namysłów	37	0.20	34	0.27	45	0.20
1607073	Paczków	38	0.20	42	0.23	48	0.20
1604043	Wolczyn	39	0.20	44	0.23	34	0.25
1609022	Dąbrowa	40	0.20	57	0.14	25	0.31
1608062	Rudniki	41	0.20	26	0.30	1	0.57
1603011	Kędzierzyn-Koźle	42	0.19	39	0.24	37	0.24
1609123	Turawa	43	0.19	52	0.19	4	0.46
1610043	Izbicko	44	0.19	60	0.11	71	-0.06
1607053	Nysa	45	0.19	20	0.33	19	0.33
1603032	Cisek	46	0.18	55	0.15	20	0.33
1605053	Zdzieszowice	47	0.18	54	0.17	47	0.20
1601062	Olszanka	48	0.18	2	0.44	36	0.24
1608052	Radłów	49	0.17	33	0.27	65	0.07
1611043	Strzelce Opolskie	50	0.17	30	0.28	42	0.22
1611012	Jemielnica	51	0.17	37	0.25	32	0.26
1604032	Lasowice Wielkie	52	0.16	56	0.14	70	-0.02
1601043	Lewin Brzeski	53	0.16	10	0.37	41	0.22
1605032	Strzeleczyki	54	0.16	31	0.28	27	0.29
1601033	Grodków	55	0.16	47	0.22	29	0.28
1607042	Łambinowice	56	0.15	63	0.06	40	0.22
1603022	Bierawa	57	0.14	22	0.32	66	0.07
1609083	Ozimek	58	0.14	16	0.34	35	0.25
1610023	Lubrza	59	0.13	61	0.10	60	0.14
1611022	Kolonowskie	60	0.13	28	0.29	64	0.09
1610013	Głogówek	61	0.11	51	0.21	7	0.41
1611033	Leśnica	62	0.11	7	0.39	10	0.38
1605042	Walce	63	0.10	8	0.38	14	0.36
1607092	Skoroszyce	64	0.09	43	0.23	23	0.32
1607033	Korfantów	65	0.09	69	-0.02	15	0.35
1607082	Pakosławice	66	0.07	35	0.27	13	0.36
1606042	Świerczów	67	0.07	68	0.00	6	0.42
1602013	Baborów	68	0.07	67	0.03	57	0.15
1607013	Głuchołazy	69	0.03	36	0.25	46	0.20
1607022	Kamiennik	70	0.00	4	0.41	47	0.15
1606032	Pokój	71	-0.01	62	0.09	39	0.22

Note: No. - number of municipality in the ranking.

Source: Own calculation.

Based on the results, it can be concluded that there is a high degree of spatial diversity in the level of entrepreneurship in Opolskie municipalities in the years considered. Moreover, the results allow to conclude that a significant number of municipalities were characterised by a large variability in maintaining similar positions in the ranking in relation to other years considered in the study. This is particularly noticeable in the case of Grodków, Leśnica and Walce, for which the changes were the most significant. For a number of municipalities, including Zawadzkie and Skarbimierz, a worsening position was observed in terms of the level

of entrepreneurship. On the other hand, a positive change, which is expressed in a rising position in the ranking, was observed in the municipalities of Skoroszyce and Pakosławice. Based on the research, it was also observed that, despite the significant fluctuations in the rankings in given years, a few municipalities maintain a stable position regarding the level of entrepreneurship compared to other municipalities in the Opolskie Voivodeship. These include, above all, Kędzierzyn-Koźle, Zdieszowice and Lubrza. The results of the research also allow an interesting observation to be made about the voivodeship capital (Opole), which as an agglomeration brings together academic centres, business incubators and technology park. More specifically, it was observed that this municipality ranked high in terms of entrepreneurship in each of the years analysed, but interestingly, during the pandemic, its position dropped significantly in favour of other municipalities, even those with less developed infrastructure to support entrepreneurship.

The above classification of municipalities for the respective years allows to derive how entrepreneurship changed at the micro level in the peripheral region. However, it does not provide a direct indication of the exact level of entrepreneurship. For this reason, municipalities were classified into four groups with similar levels of entrepreneurship: highest, high, moderate and low (Table 4).

Table 4.

Classification of the municipalities according to the level of entrepreneurship

Group	2015	2020	2022
the highest level of entrepreneurship	Opole, Komprachcice, Brzeg, Dobrzeń Wielki, Zawadzkie, Gorzów Śląski, Skarbimierz, Lubsza, Reńska Wieś, Zębowice	Reńska Wieś, Olszanka, Dobrodzień, Kamiennik, Tarnów Opolski, Niemodlin, Leśnica, Walce, Zębowice, Lewin Brzeski	Rudniki, Prószków, Opole, Turawa, Olesno, Świerczów, Głogówek, Chrzastowice, Kluczbork, Leśnica, Tułowice
high level of entrepreneurship	Polska Cerekiew, Dobrodzień, Niemodlin, Byczyna, Prudnik, Krapkowice, Olesno, Tułowice, Ujazd, Domaszowice, Tarnów Opolski, Prószków, Kietrz, Biała, Praszka, Gogolin, Głubczyce	Ujazd, Olesno, Lubsza, Opole, Lubniany, Ozimek, Praszka, Skarbimierz, Kluczbork, Nysa, Prószków, Bierawa, Chrzastowice, Głubczyce, Krapkowice, Rudniki, Gorzów Śląski, Kolonowskie, Tułowice, Strzelce Opolskie, Strzeleczy, Otmuchów, Radłów, Namysłów, Pakosławice, Głuchołazy, Jemielnica, Gogolin, Kędzierzyn-Koźle	Lubniany, Pakosławice, Walce, Korfantów, Niemodlin, Branice, Otmuchów, Nysa, Cisek, Lubsza, Krapkowice, Skoroszyce, Komprachcice, Dąbrowa, Brzeg, Strzeleczy, Popielów, Grodków, Gogolin, Murów, Jemielnica, Dobrzeń Wielki, Wołczyn

Cont. table 4.

moderate level of entrepreneurship	Chrzastowice, Pawłowiczki, Łubniany, Otmuchów, Branice, Popielów, Kluczbork, Murów, Wilków, Namysłów, Paczków, Wołczyn, Dąbrowa, Rudniki, Kędzierzyn-Koźle, Turawa, Izbicko, Nysa, Cisek, Zdieszowice, Olszanka, Radłów, Strzelce Opolskie, Jemielnica, Lasowice Wielkie, Lewin Brzeski, Strzeleczyki, Grodków, Łambinowice, Bierawa, Ozimek, Lubrza, Kolonowskie	Komprachcice, Popielów, Paczków, Skoroszyce, Wołczyn, Brzeg, Dobrzeń Wielki, Grodków, Domaszowice, Prudnik, Kietrz, Głogówek, Turawa, Wilków, Zdieszowice, Cisek, Lasowice Wielkie, Dąbrowa, Biała	Ozimek, Olszanka, Kędzierzyn-Koźle, Dobrodzień, Pokój, Łambinowice, Lewin Brzeski, Strzelce Opolskie, Tarnów Opolski, Prudnik, Namysłów, Głucholazy, Zdieszowice, Paczków, Praszka, Skarbimierz, Byczyna, Głubczyce, Ujazd, Polska Cerekiew, Zawadzkie, Baborów, Domaszowice, Kamiennik, Biała, Lubrza, Zębówice
low level of entrepreneurship	Głogówek, Leśnica, Walce, Skoroszyce, Korfantów, Pakosławice, Świerczów, Baborów, Głucholazy, Kamiennik, Pokój	Branice, Izbicko, Lubrza, Pokój, Łambinowice, Byczyna, Zawadzkie, Pawłowiczki, Baborów, Świerczów, Korfantów, Murów, Polska Cerekiew	Gorzów Śląski, Reńska Wieś, Kolonowskie, Radłów, Bierawa, Pawłowiczki, Kietrz, Wilków, Lasowice Wielkie, Izbicko

Source: Own elaboration.

The classification of municipalities according to their level of entrepreneurship confirms earlier observations about its variability in the respective years. However, only a few of the municipalities remained at the same level of entrepreneurship. The results also suggest that the size of the groups of municipalities with a very high level of entrepreneurship and those with a low level of entrepreneurship is relatively stable in each year analysed, with considerable intra-group diversity. Interestingly, based on the results of the study, it can be noted that during the pandemic, a greater number of municipalities met the high level of entrepreneurship criterion than in the pre- and post-pandemic periods, which may indicate a strong persistence or resilience of entrepreneurial activity, although the generalisability of this conclusion requires further studies.

In terms of municipality type (urban, rural, urban-rural), the results show that in 2015 most urban had the highest level of entrepreneurship, while the largest group of rural municipalities (56%) was moderately entrepreneurial. It was also observed that a similar number of rural and urban-rural municipalities (17% and 16% respectively) exhibited the lowest level of entrepreneurship in Opolskie Voivodeship. For 2020, a decrease in the level of entrepreneurship in urban municipalities was observed, while the share of rural municipalities in the group of municipalities with a high level of entrepreneurship increased significantly (from 11% in 2015 to 31%). At the same time, however, a quarter of these municipalities were characterised by a low level of entrepreneurial activity. The upward trend in the level of entrepreneurship in rural municipalities continued in 2022, while the level of entrepreneurship in urban-rural municipalities decreased (from 50% in 2020 to 25%). Nevertheless, the share of these

municipalities in the group of least entrepreneurial municipalities continues to decrease (from 16% in 2015 to 9% in 2022).

A spatial illustration of the levels of entrepreneurship for the respective years is shown in Figures 1-3.

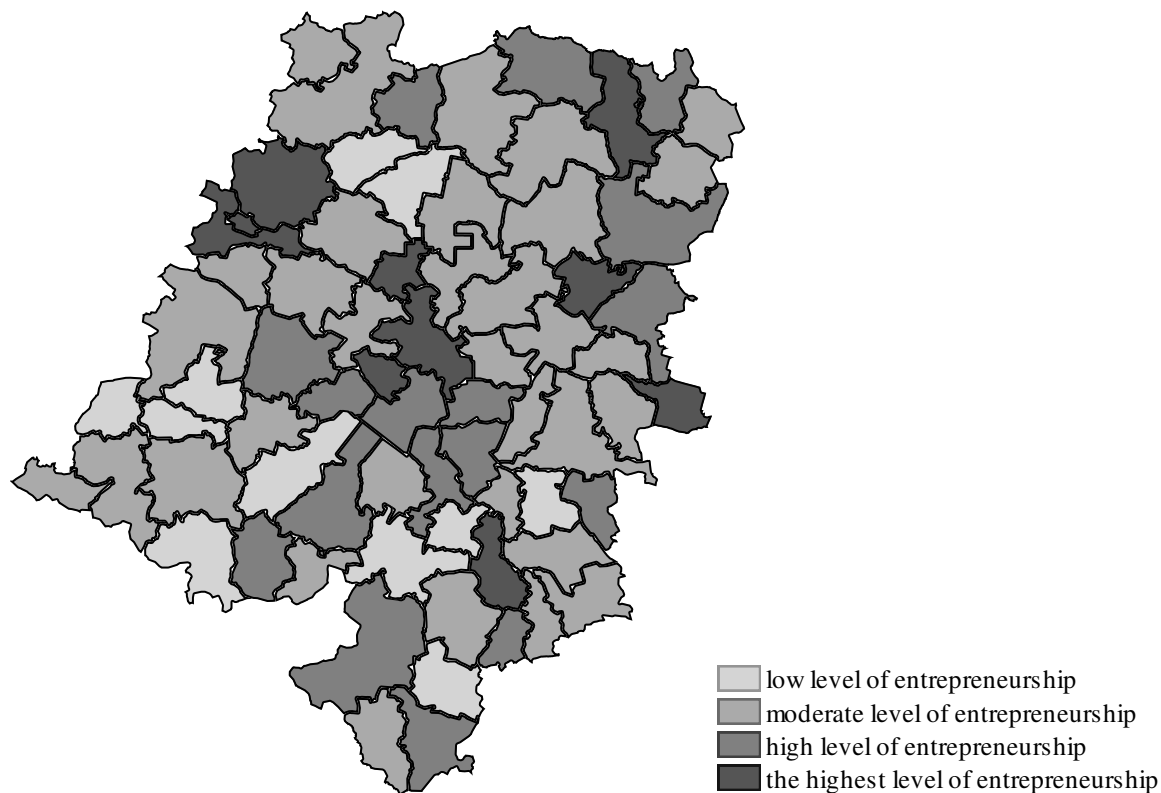


Figure 1. Spatial structure of the level of entrepreneurship in the Opole Voivodeship in 2015.

Source: own elaboration.

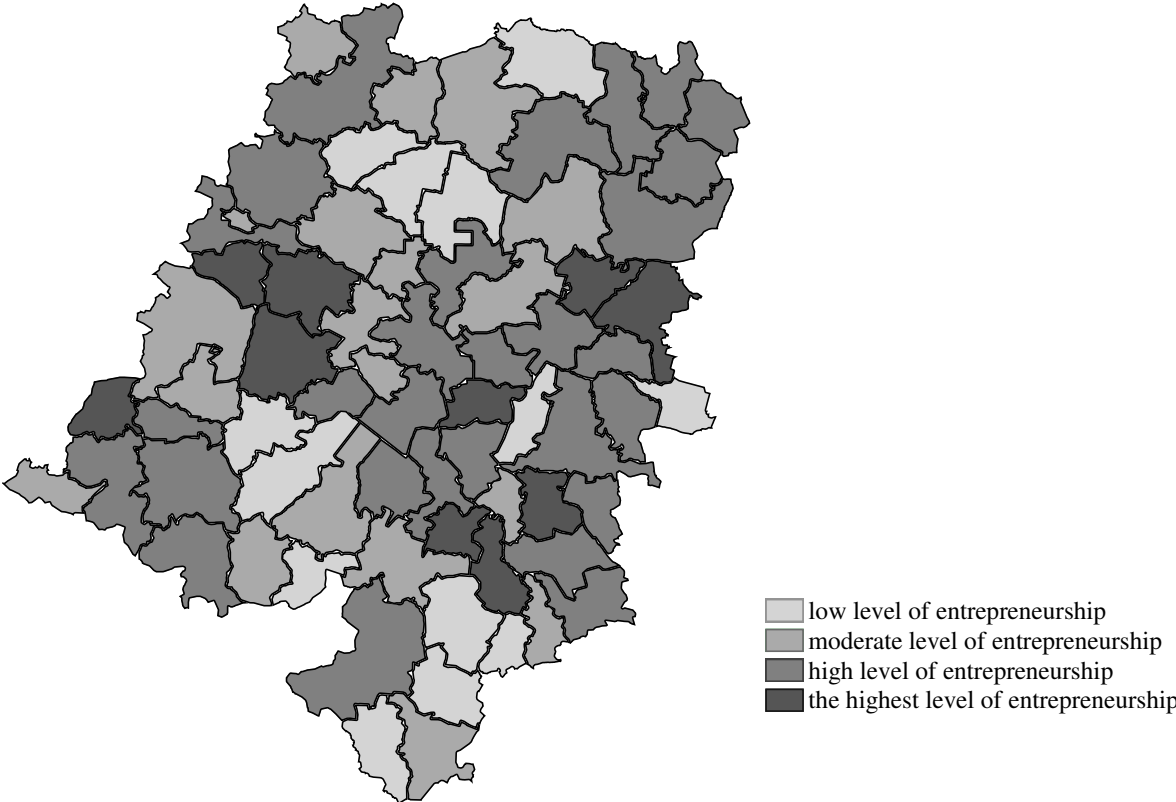


Figure 2. Spatial structure of the level of entrepreneurship in the Opole Voivodeship in 2020.
Source: own elaboration.

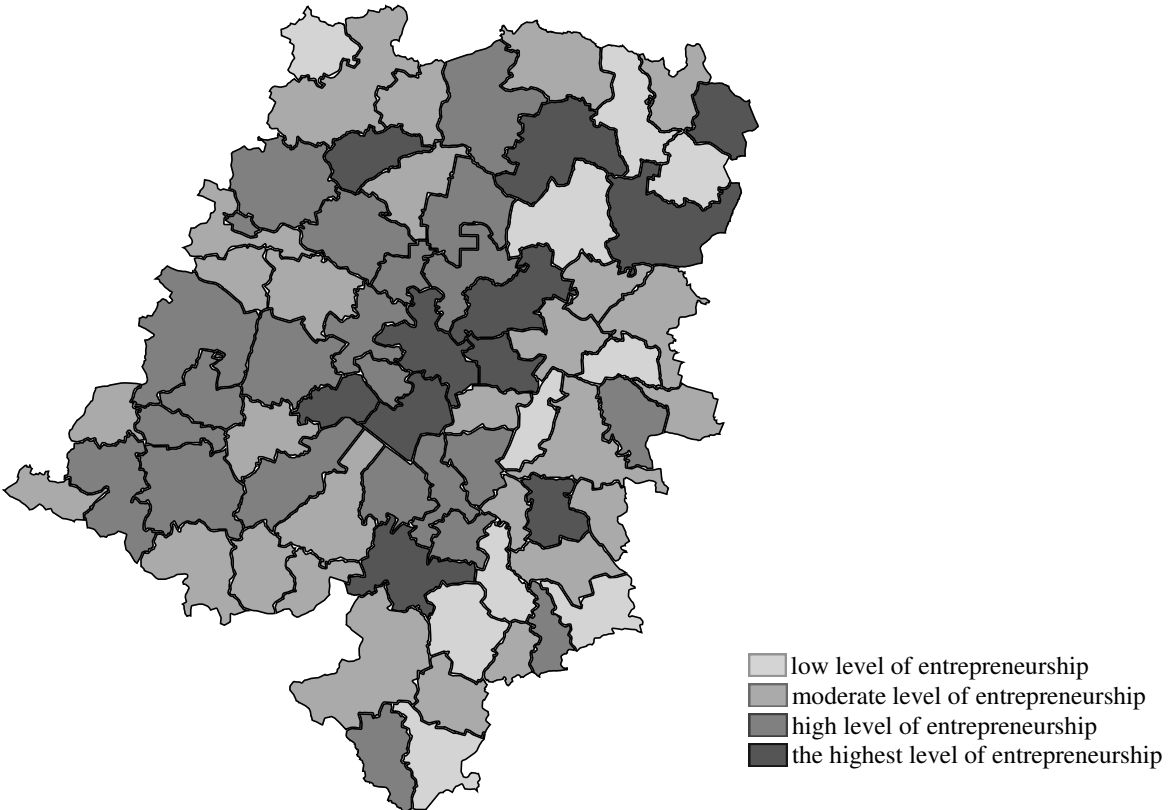


Figure 3. Spatial structure of the level of entrepreneurship in the Opole Voivodeship in 2022.
Source: own elaboration.

The results confirm previous evidence of significant micro-level spatial diversity of entrepreneurship in Opolskie Voivodeship. It was observed that entrepreneurial activity in 2015 was concentrated around large cities. However, the highest levels of entrepreneurship were also found in selected municipalities that were not close to these cities. This was particularly the case in the eastern part of the voivodeship, where most of the municipalities with high levels of entrepreneurship were located. The results for 2020 show a change in the spatial structure, with the centre of gravity in terms of the level of entrepreneurial activity shifting towards municipalities in the eastern and southern part of the region. The results for 2022 are in line with this trend, with a significant decrease in the level of entrepreneurship in municipalities from the eastern part of the province. There is also an increase in entrepreneurship in the municipalities around the region's capital.

Based on the results of the ranking of municipalities according to Hellwig's aggregate measure, the classification of the municipalities according to the level of entrepreneurship analysis, and the analysis of the spatial structure of this level in the Opole Voivodeship, it can be argued that the location plays a role in the level of entrepreneurship at the micro spatial level in the periphery. It was also observed that this level is likely to change to varying extents (i.e. rising/declining entrepreneurship in a given municipality). Hypothesis 1 is therefore confirmed. The findings are in line with Huggins et al. (2017), who examined entrepreneurship in peripheral areas in the case of Wales in the UK and provided evidence of its heterogeneous nature. However, given the relatively short time span between years considered in the study, the results are difficult to compare with those that look at much longer periods and claim that regional differences in entrepreneurial activity are remarkably persistent over time (Fritsch, Wyrwich, 2014; Pylak, Sosnovskikh, 2024). In addition, the lack of an apparent link between the level of entrepreneurship and the type of location (urban, rural, urban-rural) in the peripheral region may indicate the minor importance of the supporting role of industrial density or agglomeration. At the same time, it provides evidence that less developed areas in peripheral regions, such as rural areas, have the capacity to develop entrepreneurial activity, confirming the observations of North and Smallbone (2006) that rural areas, including peripheral ones, can have a significant tradition of entrepreneurship.

5. Summary

The aim of the paper was to identify the degree of diversity of entrepreneurship at the micro spatial level in a peripheral region. Based on data for municipalities from the Opole Voivodeship, Poland for the years: 2015, 2020 and 2022, it has been demonstrated that, as hypothesised, geographical location matters in terms of the level of entrepreneurship at the micro spatial level. However, it was found that the degree to which particular municipalities in

a peripheral region were entrepreneurial varied, with a number of municipalities experiencing a sharp decline in the level of entrepreneurship in some years.

By exploring the ways in which entrepreneurship differs in a micro-spatial peripheral setting, the paper adds to the recent literature on regional entrepreneurship. It may also provide a basis for practice and policy for the development and implementation of type-specific regional entrepreneurial policy at the micro spatial level.

The paper has some limitations. Although it allows to identify the position of municipalities in terms of their level of entrepreneurship in each year considered, it has the character of a static approach, looking at data from each year separately and not taking into account data from other years. Further analysis should be carried out using a dynamic approach, considering data from all years over the period considered, in order to gain more comprehensive insights. It should also be acknowledged that the results of the ranking may be highly sensitive to the variables used to construct the aggregate measure. Further hypothesis testing with different sets of variables is therefore recommended. It would also be interesting to examine the extent to which the level of entrepreneurship is determined by the regional distribution of the factors which influence entrepreneurial activity in the municipalities analysed.

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