

# 12<sup>th</sup> INTERNATIONAL CONFERENCE ON MANAGEMENT

"Sustainability - Security - Quality"



Conference co-financed by  
Ministry of Science and Higher Education  
In the frame of the found "Doskonała Nauka"



Ministry of Education and Science  
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**Doskonała  
Nauka**

## Book of Proceedings



Czestochowa 15-16<sup>th</sup> June 2023  
Czestochowa University of Technology, Faculty of Management  
al. Armii Krajowej 19 B, 42-200 Czestochowa

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e-ISBN 978-83-7193-956-3

DOI: 10.17512/CUT/9788371939563

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Częstochowa 2023

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The Publishing Office of Czestochowa University of Technology  
Poland, 42-200 Częstochowa, al. Armii Krajowej 36 B  
Editorial Team, phone 34 325 04 80, Distribution, phone 34 325 03 93  
e-mail: [wydawnictwo@pcz.pl](mailto:wydawnictwo@pcz.pl), [www.wydawnictwo.pcz.pl](http://www.wydawnictwo.pcz.pl)

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## **PREFACE**

These proceedings represent the work of researchers participating in the 12<sup>th</sup> INTERNATIONAL CONFERENCE ON MANAGEMENT entitled "Sustainability-Security-Quality" (ICoM 2023) which was hosted by Czestochowa University of Technology, Faculty of Management, Czestochowa, Poland on 15-16<sup>th</sup> June 2023. ICoM is the result of cooperation of four universities from the following Central and Eastern European countries: Poland, Hungary, Slovakia, Czech Republic.

ICoM is a recognised event on the international research conferences calendar and provides a valuable platform for individuals to present their research findings, display their work in progress and discuss advances in the area of Management Studies domain. It provides an important opportunity for researchers and practitioners to come together to share their experiences in this varied and expanding field.

Research papers published in these Conference Proceedings also include articles of PhD Students as ICoM provides opportunities for young scientists to develop their scientific and presentation skills. The conference papers truly represent global research in the field, with contributions from countries such as: Albania, Brazil, China, the Czech Republic, France, Germany, Hungary, India, Kazakhstan, Lithuania, Poland, Romania, Slovakia, Spain, Syria, Turkey, Ukraine, USA, Uzbekistan and others.

All papers have gone through the process of blind review with the help of international group of reviewers. It should be mentioned that the authors of the submitted papers are responsible for the level of English language used in the prepared papers, fulfilling the editing requirements and responding to the reviewers' comments.

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## **ORGANIZATION OF FINANCIAL MANAGEMENT OF ENTERPRISES**

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**Abstract:** The main points of the organization of financial management in enterprises are considered. As you know, financial management in an enterprise is a separate area of activity that is associated with the management of financial relations, financial resources and their sources. At the same time, in the context of the overall management of the organization, this type of activity ensures the coordination and financial support of the decisions made aimed at achieving the strategic and operational goals of the enterprise.

**Key words:** financial management, enterprise, capital, financial resources, IT.

### **Introduction**

Financial management is necessary for large, medium and small businesses. A well-thought-out cash management system helps to spend them with the greatest benefit for the development of the company and profit growth. The role of the financial director is multifaceted: every day he has to solve a wide variety of tasks. Therefore, higher requirements are placed on his competence.

### **Theoretical aspects of research work**

Speaking very simply, financial management can be defined as a system of activities aimed at:

- formation of the organization's capital;
- distribution of financial resources in such a way that they bring maximum income.

From this definition, it is easy to understand what an important role the financial management system plays in any company. To start a business successfully, you need money, and subsequent activities are justified only when they make a profit. Without a well-thought-out cash management strategy, it is easy to lead a company to bankruptcy - not to mention the impossibility of increasing market value and gaining a leadership position in the market. So the success and competitiveness of the business directly depend on the quality of financial management. We can say that this is the main aspect of enterprise management.

The functions of financial management are as follows:

An increase in the company's profit, that is, the proceeds from the sale of goods or services must consistently exceed their cost. To solve this problem, it is necessary, in particular, to competently manage current and non-current assets.

Ensuring the growth of the market value of the enterprise. This indicator is influenced by many factors, including the demand for manufactured products / services, the ability of the business to generate income, the liquidity of the company's assets. You can also increase the market value through skillful investment.

Bankruptcy prevention and reduction of financial risks. No business is immune from unforeseen situations, but the correct organization of financial management helps to minimize the likelihood of losses. The task is solved in several stages: it is necessary to identify risks, assess the possible consequences of their implementation, develop a plan to prevent negative events or reduce damage if they occur.

**Reducing costs.** Significant cost reductions can be achieved through optimization techniques. Thus, competent tax planning helps in a legal way to save on mandatory payments to the state budget.

**Rational distribution of financial resources.** If the company's money is idle, they depreciate, because inflation does not stand still. Therefore, all assets must constantly be useful.

**Strengthening the company's position in the market.** The goals here are determined by the scale of activity: for some, this is leadership in their segment within the region, for others - the development of new areas, for others - entering the international business arena.

## Methodological aspects of research work

Various methods are used to achieve goals and accomplish tasks in the cash management system at the enterprise. A competent financial director knows how to apply them all. Guided by experience and theoretical knowledge, he understands when it is better to resort to which decision - the choice is dictated by a specific situation. Here are the main methods of financial management:

**Planning and forecasting.** In order to rationally manage the company's financial resources, it is necessary to have an accurate idea of how much money is required for business development, for settlements with counterparties, creditors, tax authorities, for ensuring all other needs of the enterprise within a month, quarter, year or more. It is also necessary to understand whether the company's budget has enough own funds or whether additional sources are required. Where to direct money so that it works in the best way is also a matter of financial planning.

Calculations are made on the basis of financial statements and other reliable information. As for forecasting, it pursues the same goals as planning, but uses not exact data, but only assumptions. Forecasts allow you to determine business development trends for the next few years.

**Taxation.** In tax legislation, something is constantly changing, most often not in favor of business. The task of the financial director is to be aware of all innovations and respond quickly to them, otherwise you can unwittingly break the law. But conscientious fulfillment of the obligations of the taxpayer is not all. To lead a business to prosperity, the CFO must know how to optimize taxation and be able to apply them to reduce the company's costs.

**Lending.** The company's own funds are not always enough for the business to develop. But before you take a loan, you need to carefully calculate the prospects and consequences of such a decision.

**Self-financing.** Lending is an auxiliary method that a company resorts to in special cases (when it is necessary to expand production, develop a new market segment, and so on). It is important that the daily needs of the company are met through self-financing. Financial management solutions must ensure the constant availability of own funds in the amount necessary for smooth operation.

**Insurance.** Business cannot exist without risks: they are inevitable even with an impeccably competent management policy. Insurance is one of the most reliable methods of protection against unforeseen losses.

**Pricing.** Errors in setting prices for goods and services are fraught with losses. If the product is unreasonably expensive, this leads to sales problems, if, on the contrary, it is too cheap, the company operates at a loss. Correct pricing requires taking into account many factors, and this falls within the competence of the financial director.

To make managerial decisions in financial management, special approaches are used - concepts. They reflect the understanding of different aspects of enterprise cash management. The concepts of financial management are varied and numerous; Let's look at the main ones.



Cash flow concept. Any financial transaction is associated with the movement of funds - this is either their receipt or expenditure. Accordingly, the flow can be positive and negative. The concept under consideration involves the evaluation of all the operations and assets of the company in terms of the magnitude and direction of the flow that they create.

The concept of market efficiency takes into account the direct dependence of prices for financial instruments (shares and others) on incoming information (politics and economic news, company reports, data from rating agencies, and so on). Thus, the fair value of assets cannot be predicted in advance. The higher the efficiency, the faster the dependence of prices on information is realized and the more difficult it is to "deceive" the market - to sell securities at a higher price or to buy them cheaper than their actual value.

The concept of opportunity spending is that the choice of one or another financial solution most often means the rejection of other options for investing capital. At the same time, the costs of unused opportunities are estimated. The decision is made on the basis of a comparison of opportunity costs: the choice is made in favor of the option that is associated with the least lost profit.

The concept of the relationship between profitability and risk suggests that any method of making a profit carries a certain amount of risk. Moreover, the degree of danger is greater, the higher the expected financial return. Thus, this dependence is directly proportional. The task is to find a compromise between profitability and risk.

## **Analysis and result of research work**

The concepts and methods of financial management of an enterprise are practically implemented using tools, the main of which are:

*Financial analysis and monitoring.* Its essence is in assessing the economic position of the company, its solvency, stability, liquidity, profitability. The analysis is based on the data of the balance sheet, profit and loss statements, and cash flows. Current indicators and information for previous periods are examined. Financial analysis allows you to draw conclusions about business prospects, plan the allocation of resources, determine the need for financing - in a word, make informed and competent decisions.

*Control of currency flows and analysis of currency risk.* Companies holding assets or liabilities in foreign currencies always face risk due to exchange rate fluctuations. Through analysis and control, it is possible to develop an optimal strategy for conducting foreign exchange transactions and minimize possible losses.

*Financial control.* It is necessary in order to track the efficiency of business processes, the execution of budgets, the compliance of actual indicators with the planned ones. Financial control helps to optimize the use of financial resources and reduce costs.

Separately, it should be said about IT solutions as a modern tool for financial management. Automation of business processes saves time, ensures high accuracy of operations, simplifies interaction with customers and partners, and ultimately leads to increased profits. Today, all these goals are achieved with the help of a comprehensive solution - the implementation of ERP systems (software packages for enterprise resource management).

## Conclusion

Thus, financial management means not only managing the company's finances, but also managing them with the aim of achieving success, that is, achieving the goals and objectives of the company and maximizing the value of the organization over time. However, before an organization can manage itself strategically, it first needs to define its goals precisely, quantify its available and potential resources, and develop a concrete plan for using its finances and other capital resources to achieve its goals. It is also important to determine the financial management strategy for the industry category of the organization, to organize the recruitment of personnel for the work of financial management, which will help to ensure that the enterprise regularly records all financial resources.

## Literature

1. Бочарова, О.Ф. Апробация методик оценки вероятности банкротства для организаций АПК / Экономика и предпринимательство. - М.: Редакция журнала "Экономика и предпринимательство", №2(91). - 2018. - с. 810-818.
2. Герасименко, О.А. Стратегический финансовый менеджмент и успех организации / О.А. Герасименко, О.Н. Коломиец // Вектор экономики. - Пермь: ИП Мухин Максим Николаевич, №2(32), 2019. - с.11.
3. Захарян, А.В. Основные направления повышения финансовой устойчивости организаций аграрного сектора экономики Краснодарского края: монография / А.В. Захарян. - Ставрополь: Издательство: Центр научного знания «Логос», 2018. - 93 с.
4. Халяпин, А.А. Направления повышения конкурентоспособности и эффективности деятельности предпринимательских структур АПК Краснодарского края / А.А. Халяпин // Вестник казанского государственного аграрного университета. - Издательство: Казанский государственный аграрный университет (Казань), №4(30), 2013. - с. 43-49.
5. Екимова, К.В. Финансы организаций (предприятий): Учебник / К.В.Екимова, Т.В.Шубина. - М.: НИЦ ИНФРА-М, 2017. - 375 с.
6. Мазурина, Т.Ю. Финансы организаций (предприятий): Учебник / Т.Ю.Мазурина, Л.Г. Скамай, В.С. Гроссу. - М.: НИЦ ИНФРА-М, 2017. - 528 с.
7. Жиянова Н.Э. Финансовые ресурсы предприятий: повышения эффективности их формирования и использования в современных условиях//Science and Education, 2(8) 2021, 656-668. <https://www.openscience.uz/index>.
8. <https://www.kp.ru/guide/finansovyi-menedzhment.html>

## GENERATION Z EMPLOYEES FACING THE PROBLEMS OF LEARNING AT REMOTE WORK

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**Abstract:** The essence of knowledge management is that all knowledge, both explicit and tacit, accumulated by an organization becomes easily accessible to each of its members. This is important for decision-making processes and allows the organization to become more agile. Knowledge management is most often associated with modern information technologies. Thanks to them, streams of various data can be processed and analyzed in many different ways. However, in the literature there is an increasingly common attitude that more attention should be paid not only to the technological but also to the human aspect of knowledge management. In the context of the outlined economic and socio-demographic changes, the authors have attempted to answer the question of how remote work affects selected aspects of learning processes in organizations in relation to Generation Z. The survey was conducted using quantitative research methods and the CATI and the CAWI survey technique. The STATISTICA suite was used for the elaboration of the research results. Non-parametric tests were used to assess the significance of the differences in the analyzed variables: Mann-Whitney U test (UMW), Kruskal-Wallis ANOVA test (AKW) and the Chi-square test. Cluster analysis was used for the segmentation of objects. The study used the method of disjoint division (non-overlapping) using a hierarchical algorithm for grouping data (agglomeration method). The cluster analysis method revealed three groups of respondents with similar attitudes to the analyzed problems.

**Key words:** learning, knowledge, Generation Z, cluster analysis.

### Introduction

Due to development of modern technologies, work can be more and more often performed outside the workplace and can also be dispersed in the geographical sense. This was proven by the situation with the COVID-19 pandemic when employees were asked to work remotely wherever possible. This form of work has also become a means of operational cost control, just like outsourcing (Mueller-Langer and Gómez-Herrera 2022, Nejman and Sadłowska-Wrześnińska 2019).

Due to the epidemic and generational changes, we observe re-evaluations regarding expectations for work and career, which appeared within a relatively short time (Green, 2022). The COVID-19 outbreak also resulted in the transformation of educational practices quickly to guarantee learning continuity (Casado-Aranda et al., 2021; Usher et al., 2021). The topic of the work-life balance is becoming an increasingly important concern (Robak, 2017). Numerous employees had to manage household chores, caring activities and learning at home simultaneously (Vaziri et al., 2020) while worrying about well-being and health issues (Fogarty et al., 2021). It had a great impact on satisfaction with remote work (Carillo et al., 2021) and work performance (Burk et al., 2021).

Transformations in the labor market related to various forms of work performance, new pension solutions allowing for early retirement, as well as the mass entry of the youngest generation of employees, called “Generation Z” (Rodriguez et al, 2019; Bencsik et al, 2016), into the labor market create risks associated with irreversible loss of unique organizational expertise that cannot be replaced by external knowledge. Some knowledge leaks out from the organization, especially the part involving the core work, which is often underestimated (Ritala et al. 2015).



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There is a need to employ people with slightly different competences, such as extraordinary intelligence, communication skills, the ability to solve problems or interpret information. At the same time, the demand for knowledge is changing at a significant pace – some of this knowledge becomes outdated and some is significantly underestimated. Employees must constantly update their qualifications and continuous learning is becoming a standard. For Generation Z, any negative feedback or failure is an important step towards innovation, learning and higher job performance.

In the context of these outlined economic, social and demographic changes, the authors attempt to answer the question of how remote work affects some selected aspects of learning processes in organizations in relation to Generation Z.

## **Learning as part of knowledge exchange**

Currently, the importance of knowledge, both for the organization and for individual employees, finds its manifestation in the redefinition of a number of management concepts. Knowledge is a term that is becoming increasingly difficult to grasp in terms of its essence. It goes far beyond what is collected in books. The definition of the term is currently being discussed by philosophers, psychologists and specialists in the field of management or IT (Dreesens et al. 2020). As an intangible resource, it is difficult to measure and its value is revealed only when we realize what we want to know and only when we need to know. New knowledge can come to our minds unexpectedly, as a consequence of associating different, seemingly not convergent, types of knowledge or information, but we often have no control over this process close to “enlightenment”.

Boydell (Evans, 2005, p. 30) distinguishes four types of knowledge: what it is, how to do it, how to become oneself, how to achieve goals in cooperation with others, and three levels of knowledge: how to put it into practice, how to improve it, and how to combine it.

Davenport and Prusak (2000) define knowledge as a fluid composition of focused experience, value, useful information and expert perspective, providing a basis for evaluating and assimilating new experiences and information.

On the organizational level, an interesting division of knowledge (sustaining the socio-psychological perspective) is represented by Evans (2005, pp. 31-33). Evans divides knowledge into four types: I know what (operational knowledge), I know how (it is also a kind of operational knowledge consisting of our experience of how something works and how something is done), I know why (the definition of work, its meaning), I know who (discernment of who is who and what knowledge they have).

Thus, knowledge management should also focus on the learning process, including mutual learning (Akhmadi and Tsakalerou 2022). This process is a condition for the transfer of knowledge between employees, most often latent knowledge (Kamei and Ashworth 2023). To have it unveiled, we need a favorable, stress-free (Sadłowska-Wrzesińska, Piosik, Nejman, 2022) environment for the exchange of knowledge, because a person cannot be forced to share knowledge, nor can they be forced to accept new one. In today’s organizational reality, therefore, the competence to learn and teach others effectively comes to the fore.

## **Methodology**

The research results presented in the study are part of a quantitative survey on “Administrative-executive aspects of remote work management” carried out among young people working remotely, representing Generation Z. The survey was completed in December 2022. The study presents part of the research results concerning the respondents’ opinions on the impact of remote work on learning processes. The study was carried out using quantitative research methods and the survey technique. It covered young people from Generation Z who worked remotely at least throughout the year 2022.

The division most popular in literature assumes that Generation Z includes people born after 1995, although some researchers sometimes include those born in 1990, and in other approaches only those who were born in 2000 and later. Due to the fact that there is no statistical data on the number of people aged 15-34 working remotely in Poland, the focus was on the group of young people representing this category who are professionally active. Based on the “Statistical Yearbook of Labor in 2021”, the size of the population of such people working in Poland was determined at 4,802 thousand. The structure of this population broken down by sex and age is presented in Table 1. For the so-estimated population, given the following statistical assumptions: fraction size 0,5, confidence level 95% and max. error 5%, the size of the study sample was set at 384 persons.

The survey was conducted using quantitative research methods and the CATI (Computer Assisted Telephone Interview – 50% of respondents) telephone survey technique and the CAWI (Computer-Assisted Web Interview – 50% of the respondents) online survey technique. 2,783 people working remotely were contacted. Some of them refused to participate and some did not qualify due to the criteria of the survey (for example, lack of experience of remote work in 2022) or constraints regarding age or gender. The requirement for the remote work experience in 2022 was intended to eliminate the group of employees who worked remotely earlier only due to the CoViD-19 epidemic. The reason for the exclusion was that this mode of work was most often something extraordinary for them, significantly different from the conditions of remote work defined in the literature (the first and essential being the voluntary choice of this form of work) (Bareket-Bojmel, Chernyak-Hai, and Margalit 2023). Opinions from respondents compelled to work remotely due to external circumstances could therefore falsify conclusions about their attitudes and beliefs.

Ultimately, 387 correctly completed questionnaires were obtained (the surplus does not disturb the planned structure of the studied group). The research tool was a standardized questionnaire containing 57 closed statements and 8 questions on socio-demographic characteristics of the respondents. The Likert scale (the so-called “Likert scaling technique”) was applied to the answers, which made it possible to determine the relative intensity of different responses (Babbie, 2004, p.192). The proprietary research tool (questionnaire) was prepared by members of the research team – employees of the Department of Applied Sociology and Human Resources Management, Faculty of Management, Czestochowa University of Technology. Four questionnaire validity procedures have been used: content (Rossiter 2008), face (Czakon 2014), construct (Cronbach and Meehl 1955) and nomological (Czakon 2014) ones. The scale reliability was validated using Cronbach’s alpha that is a measure of internal consistency ( $\alpha = ,970019$ ).

The STATISTICA suite was used for the elaboration of the research results. Non-parametric tests were used to assess the significance of the differences in the analyzed variables: Mann-Whitney U test (UMW), Kruskal-Wallis ANOVA test (AKW) and the Chi-square test. Cluster analysis was used for the segmentation of objects. This method, also called “segmentation of features and objects”, is an example of analysis consisting in searching for clusters in data and extracting them, where “clusters” means groups of objects similar to one another (Everitt 1974). The study used the method of disjoint division (non-overlapping) using a hierarchical algorithm for grouping data (agglomeration method). It consists in assigning each object to one group / cluster.

The first step focused on the part of the aforementioned research on the employees’ learning in a remote work context. Five indicators were analyzed, for which Cronbach’s reliability coefficient was  $\alpha = 0.863672$ :

- A. Remote work forces learning new technical solutions,
- B. Remote work involves self-reliant solving of problems,
- C. Remote work is conducive to learning from colleagues,
- D. Remote work allows you to learn new things more efficiently,
- E. Remote work allows you to learn from more senior staff,
- F. Remote work allows for a better explanation of new knowledge to employees.



Subsequently, the clusters of all the survey indicators were analyzed. This provided information which variables are most similar to one another and how to group survey questions into categories. Clusters of indicators C, E and F were obtained by agglomeration grouping of ordinal variables using the Manhattan distance as a measure. Then, observations regarding these indicators were segmented using the agglomeration method (with the percentage inconsistency as a measure of distance), which provided profiles of respondents who answered the questions in a similar way. The segmentation also took into account the following characteristics of the respondents:

- sex (W/M),
- age (subgroups 15-24, 25-29 and 30-34 to see whether there are differences in opinions between the youngest and oldest subjects),
- industry (acc. to the Polish Classification of Activities ([https://stat.gov.pl/klasyfikacje/doc/pkd\\_07/pkd\\_07.htm](https://stat.gov.pl/klasyfikacje/doc/pkd_07/pkd_07.htm)),
- employing organization size (1-9 employees = micro, 10-49 = small, 50-249 = medium, over 250 = large),
- remote work experience (up to 6 months, 6-12 months, 1-3 years, over 3 years),
- position (managerial, executive),
- preferred form of work in the future (stationary, hybrid, remote).

It should be noted that characteristics such as industry, organization size, remote work experience and position did not meet the criterion of representativeness for the population (no data for the population). As a result of the cluster analysis, three groups of respondents providing convergent answers to the questions were obtained.

## Results

The structure of the profiles, taking into account the largest percentage representation, is shown in Table 1.

*Table 1. Profile structure taking into account the largest percentage representation of respondents*

Cluster	Age %	Sex %	Industry %	Org. size %	Rem. work exper. %	Position %	Pref. form of work %	C* %	E* %	F* %
1	(30-34) 46.59	M 61.39	J** 84.75	Micro 70.30	6-12 m 35.64	Exec. 77.23	H 46.53	4 75.25	4 86.14	4 88.12
2	(30-34) 47.22	F 52.08	C** 27.08	Small 36.81	6-12 m 50.69	Exec. 86.81	S 73.61	2 61.81	2 69.44	2 72.22
3	(30-34) 38.73 (25-29) 65.49 38.73	M 65.49	C** 21.13	Micro 51.41	6-12 m 36.62	Exec. 65.49	S 55.63	3 59.25	3 71.83	3 69.01

\* Scale: I fully disagree (1), I rather disagree (2), Neither (3), I rather agree (4), I fully agree (5)

M-male/F-Female; H-Hybrid/ S-Stationary

\*\* Activity according to the Polish classification

Source: own study

The cluster analysis method revealed three groups of respondents with similar attitudes to the statements:

- C. Remote work is conducive to learning from colleagues,
- E. Remote work allows you to learn from more senior staff
- F. Remote work allows for a better explanation of new knowledge to employees.

The received profiles of respondents can be described as follows:

**Group 1** confirmed that remote work is conducive to learning from colleagues, including more senior staff, and allows for better clarification of new knowledge to employees. This group was most often represented by the older fraction of Generation Z, men, working in the “Information and communication” industry (section “J\*\*” of the Polish classification), for micro-businesses (perhaps self-employment), with relatively little experience in remote work (6-12 months), in executive positions, who, in the future, would prefer to work in a hybrid form.

**Group 2** rather disagreed with the statements C, E and F. These respondents also most often belonged to the older fraction of Generation Z, they were most often women, working in companies representing the “Industrial processing” sector (section “C\*\*” of the Polish classification), working for small organizations, with little experience in remote work (6-12 months), in executive positions, preferring to work in a stationary form in the future.

**Group 3** expressed an ambivalent attitude towards the issues studied. Representatives of this group belonged equally to both the oldest and middle fractions of Generation Z. They were mostly men, working in companies representing the “Industrial processing” sector (section “C\*\*” of the Polish classification), in executive positions, with little experience in remote work (6-12 months), preferring to work in a stationary form in the future.

## Conclusions

There is a limitation that needs to be pointed out when considering the research results presented hereby. At the time of results analysis, no published studies on a similar issue could have been found, especially in the context of Polish labour market. This is somewhat of an obstacle, as the lack of comparative material does not allow the correctness of the research assumptions and conclusions made by the researchers to be fully verified.

The attitudes to learning opportunities offered by remote work are of great importance for the future work form preferences. Persons with good experience with, or opinion about, the exchange of knowledge, especially with more senior colleagues, did not dismiss the possibility of combining remote and stationary work in the future. By the way, it is worth noting that these opinions expressed by older respondents were not indicative of a desire to switch to remote work entirely.

It is also interesting that the largest percentages of respondents in all the three groups had relatively short experience in remote work and the aspect of intra-organizational learning seem particularly important to this category.

Apparently, the “Information and communication” industry long traditionally associated with remote work is also best able to cope with knowledge flows (probably of the transparent type) among employees. On the other hand, in the manufacturing industry – where operational knowledge seems to be more important (perhaps mostly latent) and where direct contact with other people is required – the experience of remote work discourages many from continuing this form of employment in the future. It also seems interesting that women stand out in the second group particularly doubting that remote work provides good learning opportunities.

Also, the third group should be looked at attentively by knowledge managers. Although the respondents from this group do not represent clearly negative attitudes, in the end they would choose stationary work. Therefore, although they do not belong to the group of “complainers”, they should be of interest to those responsible for designing knowledge flows, especially if the company intends to organize remote work in the future.

## Literature

1. Akhmadi, S. and Tsakalerou M. (2022) ‘*Knowledge Acquisition, Elicitation, and Management in Innovative Firms*’. *Procedia Computer Science* 200:91–100. doi: 10.1016/j.procs.2022.01.208.
2. Babbie, E. (2004), *Badania społeczne w praktyce*, PWN, Warszawa.
3. Bareket-Bojmel, L., Chernyak-Hai L., and Margalit M. (2023) ‘*Out of Sight but Not out of Mind: The Role of Loneliness and Hope in Remote Work and in Job Engagement*’. *Personality and Individual Differences* 202:111955. doi: 10.1016/j.paid.2022.111955.
4. Bencsik, A., Horváth-Csikós, G., Juhász, T., (2016) “Y and Z Generations at Workplaces”, *Journal of Competitiveness*, 8(3), 90-106, DOI: 10.7441/joc.2016.03.06.
5. Burk, B. N., A. Pechenik Mausolf, and L. Oakleaf. 2021. “Pandemic Motherhood and the Academy: A Critical Examination of the Leisure-Work Dichotomy.” *Leisure Sciences* 43 (1–2): 225–231. <https://doi.org/10.1080/01490400.2020.1774006>.
6. Carillo, K., G. Cachat-Rosset, J. Marsan, T. Saba, and A. Klarsfeld. 2021. “Adjusting to Epidemic-Induced Telework: Empirical Insights from Teleworkers in France.” *European Journal of Information Systems* 30 (1): 69–88. <https://doi.org/10.1080/0960085X.2020.1829512>.
7. Casado-Aranda, L.-A., Sánchez-Fernández, J., Montoro-Ríos, F. J., & Horcajadas, M. I. A. (2021) ‘Evaluation of the work-integrated learning methodology: Teaching marketing through practitioner experience in the classroom’, *Mathematics*, 9(17), 2164. <https://doi.org/10.3390/math9172164>
8. Cronbach, L.J. and Meehl, P.E. (1955), *Construct Validity in Psychological Tests*, „Psychological Bulletin”, Vol. 52, No. 4, pp 281–302.
9. Czakon, W. (2014), *Kryteria oceny rygoru metodologiczne go badań w naukach o zarządzaniu*, „Organizacja i Kierowanie”, Vol. 1, Nr 161, pp 51–62.
10. Davenport, T. H. and Prusak, L. (2000) *Working Knowledge. How Organizations manage what they know*, Harvard Business School Press.
11. Dreesens, D., Kremer, L., Burgers J. and van der Weijden T. (2020) ‘*Lost in Definitions: Reducing Duplication and Clarifying Definitions of Knowledge and Decision Support Tools. A RAND-Modified Delphi Consensus Study*’. *Health Policy* 124(5):531–39. doi: 10.1016/j.healthpol.2020.02.005.
12. Evans, C. (2005), *Zarządzanie wiedzą*. Warszawa: Polskie Wydawnictwo Ekonomiczne.
13. Everitt B. (1974), *Cluster Analysis*, Heinmann, London.
14. Fogarty, A., A. Jones, K. Evans, J. O’Brien, and R. Giallo. 2021. “The Experience of the COVID-19 Pandemic for Families of Infants Involved with Child Protection Services for Maltreatment Concerns.” *Health & Social Care in the Community* August.
15. Green, A. (2022), ‘*Post Covid-19: Expectations for Academic Library Collections, Remote Work, and Resource Description and Discovery Staffing*’. *The Journal of Academic Librarianship* 48(4):102564. doi: 10.1016/j.acalib.2022.102564.
16. Kamei, K. and Ashworth, J. (2023), ‘*Peer Learning in Teams and Work Performance: Evidence from a Randomized Field Experiment*’. *Journal of Economic Behavior & Organization* 207:413–32. doi: 10.1016/j.jebo.2023.01.015.
17. Mueller-Langer, F. and Gómez-Herrera, E. (2022) ‘*Mobility Restrictions and the Substitution between On-Site and Remote Work: Empirical Evidence from a European Online Labour Market*’. *Information Economics and Policy* 58:100951. doi: 10.1016/j.infoecopol.2021.100951.
18. Nejman Ż. and Sadłowska-Wrzesińska J. (2019) ‘The use of information and communication technologies in the process of introducing incentive schemes’. *Informatyka Ekonomiczna*. Vol. 4, No. 54, pp. 46-59.
19. Polish Classification of Activities , [https://stat.gov.pl/Klasyfikacje/doc/pkd\\_07/pdf/rozp\\_24\\_XII\\_2007.pdf](https://stat.gov.pl/Klasyfikacje/doc/pkd_07/pdf/rozp_24_XII_2007.pdf)
20. Prund, Cristina. "Why Generation Z is Redefining the HRM Processes" *Studies in Business and Economics*, vol.16, no.3, 2021, pp.190-199. <https://doi.org/10.2478/sbe-2021-0054>
21. Ritala, P., Olander, H., Michailova, S. and Husted, K. (2015) ‘*Knowledge Sharing, Knowledge Leaking and Relative Innovation Performance: An Empirical Study*’. *Technovation* 35:22–31. doi: 10.1016/j.technovation.2014.07.011.
22. Robak, E., (2017) “*Expectations of Generation Y Connected with Shaping the Work-Life Balance. The Case of Poland*”, *Oeconomia Copernicana* No 8(4), pp.579-594, DOI: 10.24136/oc.v8i4.35.
23. Rodriguez, M., Boyer, S., Fleming, D., Cohen, S. (2019), “Managing the Next Generation of Sales, Gen Z. Millennial Cusp: An Exploration of Grit, Entrepreneurship, and Loyalty”, *Journal Of Business-To-Business Marketing*, Volume: 26, Issue: 1, pp. 43-55, DOI: 10.1080/1051712X.2019.1565136.
24. Rossiter, J.R. (2008), *Content Validity of Measures of Abstract Constructs in Management and Organizational Research*, „British Journal of Management”, Vol. 19, No. 4, pp 380–388



25. Sądłowska-Wrzesińska J., Piosik, K., Nejman, Ż. (2022), *Psychosocial Context of OSH-Remote Work of Academic Teachers in the Perspective of Sustainable Development* , “International Journal of Environmental Research and Public Health”, 19, 022, pp. 14783-1-14783-16.
26. Usher, M., Hershkovitz, A., & Forkosh-Baruch, A. (2021) ‘From data to actions: Instructors’ reflections about learners’ data in online emergency remote teaching’, *The British Journal of Educational Technology*, 52(4), 1338–1356. <https://doi.org/10.1111/bjet.13108>
27. Vaziri, H., W. J. Casper, J. Holliday Wayne, and R. A. Matthews. 2020. “Changes to the Work-Family Interface during the COVID-19 Pandemic: Examining Predictors and Implications Using Latent Transition Analysis.” *The Journal of Applied Psychology* 105 (10): 1073–1087. doi:<https://doi.org/10.1037/apl0000819>.



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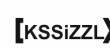
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## ECO-INNOVATION AS A DRIVER OF BUSINESS PERFORMANCE

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**Abstract:** The term eco-innovation is a relatively new term related to new products and processes that provide value to customers and businesses while significantly reducing ecological impact, demonstrating equal importance to ecological innovation. Innovation may refer to different parts of the value creation process of the business. The product or production process may be improved when current products are replaced by environmentally friendly ones or new products are designed in an eco-friendly way. Marketing activities may be eco-friendly by balancing the objectives of achieving customer satisfaction and regulations by satisfying his desires while considering the environment by avoiding its damage and maintaining environmental integrity. New business regulations may also serve as eco-innovation when internal work environment and external environment is managed in order to improve environmental performance. The goal of the study is to describe how these factors influence business performance in a selected group of small and medium-sized enterprises.

**Key words:** business performance, eco-innovation, environment, innovation, value creation

### Introduction

The term eco-innovation is a relatively new term. The term was first used by (Fussler, James 1996) concerning new products and processes that provide value to customers and businesses while significantly reducing ecological impact, demonstrating equal importance to ecological innovation.

In 2009, the Organization for Economic Co-operation and Development defined ecological innovation as implementing new or significantly improved products in processes, marketing methods, and organizational structures that lead to ecological improvements compared to related alternatives (OECD, 2010).

Ecological innovation can be defined as the development of a new product, work method, or production process. It is less harmful and suitable for the environment. It contributes to reducing ecological burdens regarding the depletion of non-renewable natural resources or related to how to raise and manage the remnants of production and consumption processes and recycle them (Bocken et al. 2014, Al-Zaidi et al. 2016).

Because the OECD idea is not limited to the intentionality of ecological sustainability, it is crucial to ascertain the factors that motivate businesses to embrace ecological principles. It is unclear what businesses are doing or how they incorporate these principles into their actions and strategies, even though topics like innovation and sustainability have recently become hot topics in both academic and practical discourse (Oncioiu 2015).

Eco-innovation is the creation, exploitation, or absorption of a firm's new product, service, management system, or business practice. Through its lifespan, it reduces environmental risk, pollution, and other detrimental effects of resources compared to appropriate alternatives (Lee, Min, 2015).

Eco-innovation is based on a less comprehensive scope than innovation since it has restricting qualities, as the primary goal is to have a minor ecological impact. Eco-innovation can result in inevitable advantageous trade-offs between ecological qualities and crucial success aspects, such as



appearance, functionality, and design. Eco-innovations should benefit organizational and consumption patterns and include social, economic, and ecological factors in their acceptance and implementation (Bossle et al. 2016).

Companies that have made eco-innovation investments strive to be more eco-efficient than their rivals in terms of the company's overall ecological performance or the ecological effects of a specific product. Eco-innovation has also been developed for other goals aside from reducing harmful ecological effects, such as boosting economic resource productivity or deepening our understanding of global ecological change and its connection to economic and social systems (Oncioiu, 2015).

The following factors have been identified as crucial determinants of ecological innovation: (1) organization, (2) technology, (3) cross-functional cooperation, (4) supplier participation, and (5) market focus (Fernando et al., 2016).

Environmental innovation was divided into four main indications (Demirel, Kesidou 2019). The product: by introducing new products or replacing the current products to be environmentally friendly, designing products that consider the environmental requirements, friendly raw materials and avoiding chemicals, especially safe ones, and the possibility of recycling these products. Production process: by developing new processes and technologies, as well as new production techniques that do not damage the environment, able to lower the consumption of raw materials and energy. Marketing: It is through adopting new methods and applications for marketing activities and balancing the objectives of achieving customer satisfaction by satisfying his desires while considering the environment by avoiding its damage and maintaining environmental integrity. Regulation: It means the introduction of new administrative and organizational concepts and their applications. To create an internal work environment that facilitates the application of environmental standards and makes it able to reduce negative environmental impacts before they occur through continuous evaluation, to improve environmental performance.

## Eco innovation and related capabilities

Green innovation or eco-innovation is considered a basis for supporting and promoting small and medium enterprises, given the development that the latter has known. After it aimed to achieve performance or economic effectiveness, it became necessary for its commitment to achieving environmental performance as a result of the emergence of what is known as the "environmental responsibility" that falls on these institutions if they do not consider the environmental performance (Bag et al. 2022).

Companies should establish and implement eco-innovation programs using a complete strategy and should be able to modify and manage their internal structures and activities. Eco-innovative businesses must have the capacity to put off satisfying their priorities—which are typically financial—in favor of resource management to maximize their usefulness to more people. When industrial processes are motivated by innovation, it leads to proactive conduct addressing environmental and social challenges (Nitkiewicz 2012)

Thus, eco-innovation in business creates or resets the relationships associated with forming and distributing environmental functions while benefiting from the relationship between them. Eco-innovation is also vital to overcoming customer, competitor, and regulatory pressures (Iranmanesh et al. 2017).

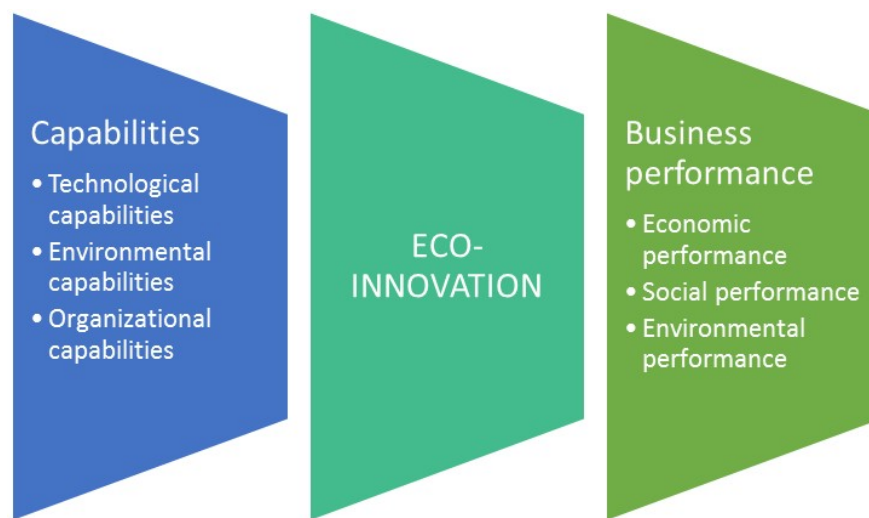
Information technology as part of industry 4.0 is the focus of technological capabilities because it provides information that allows organizations to make appropriate decisions and develop strategies. eco-capabilities have the potential to improve sustainable business performance (Rani Bhagat et al. 2022).

The technological capabilities are as follows: Firstly, research and development capabilities, i.e. the organization's technology and technical skills in technological research, which provide knowledge and information in the fields of its specialization. Secondly, the ability of networks, i.e. communication between the company units and divisions, through own network called the intranet. Thirdly, ability to

communicate technologically: The concept of cellular networks arose within the framework of efforts aimed at developing the wireless/mobile communications system.

Ecologic orientation entails understanding the natural environment and its role in the business landscape and giving equal weight to stakeholders such as local communities. Protectionism is ingrained in the culture and climate of a company. These eco-capabilities have the potential to improve sustainable business performance. Sustainability is essential for businesses because it affects performance and can aid in survival in hostile environments

Sustainability is essential for businesses because it affects performance and can aid in survival in hostile environments. However, maintaining long-term sustainability is problematic because it necessitates the ability to evaluate and modify sustainable actions whenever perceived changes in social efficiencies, economics, and the environment occur. Organizations must therefore develop the ability to continuously adapt their green technology or develop their eco-capabilities (Souza et al 2017). Fig. 1. summarizes these relationships.



*Figure 1. Relations between capabilities, eco-innovation and business performance.*

Source: own figure

## Eco-innovation and Business Performance

### Eco – innovation & Economic performance

Maldonado-Guzmán and Pinzón-Castro (2022) state that eco-innovation is one of the critical concepts that can significantly increase a company's environmental sustainability the literature. It has been demonstrated, however, that businesses alone cannot sufficiently develop eco-innovation activities to increase the level of eco-innovation activities and significantly raise the level of sustainable performance of manufacturing organizations.

Financial resources significantly improve eco-innovation, and eco-innovation significantly improves the sustainability of business operations. Eco-innovation development influences not only economic growth but also has a positive effect on environmental performance (Hojnik et al., 2018), the findings strongly indicate that environmental sustainability and the adoption of eco-innovation must be addressed when serving foreign markets. This study emphasizes the role of eco-innovation and speaks to whether eco-innovation should be adopted and integrated into firm-level strategies to improve economic performance.

### **Eco – innovation & Social performance**

According to Tumelero and Sbragia (2019) an eco-innovative strategy produces environmental sustainability, which positively impacts society. Moreover, eco-innovations fuel other eco-innovations by forging a route dependency on the environment since skills developed through a cleaner method will favorably impact the release of goods utilizing clean technologies. At R&D-intensive companies, the power of the knowledge flow produced through techniques and environmental management systems reduces information gaps, boosts product innovation and disruption, and lowers the technological complexity of cleaner manufacturing processes. Eco-innovations produce value for customers, society, and internal benefits at the organizational and process levels.

According to Ch'ng et al. (2021), achieving each of the three aspects of sustainable company performance (economic, social, and environmental) is possible by choosing an eco-innovation approach, such as eco-process, eco-product, or eco-organizational innovation. By adopting product, process, and organizational eco-innovation, the aspects of sustainable business performance are attainable, claim (Larbi-Siaw et al. 2022). The trinity of product, process and organizational eco-innovation can significantly boost a manufacturing firm's environmental performance. A company can then enhance its social performance by funding R&D for eco-innovations, using cutting-edge green management techniques, and raising employee awareness of eco-innovation. Product and organizational eco-innovations positive impact on sustainable performance's economic component is amplified by market turbulence (technology and environmental turbulence) in the form of technical developments, fierce market competition, and shifting household demand and taste.

### **Eco – innovation & Environmental performance**

The two main conclusions are that corporate and policy governance strategies should be coordinated to reduce costs associated with reducing environmental pressures. First, both strategies should specifically address the goal of maximizing environmental gains that can be achieved by developing and adopting clean technologies along the supply chain.

However, the critical finding of Beltrán-Esteve and Picazo-Tadeo (2017) is that environmental performance improved in both periods, primarily due to advancements in environmental technology. As a result, environmental policies encouraging catching up are strongly advised, especially in the more recent EU members after 2004, as they tend to perform further from their respective environmental technology frontiers. To resume the rates of environmental technical advancement observed during the growth phase, it would also be very advisable to restore the pre-crisis eco-innovation investment levels.

According to Barriga Medina et al. (2022), organizational eco-innovation (OE) and process eco-innovation (PCE) are strongly and favorably correlated with a company's financial and environmental success. However, the two categories of performance outlined are not strongly correlated with product eco-innovation (PDE). The indirect effects of OE on PDE, environmental performance, and financial performance are also essential and favorable. These results imply that OE and PCE favorably impact the firm's performance.

### **Conclusion**

Sustainable development of enterprises plays an increasingly important role in company competitiveness. Ecological thinking and ecological production is requirement of our times, which needs improvements in the typical business processes. Innovations should be planned and presented in an ecological way, in order to support economic, social and environmental sustainability. These requirements are incorporated in business performance, so innovative ideas processes should be implemented for improving economic, social and environmental performance of the firms. As the next step of the research, these performances will be surveyed among Jordanian micro, small and medium-sized enterprises SMEs working in the food industry.

## Literature

1. Al-Zaidi, W A H., Shaban, F A., Dunay, A. (2016), *The application of the strategic dimensions of recycling in Kashi factory, Iraq*. pp.19-26. In: Okreglicka, M; Gorzen-Mitka, I; Lemanska-Majdzik, A; Sipa, M; Skibinski, A (eds.) Proceedings of the 1st International Conference "Contemporary Issues in the Theory and Practice of Management" Wydawnictwo Politechniki Czestochowskiej, Czestochowa, Poland, 479 p.
2. Bag, S., Dhamija, P., Bryde, D.J., Singh, R.K. (2022), Effect of eco-innovation on green supply chain management, circular economy capability, and performance of small and medium enterprises. „Journal of Business Research” 141, 60–72.
3. Barriga Medina, H.R., Guevara, R., Campoverde, R.E., Paredes-Aguirre, M.I. (2022), *Eco-Innovation and Firm Performance: Evidence from South America*. „Sustainability” 14, 9579. <https://doi.org/10.3390/su14159579>
4. Beltrán-Estevé, M., Picazo-Tadeo, A.J. (2017), *Assessing environmental performance in the European Union: Eco-innovation versus catching-up*. „Energy Policy” 104, 240–252. <https://doi.org/10.1016/j.enpol.2017.01.054>
5. Bocken, N.M.P., Farracho, M., Bosworth, R., Kemp, R. (2014), *The front-end of eco-innovation for eco-innovative small and medium sized companies*. „Journal of Engineering and Technology Management” 31, 43–57. <https://doi.org/10.1016/j.jengtecman.2013.10.004>
6. Bossle, M.B., Dutra de Barcellos, M., Vieira, L.M., Sauvée, L. (2016), *The drivers for adoption of eco-innovation*. „Journal of Cleaner Production” 113, 861–872. <https://doi.org/10.1016/j.jclepro.2015.11.033>
7. Ch'ng, P.-C., Cheah, J., Amran, A. (2021), Eco-innovation practices and sustainable business performance: The moderating effect of market turbulence in the Malaysian technology industry. „Journal of Cleaner Production” 283, 124556 <https://doi.org/10.1016/j.jclepro.2020.124556>
8. Demirel, P., Kesidou, E. (2019), *Sustainability-oriented capabilities for eco-innovation: Meeting the regulatory, technology, and market demands*. „Business Strategy and the Environment” 28, 847–857. <https://doi.org/10.1002/bse.2286>
9. Fernando, Y., Wah, W.X. (2017), The impact of eco-innovation drivers on environmental performance: Empirical results from the green technology sector in Malaysia. „Sustainable Production and Consumption” 12, 27–43. <https://doi.org/10.1016/j.spc.2017.05.002>
10. Fussler, C., James, P. (1996), *Driving eco-innovation: a breakthrough discipline for innovation and sustainability*. Pitman Publishing, London ; Washington DC.
11. Hojnik, J., Ruzzier, M., Manolova, T.S. (2018), *Internationalization and economic performance: The mediating role of eco-innovation*. „Journal of Cleaner Production” 171, 1312–1323. <https://doi.org/10.1016/j.jclepro.2017.10.111>
12. Iranmanesh, M., Zailani, S., Moeinzadeh, S., Nikbin, D. (2017), Effect of green innovation on job satisfaction of electronic and electrical manufacturers’ employees through job intensity: personal innovativeness as moderator. „Review of managerial science” 11, 299–313.
13. Larbi-Siaw, O., Xuhua, H., Owusu, E., Owusu-Agyeman, A., Fulgence, B.E., Frimpong, S.A. (2022), *Eco-innovation, sustainable business performance and market turbulence moderation in emerging economies*. „Technology in Society” 68, 101899 <https://doi.org/10.1016/j.techsoc.2022.101899>
14. Lee, K.-H., Min, B. (2015), *Green R&D for eco-innovation and its impact on carbon emissions and firm performance*. „Journal of Cleaner Production” 108, 534–542. <https://doi.org/10.1016/j.jclepro.2015.05.114>
15. Maldonado-Guzmán, G., Pinzón-Castro, S.Y. (2022), *Financial resources, eco-innovation and sustainability performance in automotive industry*. „Tec Empresarial” 16, 34–54. <https://doi.org/10.18845/te.v16i2.6169>
16. Nitkiewicz, T. (2012), *Fostering Eco-Innovation Development and Implementation in Polish Companies Through Operational Program Innovative Economy*, [in:] Innovations in Management and Production Engineering. Eds. R. Knosala, Opole: Ofic. Wydawn. Pol. Tow. Zarz. Prod 94–104.
17. OECD (2010), *Eco-Innovation in Industry: Enabling Green Growth*. Organisation for Economic Co-operation and Development, Paris.
18. Oncioiu, I. (2015), Eco – Innovation in European SMEs: between Limitation and Possibilities. EIRP Proceedings 10.
19. Rani Bhagat, P., Naz, F., Magda, R. (2022), Role of Industry 4.0 Technologies in Enhancing Sustainable Firm Performance and Green Practices „Acta Polytechnica Hungarica” 19 (8) pp. 229-248.
20. Souza, A.A.A., Alves, M.F.R., Macini, N., Cezarino, L.O., Liboni, L.B. (2017), *Resilience for sustainability as an eco-capability*. „International Journal of Climate Change Strategies and Management”.
21. Tumelero, C., Sbragia, R., Evans, S. (2019), *Cooperation in R & D and eco-innovations: The role in companies’ socioeconomic performance*. „Journal of Cleaner Production” 207, 1138–1149 <https://doi.org/10.1016/j.jclepro.2018.09.146>



## FAVORABLE FACTORS TO WELL-BEING IN DIFFERENT ORGANIZATIONS: AN INTERNATIONAL STUDY

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**Abstract:** Different studies show a series of factors at the individual, psychosocial, and meso-social levels that are associated with psychological well-being. The aim of this article is to examine the relationships among these factors. Method: Well-Being was assessed as a dependent variable, as well as its predictors. The sample was made of education and social intervention workers (N = 1300) from Spain, Chile, and Uruguay.

Results: Individual factors, including job satisfaction and commitment were positively associated with psychological well-being. Also, psychosocial factors such as low psychological demands, work control, as well as a participatory leadership style, while excessive psychological demands at work - or stress - do so negatively. Meso-level factors related to a transformational organizational culture are directly and indirectly associated with well-being through the psychosocial factors favorable to it.

Conclusion: High levels of control at work, a leadership that favors participation and belonging, and low levels of psychological demands predicted psychological well-being and optimal personal development.

**Key words:** Culture, Demands, Leadership, Organizations, Psychosocial Factors, Well-Being.

### Introduction

In this article well-being and its factors in workers from different countries are examined. The International Labour Organization (ILO) states that well-being at the workplace concerns all aspects of professional life. In this sense, the quality and safety of the physical climate, the socioemotional climate and work organization are of great importance. There are studies that report a direct relationship between productivity levels, health and the general well-being of the workforce (Martín, 2011; Kickbusch et al., 2017; Steffens et al., 2016; World Health Organization, 2020).

Different studies and meta-analyses have found that there are factors at different levels (individual, micro, meso and macrosocial) that are associated to individual and collective wellbeing. This study seeks to contrast the postulated associations between individual indicators of well-being (EPWB): behavioral, somatic and cognitive reactions to stress (BSC), quality of life linked to health (QLLH), satisfaction with life, hedonic well-being, eudaimonic well-being, and personal optimal development. We also want to contrast the positive relationship between psychosocial factors: (Eps- excess of psychological demands at work, or work stress, Cwa (control over work, role autonomy), LpB (leadership that reinforces participation and belonging, social support, and quality leadership) and the positive association with an organizational culture that reinforces participation and integration. Finally, in this study we wanted to verify that the above mentioned psychosocial factors (Eps, Cwa, and LpB) mediate between a culture that reinforces participation and integration (CSO) and individual well-being (EPWB). Good mental health in professional terms is related to quality of leadership, predictability, social support and meaning of work.

The SHWB or subjective well-being falls under a hedonic vision of well-being. We can identify both the affective and the cognitive aspects of this focus (Diener, 1996; Diener et al., 2020). AHWB refers to a person's hedonic experience of pleasant and unpleasant feelings (Tov, 2018). SWL has often been called life satisfaction, which is a judgement process, wherein the person assesses quality of life based on their own criteria. EWB or eudaimonic well-being includes accepting and appreciating oneself, or self-esteem, having positive relationships with other people, feeling capable of effectively working and acting, and that one is learning or undergoing personal growth, that includes a purpose in life and



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a feeling of personal psychological and social autonomy (Suh & Koo, 2008). Finally, EPWB, or psychological well-being is composed by SHWB, EWB and Social well-being (Hervás & Vázquez, 2013).

The concept of CWa implies influence (or autonomy) and skill development (Chiang et al., 2013). On the one hand, this has to do with the levels of complexity and variety of tasks. On the other, the work has meaning if it helps to positively tackle their demands (Moncada et al., 2014). Autonomy as an organizational resource correlates positively with well-being. EPs are an organizational process that may hinder social integration and well-being and cause stress. Its quantitative aspect refers to the work volume in relation to the time available to complete it. Stress, chronic tension, and events that lead to negative changes have been associated with low well-being and health (Schneiderman et al., 2005).

Regarding LpB, the quality of exchanges between leaders and members has been researched as a facilitator for well-being. High-quality or positive behavior of supervisors includes a willingness to listen and show support, respect, and interest in members' well-being. It also includes a tendency to value and express support for the employees work. Transformational leadership leads collaborators to perform beyond their expectations, going above and beyond their own interests for the good of the organization (Avolio et al., 2009; Hermsilla et al., 2016; Molero et al., 2007).

Emotionally expressive leaders (e.g., charismatic or transformational) induce group members to experiment and express positive emotions of high activation that are easily communicated and lead followers to experience a positive emotional climate and well-being (Barsade & Knight, 2015, da Costa, 2018). On the contrary, a lack of support from superiors has to do with a lack of specific staff management principles and procedures to guide this role to act as an element to support the work conducted by the team or department they manage. It is also related to a lack of clear guidelines and training regarding fulfillment of this role (Moncada et al., 2014).

Taken the aforementioned variables and ideas into account, the following hypotheses were proposed:

H1: Individual-level predictors will be associated with well-being; H2: Stress will be negatively associated to well-being; H3: Transformational leadership will be associated with well-being; H4: Psychosocial factors will mediate between a transformational organizational culture and individual well-being.

## Methods

### Sample

Participants  $N = 1300$  people ( $N = 1084$  women, aged between 19 and 69 years,  $M = 41,41$ ,  $SD = 11,09$ ), who belonged to  $K = 80$  organizations or educational and social-intervention units in Chile, Spain (Autonomous Community of the Basque Country or CAPV) and Uruguay.

### Procedure

The individuals received a booklet with different scales to be answered on paper or online for a period of between 50 and 75 minutes (only some of them are addressed in this article). Data collection was supervised by some of this article's co-authors or staff trained to do so in each one of the three countries.

### Instruments

All variables were measured with different self-reported scales with good reliability and validity (see instruments in Da Costa et al., 2020).



## Data Analysis

In this study, a correlational or cross-cutting design was used with convenience samples mated by professional characteristics. Correlations, regressions, and mediational analyses were conducted amongst explanatory and explained variables of well-being, using SPSS 24 and process 3.4, Model 4. Scores were standardized and the correlations weighted by the inverse of the variance, with the CMA program (Borenstein et al., 2014).

## Results

To test H1 and H2, we examined the relations between the aforementioned variables. EPWB was associated with low BSCs ( $r = .46$ ), IC 95% [0.41; 0.50], with QLLH ( $r = .52$ ) IC 95% [0.48 to 0.56], lower negative AHWB ( $r = -.35$ ), IC 95% [-0.39; -0.30] and higher positive AHWB ( $r = .45$ ), IC 95% [0.40 to 0.49], as well as higher SWL ( $r = .58$ ), IC 95% [0.55; 0.62]. Relations between variables were all  $> .70$  (H1a) (see table 1). To test H3 and H4, relations between individual- and microsocial-level predictor variables with well-being were examined (see by country on table 2).

At microsocial level (H5), well-being was associated with CWa ( $r = .31$ ), IC 95% [0.26; 0.36], with low EPs ( $r = -.28$ ), IC 95% [-0,33; -0,23] (H5a) and high-quality LpB ( $r = .31$ ), IC 95% [0.26; 0.36].

**Table 1. Association between the studied variables and well-being at the individual level**

Variables	N	M	SD	1	2	3	4	5	6
1. BSCs	1298	45.20	8.18	-					
2. QLLH	1268	53.36	9.23	.65**	-				
3. AHWB positive	1361	23.44	7.19	.26**	.40**	-			
4. AHWB negative	1359	8.852	6.39	-.50**	-.49**	-.26**	-		
5. SWL	1334	38.53	6.64	.34**	.47**	.40**	-.33**	.47**	
6. EPWB	1352	81.33	13.74	.42**	.45**	.41**	-.31**	.45**	.55**

Note. BSCs = Behavioral, somatic and cognitive reactions to stress; QLLH = Quality of Life linked to health; AHWB = Affective hedonic view of subjective Well-Being; SWL = Cognitive hedonic view of subjective Well-Being or satisfaction with life; EPWB = Eudaimonic vision or psychological Well-Being and personal optimal development. \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

**Table 2. Relationship between individual and microsocial level predictor variables with psychological well-being by country**

Variables	Chile				Spain				Uruguay			
	n	M	SD	r	N	M	SD	r	N	M	SD	r
CSO	350	2,25	9.10	.10**	273	5.07	5.73	.28**	650	4.18	6.74	.26**
Eps	361	12.8	4.30	.17**	294	12.4	3.24	-.29**	716	13.8	3.50	.30**
CWa	360	26.4	6.79	.23**	294	26.7	5.41	.32**	697	26.4	5.40	.35**
LpB	361	27.1	8.02	.22**	280	28.2	5.70	.36**	700	27.3	6.13	.32**
EPWB	353	77.8	13.7	-	296	79.5	11.5	-	703	83.8	14.1	-

Note;; CSO = Transformational leadership; EPs = Excess of psychological demands at work or work stress; CWa = Control over work, role autonomy; LpB = Leadership that reinforces participation and belonging; EPWB = Eudaimonic vision or psychological Well-Being and personal optimal development. \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

Examination of organizational culture showed that association of transformational culture with well-being is positive ( $r = .25$ ), IC 95% [0.20; 0.30] and negative with transactional culture ( $r = -.11$ ), IC 95% [-0.16; -0.05].

To examine the specific contribution of explanatory variables to well-being, we conducted a multiple regression of well-being (Hervás & Vázquez, 2013) on individual variables (EC and MV), on microsocial-level variables (CWA, EPs and LpB) and meso-social or organizational variables (CSO). The multiple regression was significant,  $F(8,1121) = 30,38, p = .0001, R^2$  adjusted = .17. The low EPs ( $\beta$  standardized =  $-.15, p = .0001$ ), the high CWA ( $\beta = .14, p = .0001$ ), the LpB ( $\beta = .10, p = .006$ ) and the CSO ( $\beta = .09, p = .002$ ) predicted well-being. Only transactional culture did not obtain a significant coefficient ( $\beta = .004, p = .88$ ).

Using CpO as a predictor for meso level and controlling individual variables (gender, OVC, TVU and EC), a mediational analysis (Hayes, 2018) showed that the indirect effect of the CpO on the GEPS occurred with lower Epe ( $\beta = .02$ ), IC 95% [0.01; 0.04], as well as higher levels of CWA ( $\beta = .04$ ), IC 95% [0.02; 0.07] and LpB ( $\beta = .04$ ), IC 95% [0.008; 0.07]. This effect explains 55% of the total effect (see figure 1). The overall model was significant:  $R^2 = .44, F(8, 1101) = 32,82, p < .001$

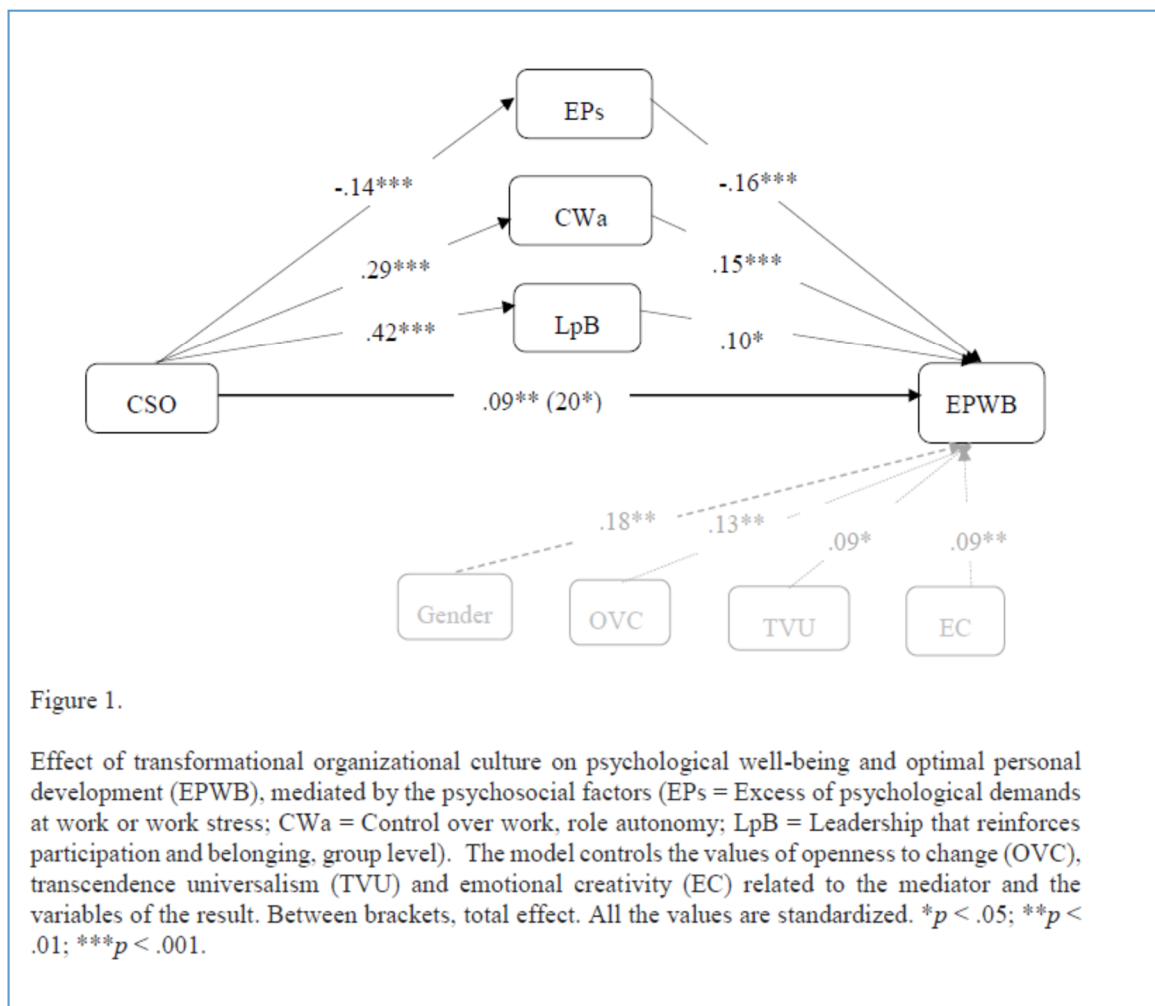


Figure 1.

Effect of transformational organizational culture on psychological well-being and optimal personal development (EPWB), mediated by the psychosocial factors (EPs = Excess of psychological demands at work or work stress; CWA = Control over work, role autonomy; LpB = Leadership that reinforces participation and belonging, group level). The model controls the values of openness to change (OVC), transcendence universalism (TVU) and emotional creativity (EC) related to the mediator and the variables of the result. Between brackets, total effect. All the values are standardized. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

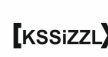
Figure 1. Effects of transformational organizational culture on psychological well-being mediated by psychosocial factors (psychological demands, control over work, and participatory leadership)

## Discussion

In the general sample and by country, indicators of well-being were associated with one another. Specifically, psychological well-being, was associated with having less stress and better quality of life and life satisfaction. The strength of association between variables means that they are interrelated, yet they constitute independent constructs. As stated previously, high levels of control at work, social support and quality leadership, and low levels of psychological demands (Moncada et al., 2014) predicted well-being. Meso-social-level factors were also associated with well-being. In fact, the importance of a leadership (i.e., transformational) that facilitates participation and integration was widely corroborated along with an organizational culture that facilitates social integration (Knight & Eisenkraft, 2015; Turner, 1981). Along these lines, psychosocial factors were associated with a more transformational culture, mediating between a transformational organizational culture and individual well-being. To conclude, it should be stated that this study has limitations, the most noteworthy being that the sample was of convenience and that this is a correlational, which means that the results should be taken with caution.

## Literature

1. Avolio, B. J., Walumbwa, F. O., Weber, T. J. (2009). *Leadership: Current Theories, Research, and Future Directions*. Annu. Rev. Psychol. 60, 421-449.
2. Barsade, S., Knight, A. (2015). *Group Affect*. Annu. Rev. Psychol. 2(1), 21-46. doi: 10.1146/annurev-orgpsych-032414-111316
3. Borenstein, M., Hedges L. V., Higgins, J. P. T., Rothstein, H. R. (2014). *Comprehensive Meta-Analysis* (Vers. 3.3). Englewood, NJ: Biostat.
4. Chiang, M., Gómez, N., Sigoña, I. (2013). *Factores Psicosociales, Stress y su Relación con el Desempeño: Comparación entre Centros de Salud*. Salud trab. 21(2), 111-128.
5. da Costa, S. (2018). *They Didn't Know it was Impossible so they Did it!. Procesos de Creatividad e Innovación en Sistemas Sociales Complejos Abiertos: afectividad, motivación y cognición*. Tesis doctoral. Universidad del País Vasco/Euskal Herriko Unibertsitatea, País Vasco, España. <http://hdl.handle.net/10810/29428>
6. da Costa, S., Martínez-Moreno, E., Díaz, V. ...., García-Mazzieri, S. (2020). *Bekonging and social integration as factors of well-being in Latin America and Latin Europe Organizations*. Frontiers in Psychology, 11: 604412.
7. Diener, E., Thapa, S., Tay, L. (2020). *Positive Emotions at Work*. Annu. Rev. Psychol. 7(1), 451-477. <http://dx.doi.org/10.1146/annurev-orgpsych-012119-044908>
8. Diener, E. (1996). *Subjective Well-Being in Cross-Cultural Perspective*. In H. Gad, A. Blanco and J. Georgas (Eds.), *Key Issues in Cross-Cultural Psychology* (pp.319-330). Netherlands: Publisher Sweets and Zeitlinger.
9. Dunst, C. J., Bruder, M. B., Hamby, D. W., Howse, R., Wilkie, H. (2018). *Meta-Analysis of the Relationships between Different Leadership Practices and Organizational, Teaming, Leader, and Employee Outcomes*. Journal of International Education and Leadership, 8(2), 1-45. ISSN: 2307-0919.
10. Hayes, A.F. (2018). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. Guilford Press.
11. Hervás, G., Vázquez, C. (2013). *Construction and Validation of a Measure of Integrative Well-Being in Seven Languages: The Pemberton Happiness Index*. Health Qual. Life Outcomes 11 (66), 1-14.
12. Hermosilla, D., Amutio, A., da Costa, S., Páez, D. (2016). *El Liderazgo Transformacional en las Organizaciones: Variables Mediadoras y Consecuencias a Largo Plazo*. J. Work Organ. Psychol. 32(3), 135-143. doi: 10.1016/j.rpto.2016.06.003
13. Kickbusch, I., Bettcher, D., Abdelaziz, F. B., Ligot, J., France, T., Mitic, W. (2017). *Promoting Health: Guide to National Implementation of the Shanghai Declaration*. Geneva: Publisher World Health Organization.
14. Knight, A. P., Eisenkraft, N. (2015). *Positive Is Usually Good, Negative Is Not Always Bad: The Effects of Group Affect on Social Integration and Task Performance*. J. Appl. Psychol. 100(4), 1214-1227.



15. Martín, J. (2011). *Meta-Analysis of Lessons Learned and Good Practices Arising from Nine Decent Work Country Programme Evaluations*. Geneva: Publisher ILO.
16. Molero, F., Cuadrado, I., Navas, M., Morales, J. F. (2007). *Relations and Effects of Transformational Leadership: a Comparative Analysis with Traditional Leadership Styles*. Span. J. Psychol. 10(2), 358-368.
17. Moncada, S., Llorens, C., Andrés R., Moreno, N., Molinero, E. (2014). *Manual del Método CoPsoQ-istas21 (versión 2) para la Evaluación y la Prevención de los Riesgos Psicosociales en Empresas con 25 o más Trabajadores y Trabajadoras*. Barcelona: Editorial Instituto Sindical de Trabajo, Ambiente y Salud.
18. Schneiderman, N., Ironson, G., Siegel, S. D. (2005). *Stress and Health: Psychological, Behavioral, and Biological Determinants*. Annu. Rev. Clin. Psychol. 1, 607-628. doi: 10.1146/annurev.clinpsy.1.102803.144141
19. Steffens, N. K., Haslam, A., Schuh, S. C., Jetten, J., van Dick, R. (2016). *A Meta-Analytic Review of Social Identification and Health in Organizational Context*. Pers Soc. Psychol. Rev. 1-33. doi: 10.1177/1088868316656701
20. Suh, E. M., Koo, J. (2008). *Comparing Subjective Well-Being Across Cultures and Nations: The "what" and "why" Questions*. In M. Eid and R. J. Larsen (Eds.), *The Science of Subjective Well-Being* (pp. 414-427). New York: Publisher Guilford Press.
21. Tov, W. (2018). *Well-Being Concepts and Components*. In E. Diener, S. Oishi, and L. Tay (Eds.), *Handbook of Subjective Well-Being* (pp. 1-15). Publisher Noba Scholar. [https://ink.library.smu.edu.sg/soos\\_research/2836](https://ink.library.smu.edu.sg/soos_research/2836)
22. Turner, J. H. (1981). *Emile Durkheim's Theory of Integration in Differentiated Social Systems*. Pac. Sociol. Rev. 24(4), 379-391. doi: 10.2307/1388774
23. World Health Organization. (2020). *Considerations for Public Health and Social Measures in the Workplace in the Context of COVID-19: Annex to Considerations in Adjusting Public Health and Social Measures in the Context of COVID-19*, 10 May 2020. Geneva: World Health Organization.

## SUSTAINABLE BUSINESS MODEL FOR THE COMMON GOOD

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**Abstract:** This paper aims to propose a new business model that emphasizes sustainability and stakeholder-centric approaches for creating the common good. The traditional focus on maximizing shareholder value has led to an imbalance between business rights and responsibilities towards society and the environment. To address this issue, a paradigm shift is needed in strategic management. The proposed business model advocates for comprehensive value creation by integrating sustainability principles and stakeholder theory into core business strategies. The framework integrates multiple theoretical perspectives, including Stakeholder Theory, Resource-Based View, Corporate Governance, Real Options Theory, Institutional Theory, Systems Theory, Triple Bottom Line, and Diffusion of Innovation Theory. By considering the long-term impact of actions, fostering stakeholder collaboration, and recognizing the interconnectedness of economic, social, and environmental dimensions, organizations can contribute to a more equitable and sustainable future. This research highlights the importance of a future-oriented approach to strategy design and aims to guide organizations in becoming agents of positive change. By embracing comprehensive value creation, businesses can play a crucial role in shaping a better world for present and future generations.

**Key words:** common good, comprehensive value creation, contemporary strategic management model, corporate governance, corporate sustainability, real options theory, resource-based view (RBV) of the firm, stakeholder theory, strategy.

### Introduction

The purpose of this study is to propose a new business model that aims to achieve a contemporary balance in strategy for creating the common good through a sustainable business model. The traditional approach of maximizing shareholder value has led to an imbalance between the rights and responsibilities of businesses towards society and the environment. To address this imbalance, there is a need for a paradigm shift in strategic management towards comprehensive value creation. This paper aims to propose a new business model that embraces sustainability, stakeholder theory, and a future-oriented approach to strategy design. By aligning business strategies with the common good and integrating sustainability principles into core capabilities, organizations can contribute to a more equitable and sustainable future. This study highlights the importance of considering the long-term impact of actions and decisions, fostering stakeholder collaboration, and recognizing the interconnectedness of economic, social, and environmental dimensions. By proposing a new business model that emphasizes comprehensive value creation, this research aims to guide organizations in becoming catalysts for positive change and shaping a better world for present and future generations.

### The old story of business: Neglecting responsibility towards society and nature

The traditional business approach of maximizing shareholder value has led to a misbalance between rights and responsibilities. The classical strategy balance, deeply rooted in traditional business practices, plays a central role in shaping the old story of business. It creates a framework where businesses prioritize their rights and interests over their responsibilities towards society and the environment. This approach is built on the premise of maximizing shareholder value as the primary objective, with an emphasis on short-term financial gains. The classical strategy balance concentrates decision-making power at the top, benefiting shareholders and executives. This limits the involvement of stakeholders, including employees, customers, communities, and the environment. The old story of business views



relationships as transactional, prioritizing revenue generation over stakeholder interconnectedness. It fosters a short-term mindset focused on immediate financial gains, neglecting long-term sustainability and shared value. This imbalanced approach ignores societal and environmental concerns, leading to negative impacts and reputational risks. The classical strategy balance perpetuates a self-centered perspective, prioritizing financial gains over stakeholder welfare and environmental sustainability, contributing to inequities and challenges in traditional business practices. Overall, the classical strategy balance shapes the old story of business by perpetuating a narrow and self-centered perspective, where financial gains take precedence over stakeholder welfare and environmental sustainability. This paradigm has contributed to the inequities, social and environmental challenges, and reputational risks associated with traditional business practices.

### **The new story of business: Embracing sustainability for the common good**

Edward Freeman's argument about the new story of business emphasizes the significance of considering the interests of all stakeholders, going beyond shareholders. This stakeholder-centric approach recognizes the interconnectedness of various parties in creating sustainable value. To fully embrace the broader interests of stakeholders and the planet, the concept of comprehensive value creation is proposed as a future-oriented approach. It integrates sustainability value creation, integrated value creation, shared value creation, and more, emphasizing harmony among all stakeholders, all species, and the planet's needs. Comprehensive value creation serves as a means of strategic design that recognizes the interdependence of economic, social, and environmental dimensions, with a "future is now" approach.

The new business paradigm prioritizes sustainability and stakeholder theory, going beyond shareholder-centric approaches. Key value creation approaches include Integrated Value Creation, Shared Value Creation, and Sustainability Value Creation. Integrated Value Creation aligns business goals with societal needs, generating economic value while addressing social and environmental challenges. Shared Value Creation emphasizes aligning business goals with societal needs, creating economic value while addressing social and environmental concerns. Sustainability Value Creation integrates sustainability principles into all business operations, creating stakeholder value while promoting long-term viability.

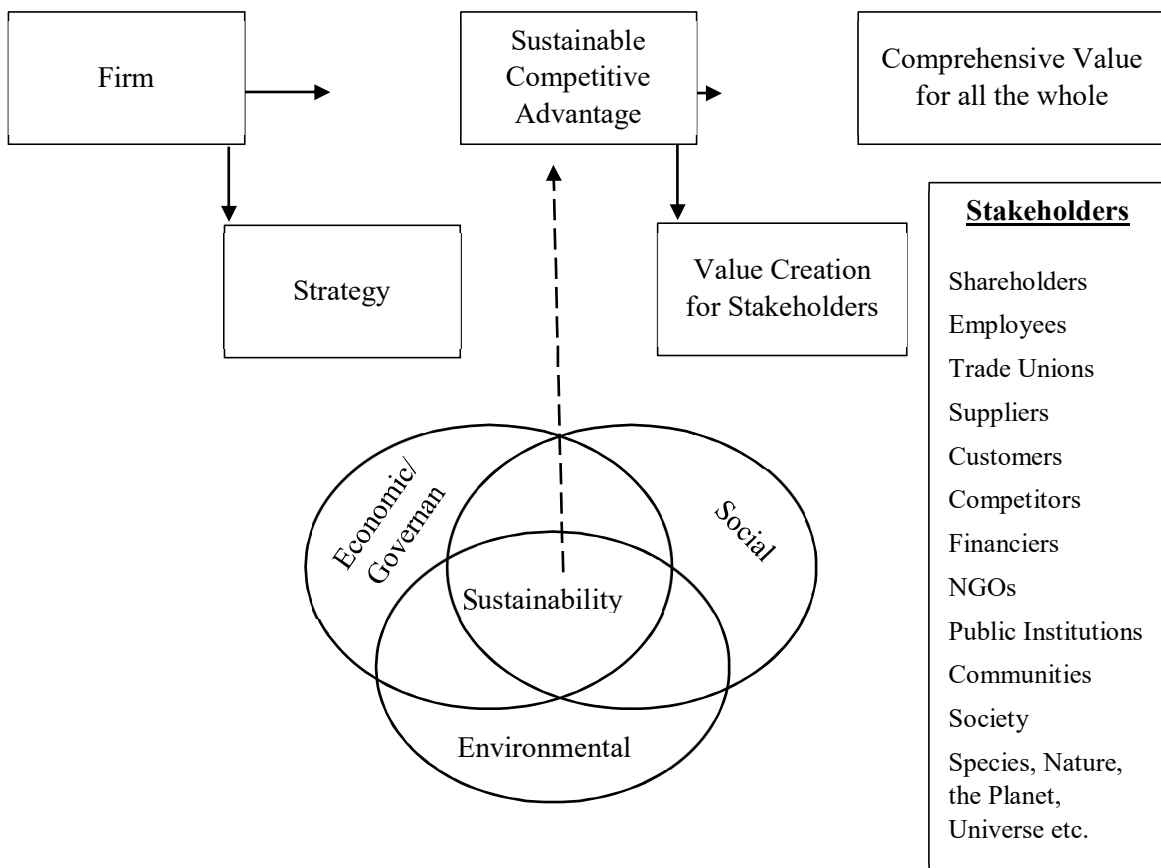
Comprehensive Value Creation encompasses a future-oriented approach that integrates sustainability value creation, integrated value creation, shared value creation, and more. It goes beyond short-term gains and emphasizes harmony among all stakeholders, all species, and the planet's needs. This approach recognizes the interconnectedness of economic, social, and environmental aspects, shaping a more equitable and sustainable future. Key features of Comprehensive Value Creation include a long-term perspective, stakeholder harmony, and a strategic design that considers the needs of all species and the planet. By adopting a "future is now" mindset, organizations proactively address the urgent challenges faced by society and the environment, paving the way for positive change.

In summary, the new story of business extends to embrace comprehensive value creation as a future-oriented approach to strategy design. It integrates sustainability value creation, integrated value creation, shared value creation, and more to foster harmony among all stakeholders, all species, and the planet's needs. By considering the long-term impact of actions and decisions, businesses can proactively contribute to a more sustainable and equitable future. With its "future is now" approach, comprehensive value creation emphasizes the urgency of addressing environmental and social issues while recognizing the interconnectedness of all stakeholders and species. By embracing comprehensive value creation, organizations become catalysts for positive change, shaping a better world for present and future generations.



**Developing a sustainable business model for the common good: A contemporary strategic management approach**

In the context of the new story of business and the new paradigm of conducting business, Bakoğlu (2010) discussed the inadequacy of the traditional balance focused on profit and short-term outcomes in strategy and proposed a Contemporary Strategic Management Approach. This approach, which emphasizes the need for a new balance in strategy, has been further developed by Bakoğlu (2014) and is represented in Figure 1 as a revised version for this study. The new balance model, based on addressing the needs and expectations of all stakeholders in strategy can be seen as a design proposal for the contemporary strategic management approach aimed at creating the comprehensive value for the common good. This section has been designed to scrutinize the theoretical foundations of the new model and the fundamental features it entails.



*Figure 1. A contemporary strategic management approach: Strategy for comprehensive value creation*

Source: own figure

To create a comprehensive framework that integrates theoretical perspectives and contributes to the common good through sustainable business models, organizations must integrate multiple theories, address urgent social and environmental needs, engage stakeholders, align with the common good, embed sustainability, ensure effective governance, adopt a forward-looking perspective, consider social and cultural norms, apply systems thinking, measure holistic impact, and accelerate the adoption of sustainable practices.

## Contemporary Strategic Management Model: Strategy for Comprehensive Value Creation

In today's rapidly evolving business landscape, the need for a comprehensive framework that aligns with contemporary strategic management and the new story of business has become paramount. Businesses are recognizing the importance of adopting a strategy for comprehensive value creation that goes beyond traditional profit-centric approaches. This comprehensive framework encompasses various dimensions, including business strategy and leadership, environmental sustainability, social responsibility and impact, governance and accountability, collaboration and partnerships, innovation and technology, and policy advocacy and external engagement.

At the core of this framework lies business strategy and leadership, which play a pivotal role in driving sustainable business practices. Organizations are embracing a sustainability-focused strategy that integrates the triple bottom line, considering the economic, social, and environmental aspects of their operations. This shift acknowledges that businesses have a new role to play in society, one that goes beyond profit maximization to actively contribute to the well-being of people and the planet. By adopting an integrated resource-centric competitive advantage and an inside-out approach to strategy, businesses can leverage their resources effectively to create shared value and address stakeholder expectations.

Environmental sustainability is another critical dimension in this framework. With increasing environmental challenges, businesses must prioritize resource efficiency, waste reduction, circular economy practices, and the adoption of green technologies and renewable energy. They need to conduct life cycle assessments to minimize their environmental impact and restore the ecosystems they operate in. By actively pursuing these initiatives, businesses can contribute to a sustainable future and mitigate the adverse effects of their operations on the environment.

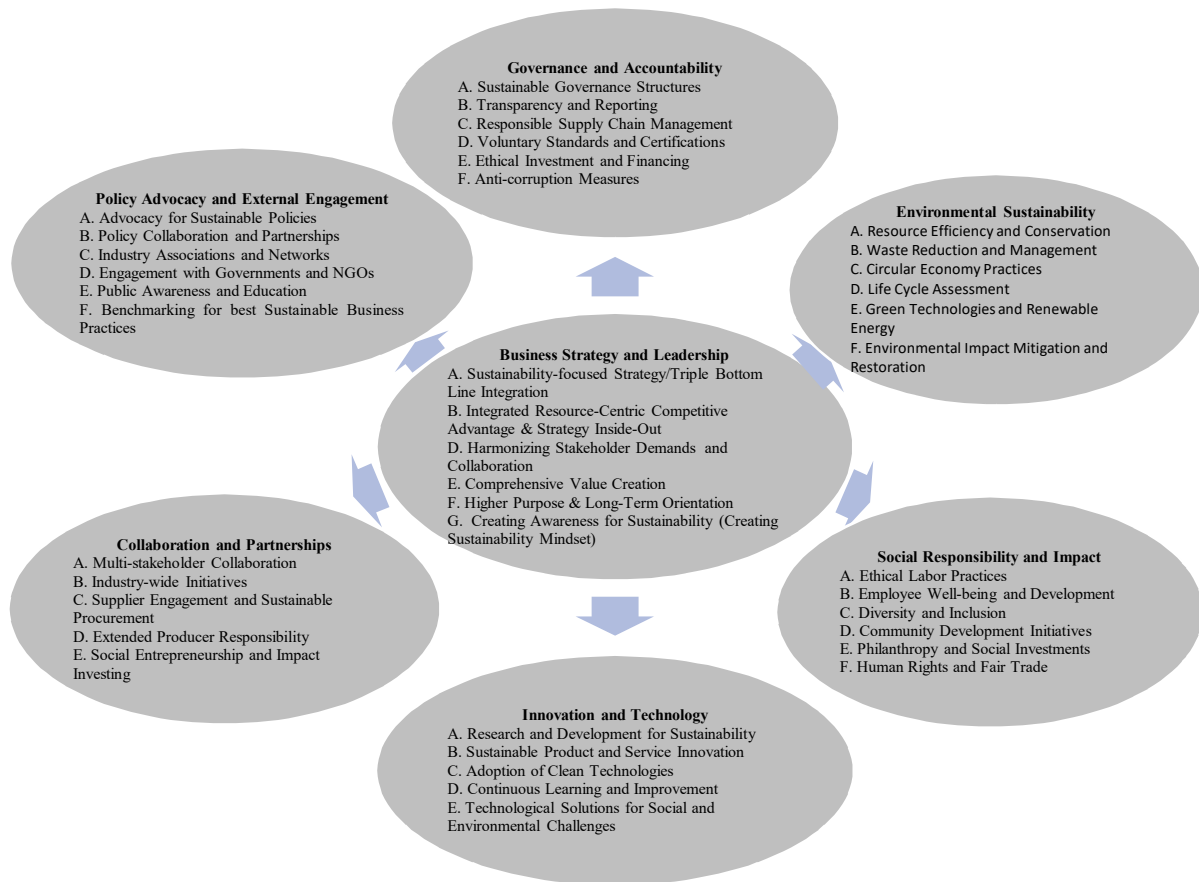
Social responsibility and impact are equally vital components. Businesses must uphold ethical labor practices, prioritize employee well-being and development, embrace diversity and inclusion, and engage in community development initiatives. Through philanthropy and social investments, they can address social challenges and promote human rights and fair trade. By taking on these responsibilities, businesses not only enhance their reputation but also build sustainable relationships with stakeholders and create positive social impact.

Effective governance and accountability mechanisms are crucial in ensuring the success of this framework. Businesses should establish sustainable governance structures, promote transparency and reporting, engage in responsible supply chain management, adhere to voluntary standards and certifications, and seek ethical investment and financing options. By implementing anti-corruption measures, businesses can uphold integrity and ensure responsible business practices.

Collaboration and partnerships are key enablers of sustainable business practices. Businesses should actively engage in multi-stakeholder collaboration, participate in industry-wide initiatives, foster supplier engagement and sustainable procurement, and take on extended producer responsibility. Social entrepreneurship and impact investing can also drive positive change and contribute to sustainable development.

Innovation and technology play a vital role in this framework. Businesses must invest in research and development for sustainability, promote sustainable product and service innovation, adopt clean technologies, foster continuous learning and improvement, and develop technological solutions to address social and environmental challenges. By embracing innovation and technology, businesses can enhance their competitive advantage while driving positive change.

Finally, policy advocacy and external engagement are essential for shaping a sustainable business landscape. Businesses should advocate for sustainable policies, collaborate with policymakers and other stakeholders, actively participate in industry associations and networks, engage with governments and non-governmental organizations, promote public awareness and education, and benchmark best sustainable business practices. These efforts will help create an enabling environment for sustainable business practices and drive systemic change.



**Figure 2. Comprehensive framework for the contemporary strategic management model: strategy for comprehensive value creation.**

Source: own figure

In conclusion, the contemporary strategic management model presented by this comprehensive framework (Figure 2) signifies a new paradigm for businesses. It recognizes the evolving role of businesses in society and the need for comprehensive value creation that encompasses economic, social, and environmental dimensions. By embracing this model, businesses can become agents of change, contribute to the common good, and build a sustainable and equitable future for all.

The core features of the Contemporary Strategic Management Model contribute to the creation of the common good. By embracing a higher purpose, organizations acknowledge their role as agents of change and align their objectives with societal well-being and environmental stewardship. Harmonizing stakeholder demands promotes collaboration, trust, and sustainable relationships, leading to win-win solutions and sustainable outcomes. The integration and optimization of all available resources within the organization foster comprehensive value creation, benefiting both the organization and society. A strategy inside-out approach ensures that organizations align their values, culture, and resources with their strategic objectives and societal well-being. Comprehensive value creation across economic, social, and environmental dimensions promotes a more equitable and sustainable future.

To further enhance efforts in promoting the common good and fostering a sustainable and inclusive future, organizations can incorporate additional elements into the strategic management model. These supportive features, including governance systems and accountability, a long-term orientation,

collaboration and partnerships, innovation and research, employee engagement and well-being, responsible supply chain management, circular economy practices, community development and engagement, advocacy and policy influence, transparent communication and reporting, education and awareness, impact measurement and evaluation, resilience and risk management, ethical leadership, and a culture of continuous improvement and learning, reinforce the core features of the model and contribute to the betterment of society as a whole.

While the proposed Contemporary Strategic Management Model offers a new perspective and framework for organizations, it is important to acknowledge its limitations. Implementing this model requires a significant shift in organizational mindset, culture, and practices. It necessitates overcoming resistance to change and navigating complex challenges inherent in the pursuit of comprehensive value creation. Organizations must also recognize that the model's effectiveness may vary depending on industry-specific factors, regional contexts, and stakeholder dynamics. However, by embracing the new paradigm and leveraging the core and supportive features of the model, organizations can strive towards creating the common good and shaping a more sustainable and equitable future.

In conclusion, the proposed Contemporary Strategic Management Model provides a compelling framework for organizations to develop sustainable business models that serve the common good. By embracing a new narrative and paradigm, integrating stakeholder expectations, leveraging resources, adopting an inside-out approach, and generating comprehensive value, organizations can make a positive impact on society and the environment. Through collaborative efforts and a commitment to continuous improvement, businesses can contribute to the betterment of society, foster sustainability, and create a more inclusive and prosperous future for all.

## Conclusion

In conclusion, the presented comprehensive framework for the contemporary strategic management model reflects a new paradigm for businesses, aligning with the principles of the new story of business and the new paradigm of conducting business. This framework emphasizes the importance of developing a sustainable business model that goes beyond traditional profit-centric approaches and focuses on comprehensive value creation for the common good.

Developing a sustainable business model for the common good requires integrating multiple theoretical perspectives, prioritizing urgent social and environmental needs, engaging stakeholders, aligning strategies with the common good, integrating sustainability into core capabilities, implementing effective corporate governance, and embracing innovation diffusion. By considering these necessities, organizations can create comprehensive value, navigate challenges, and contribute meaningfully to a more equitable and sustainable future.

A future-oriented approach is proposed as part of the contemporary strategic management to develop a sustainable business model for the common good. This approach integrates various theoretical perspectives, including Stakeholder Theory, the Resource-Based View, Corporate Governance, Real Options Theory, Institutional Theory, Systems Theory, the Triple Bottom Line framework, and the Diffusion of Innovation Theory. By incorporating these perspectives, organizations can address urgent needs, navigate challenges, and drive positive social and environmental impacts. The proposed framework encompasses dimensions such as business strategy, environmental sustainability, social responsibility, governance, collaboration, innovation, and policy advocacy. By embracing this comprehensive and future-oriented model, businesses can become agents of change, contribute to a sustainable future, and build long-term success. This transformative approach enables businesses to align their strategies with the common good and shape a better world for future generations.

While implementing the proposed model may present challenges and effectiveness may vary depending on industry-specific factors, regional contexts, and stakeholder dynamics, organizations can strive towards creating the common good and shaping a more sustainable and equitable future. By embracing a future-oriented approach that emphasizes the consideration of long-term impact while acting, businesses can align their strategies with stakeholder expectations, leverage resources, and adopt an inside-out approach to generate comprehensive value. Through collaborative efforts and a commitment to continuous improvement, organizations can contribute to the betterment of society, foster sustainability, and create a more inclusive and prosperous future for all, both in the short term and the long term.

## Literature

1. Anderson A. (2004), *Ethical assumptions in economic theory: some lessons from the history of credit and bankruptcy*, Ethical Theory and Moral Practice, 7, 347-360.
2. Bakoğlu R (2014), *New business model: the contemporary way of strategy creation*, 10th International Strategic Management Conference, June 19-21, Rome-Italy.
3. Bakoğlu R, Öncer A. Z., Yıldız M. L., Güllüoğlu A. N. (2016), *Strategy development process in higher education: the case of Marmara university*, Procedia- Social and Behavioral Sciences, 234, 36-45.
4. Bakoğlu Deliorman R., Bahar M. (2009), *Rethinking of organizational context paradoxes according to power school*, Finance: Challenges of the Future, 9, 236-247.
5. Barney J. B. (2001), *The resource-based view of the firm: ten years after*, Pergamon Press.
6. Bidhan L. P., Freeman F. E., Donald L. C. (2010), *Stakeholder theory: the state of the art*, Academy of Management Annals, 4, 1.
7. Boardman J., Sauser B. (2008), *Systems thinking: coping with 21st century problems*, CRC Press.
8. Chaffee E.E. (1985), *Three models of strategy*, Academy of Management Review, 10, 1, 89-98.
9. Crane A., et al. (2014), *Corporate social responsibility: readings and cases in a global context*, Routledge.
10. Dixit A. K., Nalebuff B. J. (2008), *The art of strategy: a game theorist's guide to success in business and life*, W. W. Norton & Company Inc.
11. Dyllick T., Hockerts, K. (2002), *Beyond the business case for corporate sustainability*, Business Strategy and the Environment, 11, 130-141.
12. Freeman R. E., Liedtka J. (1997), *Stakeholder capitalism and the value chain*, European Management Journal, 15, 3, 286-296.
13. Freeman R. E., Harrison J.S. (2007), *Managing for stakeholders: survival, reputation, and success*, Business and Economics, 200 pages.
14. Freeman R. E., *Stakeholder capitalism*, Journal of Business Ethics, 74, 4, 303-314.
15. Freeman R. E. (2010), *Strategic management: a stakeholder approach*, Cambridge University Press, 276 pages.
16. Freeman R. E., Ginena K. (2015), *Rethinking the purpose of the corporation: challenges from stakeholder theory*, Notizie di Politeia, 31, 117, 9-18.
17. Freeman R. E. (2017), *The new story of business: towards a more responsible capitalism*, Business and Society Review, 122, 3, 449-465.
18. Foster J. B. (2000), *Marx's ecology: materialism and nature*, Monthly Review Press.
19. Gladwin T.N., Kennelly J.J., Krause T.S., (1995), *Shifting paradigms for sustainable development: Implications for management theory and research*, Academy of Management Review, 20, 4, 874-907.
20. Hart S. L., Milstein M. B. (2003), *Creating sustainable value*, Academy of Management Executive, 17, 2, 56-67.
21. Harvey D. (2014), *Seventeen Contradictions and the End of Capitalism*, Oxford Press.
22. Campbell A., Yeung, S. (1991), *Creating a sense of mission*, Long Range Planning, 24, 4, 10-20.
23. Hörisch J., Freeman, R. E., Schaltegger S. (2014), *Applying stakeholder theory in sustainability management: links, similarities, dissimilarities, and a conceptual framework*, Organization and Environment, 27, 4, 328-346.
24. Jarillo J.C. (1988), *On strategic networks*, Strategic Management Journal, 9, 1, 31-41.
25. Jensen M. C. (2002), *Value maximization, stakeholder theory and corporate objective function*, Business Ethics Quarterly, 12, 2, 235-256.
26. Jill Solomon (2021), *Corporate governance and accountability*, 5th Edition, Wiley.
27. Jones T. M., Felps W. (2013), *Shareholder wealth maximization and social welfare: a utilitarian critique*, Business Ethics Quarterly, 23, 2, 207-238.



28. Krugman, P. (2005), *Bunalım ekonomisinin geri dönüşü*, Literatür, İstanbul.
29. Lorenzoni G., Baden-Fuller C. (1995), *Creating a center to manage a web of partners*, California Management Review, 37, 3, 146-163.
30. Pearce J.A. (1982), *The company mission as a strategic tool*, Sloan Management Review, 23, 3, 15-24.
31. Porter M., Kramer, M. P. (2011), *Creating shared value*, Harvard Business Review, January-February, 1-17.
32. Trigeorgis L., Reuer J. (2017), *Real options theory in strategic management*, Strategic Management Journal, 38, 42-63.
33. Vaara E., Whittington R. (2012), *Strategy-as-practice: taking social practices seriously*, The Academy of Management Annals, 6, 1, 285-336.
34. Zollo M., Cennamo C., Neumann K. (2013), *Beyond what and why: understanding organizational evolution towards sustainable enterprise models*, Organization and Environment, 26, 3, 241-259.



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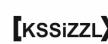
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## **EFFECT OF MANAGEMENT OF MEDICAL FACILITIES ON QUALITY OF MEDICAL SERVICES**

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Czestochowa University of Technology

**Abstract:** The aim of the article is to increase the awareness of the role of quality management in medical facilities and to discuss the key factors determining the effectiveness and quality of patient-oriented medical care. The management of medical facilities plays an important role in providing effective and safe health care for patients and the quality of medical services is a key element to guarantee its highest level. The paper discusses the importance of quality management of medical services and presents various approaches to quality management in medical facilities. Furthermore, the results of empirical research confirmed the relationship between effective quality management and improved medical care and satisfaction of patients and medical staff. These findings emphasize the need to invest in effective methods for managing the quality of medical services in medical facilities.

**Key words:** medical facility, medical service, medical service quality, management of medical facilities

### **Introduction**

Nowadays, the healthcare system represents one of the most important aspects of social life. The management of medical facilities and the quality of medical services are crucial to providing adequate health care to patients. Managing medical facilities requires the ability to coordinate multiple activities and effectively utilize human, financial, and technological resources. High quality of medical services depends on the qualifications of medical staff, efficient treatment, availability of equipment and technology, and ensuring patient safety. In this context, the management of medical facilities and the quality of medical services provided are an important element in the operations of health systems around the world. The present paper's aim is to analyse the issues related to the management of medical facilities and their impact on the quality of medical services. The paper also highlights the key determinants of the efficiency and quality of patient-centered medical care.

### **Characteristics of medical facilities**

According to Article 68 of the Constitution of the Republic of Poland, every citizen, regardless of his or her financial situation, has the right to health care, with the entity responsible for access to health care services being the public authorities. (<https://bip.brpo.gov.pl/pl/kategoria-konstytucyjna/art-68-prawo-do-ochrony-zdrowia>). Medical facilities are various types of institutions and entities that provide health care, treatment of diseases, and rehabilitation services. These include:

- hospitals, which are facilities that provide comprehensive medical services, such as diagnosis, treatment, rehabilitation, and palliative care. Hospitals, depending on their treatment profile, are divided, among others, into general, psychiatric, oncology, pediatric, cardiology, and other hospitals;
- medical health centers: entities where doctors and other specialists provide medical advice and services for the diagnosis and treatment of diseases. These include public facilities, such as health clinics, as well as private facilities, such as specialist medical clinics;
- pharmacies: establishments where patients can purchase prescription or non-prescription drugs and medical products;
- rehabilitation centers: facilities where patients receive comprehensive rehabilitation services after illnesses or injuries. Among them are neurological, orthopedic, cardiology, and other centers;

- diagnostic laboratories: facilities where laboratory tests, such as blood, urine, stool, and microbiological and genetic tests are performed
- doctor's offices: smaller establishments where doctors provide medical services. There are many private doctor's offices that specialize in various fields of medicine.
- Hospices: facilities where patients receive specialized palliative care in the terminal phase of the disease ( Chołuj, 2019 ).

The above-mentioned medical facilities can operate as public entities, funded by the state budget and the National Health Fund, or as private entities, funded by other sources such as health insurance, patient payments, or private funds. Public healthcare includes hospitals, clinics, health centers, and specialist medical clinics such as university clinics. Private healthcare, on the other hand, includes private clinics, private clinics, doctors' offices, and specialized diagnostic or rehabilitation centers.

Both forms of healthcare have their advantages and disadvantages. Public care provides free access to basic medical services for all citizens, but waiting times for an appointment or procedure can be long, with the limited range of services. Private care offers faster access to medical services and a greater choice of facilities and doctors but is more expensive and may be unavailable to some patients due to differences in income (Nagraba, 2015, pp.15-127).

### Medical services and their quality

Medical services are an area that greatly affects the health and lives of patients, so it is important to ensure their high quality. Medical services are a broad spectrum of healthcare activities, including diagnosis, treatment, rehabilitation, and disease prevention. According to K. Krot (2008), a medical service is considered to be "a series of activities of an intangible nature: from the patient's first contact with a healthcare facility until his or her leaving it, undertaken to ensure health or improve personal qualities."

The market for medical services should secure the basic health needs of society. Today, increasing resources, especially human resources, whose availability determines the number and quality of medical services provided, has become a priority task.

The term "quality" is difficult to define. This is due to several reasons:

- its multidimensional and interdisciplinary nature,
- quality assessment depends on experience and knowledge,
- the concept of quality is changing as a result of the development of the economy just as the level of awareness of entrepreneurs, managers, and employees,
- it depends on the quality concepts used in the organization.

The term "quality" originates from the Greek word *poiotes*, introduced for the use of philosophical disputes, denoting the possession of certain qualities to evaluate specific things, later translated into Latin by Cicero as the word *qualitas*, denoting the properties of an object. Plato considered quality to be "a certain degree of perfection" ( Bielawa, 2011, pp. 143-152). This statement was the beginning of the development of the concept of quality, an important element in the development of society. Current literature reports a considerable number of definitions proposed for the concept. For example, according to P.B. Crossy, quality is compliance with requirements ( Ząbek & Ząbek-Kwiek, 2015, pp. 117-131 ). E.W. Deming defines quality as "the expected degree of uniformity and reliability at the lowest possible cost to meet market requirements"(Deming, 1986). In contrast, for J.M. Juran, quality means utility (Juran, 1988).

Furthermore, the concept of "quality in medical services" in European countries gained the attention of politicians and government authorities in the mid-1980s. According to the World Health Organization (WHO), the concept has been defined as a composite of the characteristics of a service product, while assuming that quality consists of all those characteristics of a service product that, taken together, ensure that the product can satisfy both expressed and unexpressed needs of the buyer. Quality in the area of medical care is the result and the way the resources are used, the organization of services, and patient

satisfaction. It is also the degree to which health services, involving individuals and populations, increase the likelihood of meeting the expectations for treatment outcomes and demonstrate compliance with current professional knowledge (Wiśniewska, M. 2016).

According to the Ministry of Health, the quality of medical services depends on several factors, such as availability of services, effectiveness of treatment, patient safety, patient communication, respect for the patient, responsibility for the patient's health, and cost-effectiveness (Ministry of Health, 2020). Furthermore, according to a report by the European Agency for Safety and Health at Work (EU-OSHA), key factors affecting the quality of medical services include the skills of medical staff, the availability and effectiveness of medicines and medical equipment, hygiene standards, and safety procedures (EU-OSHA, 2019).

Various methodologies are used in research on the quality of medical services, including patient surveys, clinical audits, risk analyses, health care process evaluation, and patient safety research. According to a study conducted in Poland, the quality of medical services is perceived by patients as one of the most important criteria for choosing a medical facility and deciding to continue treatment (Szpringer et al., 2015, pp. 132–137).

### **Effect of management of medical facilities on quality of medical services**

There are many studies both in the Polish and world literature devoted to the concepts and methods of management in medical institutions. This is due, among other things, to the dynamic development of medical entities, competition, or technological advances. These factors mean that medical facilities that cannot meet the quality expectations of patients are eliminated from the market. Recent years have also seen an increase in the awareness of patients and their needs for medical services, making the development of medical facilities dependent on the quality of their services. Many authors have demonstrated that patient satisfaction with treatment is, along with the knowledge and experience of the staff and access to increasingly modern diagnostic methods, a prerequisite for good treatment results. Therefore, the achievement of high-quality medical services requires effective coordination of activities and the ability to adapt to ever-changing conditions. There are many entities in the medical services sector, such as patients, health professionals, the National Health Fund, and the public. Each of these entities has its own goals and interests, which means that health care quality must be analyzed from many different perspectives.

Ensuring a high level of quality in medical services is expensive and therefore cannot be considered only as an investment. Investing in quality should take into account marketing aspects such as the prestige or image of the facility in the market, but also the possibility of building loyalty relationships between the patient and the facility.

The new approach to quality issues in medical services is a result of changes in global markets, such as stricter requirements for safety and producer responsibility for a product or service, increasing customer demands for reliability, durability, ease of use, and accessibility. The economic factor is also important as it influences medical facilities' interest in quality issues. This is because it was found that there is a direct relationship between the quality of the services provided and the financial performance of the organization. Improvement in the level of quality should therefore lead to strengthening the position of the medical facility and attracting patients and thus improving the financial results.

Examples of medical facility management include the following areas: human resource management, financial management, clinical process management, and quality management. Each of these elements is critical to providing quality health care to patients:

*Human resource management:* medical staff is a key component of a medical facility. Therefore, human resource management is extremely important. Human resource management includes recruitment, training, developing, and motivating staff. Medical personnel should be qualified and

experienced enough to provide quality health care to patients. Furthermore, medical staff should be motivated to work to provide the best possible care to patients.

*Financial management:* Financial management is important for maintaining the financial stability of a medical facility. It is worth noting that medical facilities have specific financial requirements that differ from other enterprises. Financial management of a medical facility includes, but is not limited to, budget planning, cost control, and revenue and expense management. Effective financial management allows medical facilities to invest in growth and modernization, which translates into the quality of services they can offer to patients.

*Clinical process management:* Clinical process management is a guarantee of effective and efficient healthcare. It includes managing treatment processes, monitoring the patient's condition, and coordinating the activities of medical staff.

*Quality management:* Management of the quality of services in medical facilities is a comprehensive process that encompasses various aspects of the activities of medical facilities. There are many quality management tools and methods for the continuous improvement of medical processes and services. In any medical facility, the implementation of a quality management system and obtaining ISO 9001 certification is expected to bring many tangible and intangible benefits. ISO 9001 includes detailed quality management system requirements that enhance the ability to consistently deliver care that meets patient needs, as well as statutory and regulatory requirements. For patients, the certification of a quality management system by PCC-CERT proves that a medical facility is able to meet their requirements and needs. This standard is implemented to improve the quality of services and products by understanding and meeting customer requirements, using a process approach, as well as providing results of their effectiveness and continuous improvement based on the information collected. The standard enforces methods to improve process efficiency.

One solution is to embrace the organizational processes with the Deming cycle, or PDCA (Plan-Do-Check-Act). Planning is the first step in the quality management process. In this stage, goals and a strategy for service quality are defined. It is worth taking into consideration patient expectations, legal regulations, medical standards, and resource availability. The second stage is the implementation of the plan, the DO stage. This is where specific measures are implemented at the medical facility. At this stage, it is important that employees are properly trained and equipped with the necessary tools and materials. The next stage is CHECK, which means checking the effectiveness of the actions taken at the DO stage. In this stage, the results are monitored and their compliance with the established goals is assessed. If the results are unsatisfactory, appropriate corrective action should be taken. The final stage is ACT, which is the implementation of measures to improve the quality of services. Based on the results of monitoring and analysis, a corrective action plan can be designed and implemented at the medical facility (Wawak, 2002, pp. 21-24).

Communication with patients is also an important part of service quality management. Patients should be informed about the standards of medical care and the processes of managing the quality of services, whereas medical facilities are required to allow patients to participate in the process of evaluating the quality of services and provide them with the opportunity to make comments and suggestions.

This forms the patient's experience both by all the elements and situations that the patient encounters when he or she is provided the services in a medical facility, and contact with the facility's employees, starting with the appointment process. This contact builds the patient's perceptions and opinions about the quality of the entire entity's work. Therefore, the goal of the activities of medical institutions is to achieve patients' satisfaction and gain their trust while the quality of medical services becomes one of the most important elements affecting the effectiveness of healthcare institutions in the competitive market ( Horbaczewski, 2006, p.10).

The review of the literature on the issue studied revealed examples of empirical studies that have confirmed the relationships between quality management of medical services and improved medical care and patient and medical staff satisfaction, along with their sources. For example, a study conducted by Linda Aiken et al. in the United States found that medical facilities that used advanced service quality management methods had better patient safety scores than facilities that did not ( Aiken et al. 2002, pp. 1987-1993). Furthermore, a study conducted in Switzerland found that medical facilities using service quality management received higher patient satisfaction ratings than facilities that did not implement such management ( Alkhenizan & Shaw, 2011 ). According to a study conducted in Poland, the implementation of programs for the management of the quality of medical services in hospitals led to a reduction in medical errors and improved patient satisfaction ( Trzcińska., 2019, pp. 120-125 ).

These results confirm that effective management of the quality of medical services is key to providing the best quality of health care for patients and for the satisfaction of medical staff.

## Conclusion

In conclusion, service quality management in medical facilities is a key element for providing patients with the best possible medical care. There are many tools and methods for the continuous improvement of medical processes and services. It is important for medical facilities to focus on providing top-quality services to attract and retain patients and provide them with high-quality medical care.

Therefore, the quality of medical services is one of the main elements of the effectiveness of healthcare entities in a competitive market, and patient satisfaction with medical services is a prerequisite for good treatment results. The results of the evaluation of the quality of health services are the basis for their improvement, and, at the same time, determine the implementation of the principle of customer-patient orientation.

## Literature

1. Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J., & Silber, J. H. (2002), Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Jama*, 288(16), 1987-1993.
2. Alkhenizan A, Shaw C. (2011). Impact of accreditation on the quality of healthcare services: a systematic review of the literature. *Ann Saudi Med*, Jul-Aug;31(4):407-16. doi: 10.4103/0256-4947.83204. PMID: 21808119; PMCID: PMC3156520
3. Bielawa A., ( 2011), „Postrzeganie i rozumienie jakości – przegląd definicji jakości, *Studia i prace Wydziału Nauk Ekonomicznych i Zarządzania, Wydawnictwo Naukowe Uniwersytetu Szczecińskiego*, Tom 21.
4. Buchbinder, S. B., Shanks, N. H. (2016). *Introduction to health care management*. Jones & Bartlett Learning.
5. Chołuj B., ( 2019), *System opieki zdrowotnej w Polsce - efekty zmian w Polsce i krajach sąsiednich* (red.). T. Wydawnictwo Naukowe, Scholar, Warszawa.
6. Deming, E. W., (1986). *Out of the crisis: quality, productivity and competitive position*. Cambridge University Press..
7. European Agency for Safety and Health at Work Consolidated Annual Activity Report 2019 , <https://osha.europa.eu/en/publications/annual-activity-report-2019> ( dostęp: 23.04.2023).
8. Horbaczewski D., ( 2006), Filozoficzne źródła współczesnego pojmowania jakości, „*Problemy Jakości*” 2006, nr 10, pp. 9-12..
9. Juran, J. M. (1988). *Juran on quality by design: the new steps for planning quality into goods and services*. Free Press.
10. Karaszewski R., (2001), *TQM teoria i praktyka*, TNOiK, Toruń .
11. Krot K., (2008). *Jakość i marketing usług medycznych*. Warszawa: Wolters Kulwer business. Wyd.1.
12. Marczak M., ( 2001), Wymiary jakości produktu, „*Problemy Jakości*”, nr 7, 10-15.
13. Ministerstwo Zdrowia,(2020), <https://www.gov.pl/web/zdroie/jakosc-w-opiece-zdrowotnej>. ( dostęp: 23.04.2023).
14. Opolski K., Dykowska G., Moździoń M., (2021), *Zarządzanie przez jakość w usługach zdrowotnych. Teoria i praktyka*, CeDeWu, Warszawa.





15. Nagraba K., (2015). Zarządzanie wartością klienta na rynku usług medycznych w Polsce. Zeszyty Naukowe PWSZ w Połocku. Nauki Ekonomiczne, XXI, 115–127.
16. Szpringer M., Chmielewski J., Kosecka J., Sobczyk B., Komendacka O., (2015), Poziom satysfakcji pacjenta jako jeden z aspektów jakości opieki medycznej, Medycyna Ogólna i Nauki o Zdrowiu, om 21, Nr 2.
17. Tatarkiewicz W., (1997), Historia filozofii, Warszawa. tom 1.
18. Trzczińska H., (2019), Satysfakcja Pacjenta W Wybranych Aspektach Oceny Jakości Usług Medycznych, Studia Ekonomiczne Gospodarka • Społeczeństwo • Środowisko Nr 1/2019 (3) 119.
19. Wawak S., (2002), Zarządzanie jakością. Teoria i praktyka, HELION ,Gliwice.
20. Ząbek J., Ząbek-Kwiek K., (2015), Służba zdrowia a doskonalenie jakości, Jakość usług medycznych, Ekonomika i Organizacja Przedsiębiorstwa, 6 (785) | 117-131.
21. <https://www.gov.pl/web/zdrowie/jakosc-uslug-medycznych>. (dostęp: 21.04.2023).
22. <https://bip.brpo.gov.pl/pl/kategoria-konstytucyjna/art-68-prawo-do-ochrony-zdrowia>.(dostęp: 21.04.2023).





## **ONLINE CONSUMER BEHAVIOR DEVELOPMENT FACTORS. CASE OF POLAND**

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**Abstract:** The contemporary economy is witnessing rapid growth of e-commerce, consisting of sales of goods and services via telecommunication/IT networks and as such becoming a new way of running business. Online consumer behavior, which means the realization of the consumption process over the Internet, is a factor contributing to the growth of e-commerce. Its development is linked to new means of communication. Mobile devices (mobile phones, smartphones, tablets) with an Internet connection let consumers buy and use consumer goods outside traditional stores, which promotes the development of new consumption patterns. The main purpose of the article is to identify the key factors affecting online consumer behavior in Poland. The most important of these were identified on the basis of quantitative and qualitative research, namely social commerce, m-commerce, online payments, reputation and confidence vis-a-vis online stores. A practical implication from the research is the demonstration of online consumption potential growth. A social implication of the paper is to emphasize the importance of online consumer behavior as a new trend in consumption

**Key words:** online consumer behavior, e-commerce, consumption

### **Introduction**

The last 30 years were a period of rapid growth in all types of access to the Internet, from 1 million users in 1990 to 5.4 billion in 2023 ([www.internetworldstatistic.com](http://www.internetworldstatistic.com)). The Web has become an important aspect of communication strategy, due to its ability to provide information, entertainment and e-shopping. It is a tool for running a business. Total value of e-commerce B2C sales in 2022 is estimated above 5.7 trillion US dollars worldwide. Since 2022, Internet markets have had the largest share of online shopping worldwide. (Statista 2022)

With the popularity of the Internet, consumers' purchasing behaviors have changed dramatically, and the crucial change is that consumers can now more easily search, share and buy products online (Tseng, Wei 2020). In response to the challenges posed by today's new era, users have adapted their online consumer behavior accordingly. This adaptation has led to the development of new habits and behaviors among consumers in the digital environment, which is characterized by personalized purchasing strategies to a greater extent.

Online consumer behavior has been studied extensively for tens of years, but what makes the issue more difficult to understand is the transformation undergone by the main stakeholders: consumers and businesses. Firstly, each consumer is also a computer user today. Secondly, a physical store has been transformed into a virtual one through information technology (IT). Thirdly, information technology has been put in the spotlight in e-commerce, becoming a store in itself as a website. (Koufaris 2002).

The main purpose of the article is to identify the key factors affecting online consumer behavior in Poland.

### **Online consumer behavior**

The development of means of communication (smartphones, tablets, mobile phones, laptops with Internet access functionality) has had a major effect on changes in consumption. Online consumer behavior occurred as a phenomenon, meaning the realization of the consumption process over the Internet. Online consumer behavior comprises the following stages of making consumer decisions: introducing problems (i.e. identifying consumer issues), information searches (e.g. finding information

to solve problems), evaluating (i.e. assessing possible outcomes or events), selection (i.e. determining which products will be purchased) and results (e.g. satisfied/dissatisfied with the product, or discard the product) (Darley et al. 2010). Consumers tend to behave differently in an online shopping environment and in traditional shopping. They pursue purchasing and after-sales service behaviors in different ways (Basalamah et al., 2020).

Early research on e-commerce indicated that consumers were focused mainly on functional and utility aspects (Brown et al., 2003). This research was largely oriented towards identifying the ways used by consumers during online shopping. Special emphasis was on identifying the qualities of e-consumers. As typical innovators, they were usually better educated, with a higher social and economic status, younger than average, more often male (Dennist et al., 2009). Today's researchers focus on consumer-specific factors, such as demographics, personality, values, lifestyle, attitudes, financial resources, psychological factors, behavioral qualities (e.g. seeking product information, access location, duration and frequency of use), motivation and experience. Chan et al. (2003) proposes to focus on the following five important online consumer behavior factors: consumer qualities, impact of the environment, product/service qualities, media qualities, salesperson and agent qualities, which are associated with three key components (intention, acceptance, purchase). These factors can be defined on the basis of online users' influence, reviews or opinions, personal opinions of close friends, and multiple other aspects and interactions that may occur in such digital environments as social networks (Gursoy, 2019).

In addition to the above, other factors of relevance in the choice of e-consumption include: quick buying opportunity at virtual stores; being able to choose among online stores depending on one's individual preferences; storage of large volumes of product information and buying options, which are not offered by brochures or technical description; as well as the ability to obtain specific product information from the manufacturer via e-mail. Research of e-consumers indicates that the main reasons to choose online stores are the following: more convenience and time saving, easy shopping, cash savings, fun, better choice of products, easier delivery, availability of information (Windham, Orton 2001). In their e-consumption studies, Richard et al. (2010) pointed to the importance of the online product and service information search experience. When the challenge of seeking information matches the ability of actual consumers, such consumers become more proactive, satisfied, and creative. Further, he points to the online store atmosphere, referring to intentional development of the website environment in ways that incite positive reactions. These are essential for the success of websites as they determine online browsing and shopping behaviors. He emphasizes the importance of exploratory behaviors and website engagement.

Social media affect e-consumer behavior by helping to connect businesses to consumers, build relations and support such relations at the right time, on a low-cost basis (Kaplan and Haenlein 2010). Currently, e-commerce deals are increasingly closed through social media, through which larger groups of potential buyers can be reached. Social networking sites enable businesses to engage and interact with their prospective and actual customers by offering more intimacy in existing consumer relations and building new consumer relations.

## Methodology

The objective of the study was to find the answer to the following research question: which factors determine the development of online consumer behavior in Poland? Desk research method was applied in the search for an answer to that study question, conducted on the basis of data published in the reports by: Centrum Badań Opinii Społecznej (CBOS) - a survey of a sample of 1087 persons (of which 58.9% were surveyed with the CAPI method, 28.7% with CATI and 12.4% with CAWI); Gemius - a survey among 1559 Internet users aged 15 and more, using CAWI surveys in an online panel; and the "Information society" report produced by the Central Statistical Office of the Republic of Poland (GUS).

## Findings

Rapid development of e-consumer behavior is observed in the 21st century. This is primarily due to the extent of Internet access available to consumers. According to the Central Statistical Office (GUS) research, 93.3% households in Poland had access to the Internet, of which 92.6% had broadband Internet. Based on classification by place of residence, the percentage of households with Internet access was higher in large cities (94.4%) than in smaller towns or rural areas (93.2%). Analysis of the socio-demographic qualities of Internet users is interesting. CBOS surveys indicate that in 2022, almost the entire youngest population of Poland under 25 years of age (100%) are Internet users, followed by a great majority of people aged 26 to 34 (100%). The proportion of Internet users decreases with age and is lowest among people aged 65+ (41%). The majority of Internet users are relatively well educated (97% users having an academic degree and 87% have secondary education). Occupational status is a distinguishing variable for Internet users. People working in managerial positions (100%) and technical/mid-level jobs (100%) are the largest groups of Internet users. The population of Internet users is smallest among farmers (71%) (CBOS 2022). Summing up, a typical Internet user in Poland is a young person, relatively well educated, with a relatively high level job.

The use of the Internet as means of consumption depends on the level of digital competence, enabling individuals to use Web browsers, take part in chats, discussion forums, use video and music file sharing applications, buy or sell online. Research on digital competences indicates that 42.9% of the Polish people have the general competences. 22.3% were competent on a basic level and 20.6% were above basic. 18.8% of this population were people with poor general digital skills, whereas the people not having such skills were the smallest group (4.9%). (Digital competence 2020). Having none or poor digital competence is an important barrier for growth of e-commerce.

The extent of e-consumer behavior depends on the devices owned by Internet users. The number of people using mobile devices such as laptops, mobile phones, notebooks, tablets, smartphones is growing systematically in Poland, which has a positive effect on increasing interest in online consumption. Compared to 2010 with 45% of such devices, there were already 96% people in Poland in 2022 who declared using such devices for connecting to mobile Internet (CBOS 2022). These devices are more frequently used as tools of communication with online stores. Polish people show an increasing tendency to use mobile devices for online shopping. They use smartphones (75%) and laptops (73%) most often in their shopping. These are followed by desktop computers (41%) and tablets (19%). M-commerce has become a trend encompassing the entire population of e-consumers. The advantage m-commerce has over non-mobile e-commerce is its convenience and faster growth potential. More and more consumers engage in multichanneling, i.e. diverse use of electronic devices in the process of buying products. More than half of all the respondents declaring that they shop on their mobile devices claim that they sometimes start their shopping from their phone and close the transaction from a PC. (Gemius 2022).

Along with increasing accessibility of the Internet, online consumption is growing among the Polish people. The proportion of people who have purchased goods or services for private use online during the last 12 months increased from 47.8% in 2018 to 64.6% in 2022. The largest group of consumers is the population aged under 25-34 years of age (89.4%), with higher education (86.7%), self-employed (85.6%), living in big cities (69.4%) (GUS 2022).

The structure of products purchased online is interesting, too. Consumers are most willing to buy clothing, which 79% Internet users have done. Other popular purchases among consumers include footwear (66%), cosmetics (65%), books, records, movies (57%), personal electronics (52%), food products (45%). The goods which are purchased relatively rarely include collector items (15%), computer software (19%) and computer games (27%). (Gemius 2022).

Certain payment methods favor buying products from online stores. Online transfers are a common method of payment for online shopping, such as quick transfers via a payment site (such as PayU, przelewy24, Dotpay, Tpay) (70%) and cash on delivery (47%). Online payments are popular primarily

among male users aged 25-34, with a university degree, whereas traditional payments are preferred by women, aged 15-24, with vocational and elementary education. (Gemius 2020).

Not only do e-consumers buy products online, but also e-services. Depending on the type of e-services, they can be consumed while using the Internet or in real world, following their purchase online. Of the diverse range of e-services, Polish people use online banking services quite frequently (79%). The characteristics which are associated with using online banking include higher education - specifically, people with the highest academic qualifications use these services most often (93%) - and age, with people of the 25-44 age group using these services noticeably above average (87%).

E-culture constitutes another type of services sought by consumers online. More than a quarter of all the Internet users were using these services (27%). One in three Internet users reads blogs. More than one in four (21% of the surveyed population) declare that they download free software, music and videos from the Internet. Almost three fifths of Internet users (57%) watch TV, movies, shows or other video resources online. Online radio consumers represent over one fourth of all the Internet users (28%). E-culture services are usually consumed by young people, aged 18 to 34, well educated (CBOS 2022).

The Internet community also use e-administration services, comprising the use of websites dedicated to civic duties (filing tax returns, changing their registered address of residence), rights (e.g. social security), official documents (such as IDs, birth certificates), public education services (e.g. libraries) and public healthcare services (e.g. hospitals). In 2022, the group of online public administration service users represented 55.4% of the general population (GUS 2022). Research shows that e-culture services are more popular among women, whereas men are more willing to use e-administration. The age groups which are most active e-service consumers are: 25-34 and 35-44 years of age (Wolny 2013).

E-consumers can use multiple online channels for buying products. In addition to the traditional online channels, including online stores and auction sites, social commerce is gaining importance, developed by the largest social media platforms such as Facebook and Instagram. These can be used to shop directly from posts at brand fanpages, from the profiles of online influencers, or from the marketplace tab (Facebook) or e-store (Instagram). Consumers who buy products and services through social media will mainly choose Facebook (78%), followed by Instagram (31%), YouTube (19%) and Tik Tok (8%) (Gemius 2022)

Motivation for online shopping plays an important part in the analysis of online consumer behavior. The key motivation for Polish people to choose e-consumption is the easy buying process, i.e. 24/7 availability (75%) as well as convenience, i.e. not having to go to a physical store (74%), followed by more attractive prices than in conventional stores (67%). Other online shopping drivers are related to the operating characteristics of online stores, i.e. unlimited time to choose, ability to browse for as long as I want (65%), easy price comparisons (64%), greater choice of products than in traditional stores (63%), and availability of various payment methods (52%). Financial aspects are the next determining factors. The two strongest motivators here are the prices, lower than at traditional stores (51%) as well as lower cost of delivery (51%). Other financial benefits are motivating as well, such as discounts and bonuses (43%), discount for online buyers (42%) (Gemius 2022).

The need to experience pleasure is an equally important motivation for online consumer behavior. Internet users usually mention playing video games, downloading game, music, video, image files (28%), listening to the radio, watching TV online (29%) and playing network games (8%) as sources of entertainment (Szymanek 2013).

In the e-consumer behavior process, using the Internet for product information search is an important factor. Literature suggests that information search can be target-oriented before the purchase, or based on interests, hedonist recreation and enduring involvement with a good or service (Richard et al. 2010). 85.4% of Internet users in Poland seek new product information online, whereas reading, downloading files from newspapers and periodicals with new product information is important for 73.9% of Internet users (GUS 2022). E-consumers would most commonly seek information through online store pages



(94%) and general search engines such as Google (92%). Further sources used by consumers to find new product information are price comparison sites (86%), the pages where they bought a product (83%), pages dedicated to a specific product category, including blogs and forums (61%), online auction sites (58%) and social media sites (57%) (Gemius 2020).

Growth of e-consumer behavior is demonstrated by the frequency of shopping through electronic consumer resources. As shown in the report by Advox (2021), almost half of all the Internet users who declare to shop online at least several times a month (40.1%), whereas 19.5% Polish people shop in this way about once a month. 11.4% shop online once a quarter. 28.2% buy products regularly, at least once a week. This data proves that online consumer behaviors are well established among consumers.

Specific consumer behavior patterns only become a long-term trend when they are perceived by consumers as important in the future. When analyzing the expectations Polish consumers have vis-a-vis e-consumption, it is reasonable to note certain factors of essential importance for potential behaviors. Surveys suggest that Polish people would be more willing to shop online if the prices were lower than at traditional stores (51%), the costs of delivery were lower (51%), discount codes were available (43%), higher discounts for online buyers (42%), faster delivery (30%) (Gemius 2022).

The social aspects affecting e-consumer behaviors include the retailer's reputation and confidence in an online store. In Poland, the primary foundation for building confidence in an online store are the opinions about the store (48%). Other important aspects include: availability of payment upon delivery (33%), clear and transparent information about returns or complaints (26%). The importance of opinions about an online store is primarily stressed by women aged 25-34, with a university degree. (Gemius 2020) Confidence building factors mainly include trust labels and certificates from independent organizations, the store's graphic design, availability of the terms and conditions, and clear, transparent notice of handling returns and complaints.

Credibility is a factor that contributes to consumers' confidence in a website. Online trust in e-commerce means "an attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited" (Beldad et al., 2010). The findings from surveys of young e-consumers indicate that their level of trust in website is medium. The key confidence drivers include keeping one's promises and undertakings, availability of payment/signup security monitoring tools, and being misled or cheated on by retailer (Bylok 2022).

There are certain growth barriers occurring in Poland for e-consumption. The most important of these are based on the functionality of the Internet as such, i.e. no physical contact with the product. 41% of the surveyed population pointed to this barrier. Further barriers include excessive costs of delivery and too long waiting time (22%). Social barriers, such as no direct contact with the seller and not being able to consult them, are relevant as well (13%). 11% of respondents mentioned their concerns about Internet security (Geminius 2022).

## Summary

Several conclusions can be derived from the analysis of e-consumer behavior in Poland. Firstly, consumption via electronic means of communication is becoming more popular, gradually replacing "traditional" consumption, particularly after the period of the pandemic. This is supported by research findings, pointing to a major growth of online shopping volumes. Therefore, manufacturers and vendors of consumer goods should focus more on activities related to offering their products and services in the virtual world. Secondly, new consumer behavior patterns are originating from the emergence of new forms of selling goods and services online. Thirdly, buying goods via electronic means of communication is an opportunity to experience pleasure and adventure typical of pleasure-oriented consumption tendencies exhibited by a consumer society. Fourthly, certain technical and mental/social barriers exist that limit growth of consumption via electronic means of communication. These include habits, customs, consumption patterns typical of "traditional" consumer behaviors which are absent

online, particularly such as the lack of physical contact with the seller. An important barrier is the feeling of insecurity associated with payment transaction. Another barrier limiting growth of e-consumption is the lack of confidence toward online stores, as a result of uncertainty about the quality of goods and the purchase transaction as such.

## Literature

1. Advox (2021), Polish people's shopping habits 2021, <https://www.advox.pl/> (access: 22.05.2023)
2. Basalamah J., Haerdiansyah Syahnur M., Ashoer M., Bahari A.F. (2020). Consumer Behavior in Online Transportation Services: A Systematic review of Business Strategies, "Ilomata International Journal of Management", Vol. 1(3), pp.134-144.
3. Beldad, A., de Jong M., Steehouder M. (2010), How shall I trust the faceless and the intangible? A literature review on the antecedents of online trust, "Computers in Human Behavior", Vol. 26 (5), pp. 857-869.
4. Brown M., Pope N., Voges, K. (2003), Buying or browsing? An exploration of shopping orientations and online purchase intention, "European Journal of Marketing", Vol. 37 (10/11), pp. 1666-1684.
5. Byłok F. (2022), Examining the Internet of Trust on the e-Commerce Purchase Intentions of Young Consumers in Poland, "Journal of Internet Commerce", Vol. 21(3), pp.364-391.
6. Centrum Badań Opinii Społecznej (2022), Korzystanie z Internetu w 2022 roku, Komunikat z badań, nr 22/2022, <https://www.cbos.pl/PL/home/home.php> (access: 20.05.2023)
7. Chan G., Cheung Ch., Kwong T., Limayem M., Zhu L. (2003), Online Consumer Behavior: A Review and Agenda for Future Research, BLED 2003 Proceedings. 43, <http://aisel.aisnet.org/bled2003/43> (access: 10.05.2023)
8. Darley W.K., Blankson C., Luethge D.J. (2010), Toward an integrated framework for online consumer behavior and decision making process: a review, "Psychology & Marketing", Vol. 27, pp. 94-116.
9. Dennist Ch., Merrilees B., Jayawardhena Ch., Wrigh L.T. (2009), E-consumer behaviour, "European Journal of Marketing", Vol. 43 (9/10), pp. 1121-1139.
10. Digital competence 2020, <https://www.gov.pl/web/cyfryzacja/kompetencje-cyfrowe> (access: 20.05.2023)
11. Gemius (2020) E-Commerce w Polsce, Polskie Badania Internetu. [www.gemius.pl](http://www.gemius.pl) (access: 20.05.2023)
12. Główny Urząd Statystyczny (2022) Społeczeństwo informacyjne w Polsce w 2022, Warszawa. <https://stat.gov.pl/obszary-tematyczne/nauka-i-technika-spoleczenstwo-informacyjne/spoleczenstwo-informacyjne> (access: 22.05.2023)
13. Gursoy D. (2019), A critical review of determinants of information search behavior and utilization of online reviews in decision making process, "International Journal of Hospitality Management", Vol. 76(B), pp. 53-60.
14. Kaplan A. M., Haenlein M. (2010), Users of the world, unite! The challenges and opportunities of social media, "Business Horizons", Vol.53, pp. 59-68.
15. Koufaris M. (2002), Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior, "Information Systems Research", Vol.13 (2), pp.205-223.
16. Richard M-O., Chebat J-Ch., Yang Z., Putrevu S. (2010), A proposed model of online consumer behavior: assessing the role of gender, "Journal of Business Research", Vol.63 (9-10), pp. 926-934
17. Statista (2022), E-commerce worldwide - statistics & facts, <https://www.statista.com/topics/871/online-shopping/#topicOverview> (access: 15.05.2023)
18. Szymanek V. (2013), Społeczeństwo informacyjne w liczbach 2013, Wydawnictwo Ministerstwo Administracji i Cyfryzacji, Warszawa
19. Tseng Ch-H, Wei L-F. (2020), The efficiency of mobile media richness across different stages of online consumer behavior, "International Journal of Information Management", Vol. 50, pp. 353-364.
20. Windham K., Orton K.(2001). *Dusza Nowego Konsumenta. Postawy, zachowania i preferencje e-klientów*, Wyd. CeDeWu, Warszawa.
21. Wolny R. (2013), Konsumpcja e-usług jako przejaw innowacyjności konsumentów, „Handel Wewnętrzny”, styczeń-luty, pp. 255-264.
22. <https://www.internetworldstats.com/stats.htm> (access: 22.05.2023)





## THE GPT CHAT IS CAPABLE OF MEDIATING TO PREVENT STRIKES? INTERVIEW WITH ARTIFICIAL INTELLIGENCE

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**Abstract** The purpose of this study is to investigate if Chat GPT is able to help mediator to avoid strikes. Mediation is a method of Alternative Dispute Resolution (ADR). It can be applied to solve different types of conflicts, such as disputes about Civil, Family, Labour, Contractual and sometimes Criminal Law. To investigate the main subject of this research, the methodology utilized was a interview direct with Chat GPT, which is an Artificial Intelligence able to answer the questions. The Chat GPT strive to be a helpful resource to use in Mediation procedure, but it's essential to consider the limitations of AI and seek guidance from qualified professionals for specific and critical matters.

**Key words:** Alternative dispute resolution, Artificial Intelligence, Chat GPT, Collective disputes, Mediation, Mediation in collective disputes, Labor law.

### Introduction

Mediation is an extrajudicial method of conflict resolution in which a third-party act as a facilitator of interaction and dialogue between the parties. Thus, it is a method of alternative dispute resolution (ADR) available to parties. In this context, mediation in collective disputes appears also as a method of industrial conflict management. In Poland, it is obliged to apply the mediation in collective labor conflicts before workers strikes. There is an increasing number of labor conflicts, particularly in times of economic and social crisis, when the existing unequal distribution of wealth and power in the capitalist system is aggravated.

This article investigates whether the GPT chat is capable of mediating to prevent strikes. In order to achieve this goal, at the beginning the definition, features and procedure of Mediation and the procedure to solve industrial conflict in Polish labor law which this ADR is applied were presented. Following these issues, data concerning mediation as effective tool to avoid strikes were showed and discussed. Afterwards, an interview was conducted with the GPT Chat to find out if this artificial intelligence considers itself capable of mediating to prevent strikes.

### Methodology

The methodology used on this paper is based on critical analysis of legislation of Poland about mediation of conflict about labor law to understand this phenomenon in a comprehensive and holistic way. It was applied too documentary analysis to make possible categorize the improvement of legislation of Poland as well. Outra metodologia utilizada foi uma entrevista com o Chat GPT. It was asked to the Artificial Intelligence, accessed through the website <https://chat.openai.com/>, what

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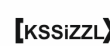
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questions it would ask to investigate if someone was qualified to conduct a Mediation procedure to prevent a strike. Afterwards, it was requested for the machine itself to answer the questions, taking into consideration that it is an Artificial Intelligence.

### **Mediation: definition, features and procedure**

Mediation is a method of alternative dispute resolution (ADR). It is a process of direct negotiation between parties and should be a promising instrument to prevent and resolve conflicts in a more constructive way. Williams, Robert and Burden (1997) state that “mediation is to find ways of helping the other to learn. Particularly, this involves helping learners to move through the next layer of knowledge or understanding” (Cichobłaziński 2013). The occurrence of social conflicts is inevitable, because the people, naturally, is grouped in society. The people are endowed with individual characteristics and interests different. This is enough to make the conflicts appears. Thus, at mediation is used to solve the conflicts. There is a involvement of a third-party at mediation which is considered necessary to help the parties to deal with the conflicts when they are not able to find solution to their disputes by themselves (Dhiaulhaq & others, 2014, p. 23). The mediation is recommendable in a context of wicked problems (Rittel & Weber, 1973) and when parties disagree about goals. With the help of the mediator, the parties who are involved in conflict work out agreements on the issues aforementioned. It is combined with many technical solutions to solve the conflicts (Elkouri & Elkouri, 2017).

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### **The procedure to solve industrial conflict in Polish labor law: the application of mediation**

In Poland, since 1991, the treatment and conduct of disputes between unions and employers in industrial conflict for instance has been regulated by the Collective Disputes Act (Journal of Laws RP, 1991). At the beginning it should be emphasized that the institution of a collective dispute has a very strong legitimacy in Polish legislation as it is mentioned in the constitution. The Constitution of the Republic of Poland of April 2, 1997, directly refers to negotiations with the participation of a labor union organization. Based on the language interpretation of the art. 59 par. 3 of the Constitution of the Republic of Poland, labor unions and employers along with their organizations have the right to participate in the resolution of a collective dispute during negotiations. (...) Article 59, paragraph 2 of the Constitution of the Republic of Poland refers to the concept of a collective dispute. The procedure to solve industrial conflict in Poland labor law, according to the Collective Disputes Act (Journal of Laws RP, 1991), has the following stages Submission of a demands list by the labor unions to the employer. These requests may only concern issues listed by law, such as: working and pay conditions, social benefits and labor union rights and freedoms. The dynamics of the conflict are adjusted by the regulation allowing only the employee side to initiate a dispute, while the employer does not have such a power. Therefore, an initiative in a collective dispute always belongs to employees, and the role and position of an employer is always defensive.

After, Employer's response, which determines the further course of the dispute. It can be: positive - all requests have been met, negative - at least one request has not been met. If the employer's response is negative, a collective dispute begins in the sense defined by the Act and the employer is obliged to report it to a District Labor Inspectorate. Negotiations - employer and labor unions talks aimed

at resolving disputes. It should be emphasized that 'the employer is obliged to immediately make negotiations to conclude an agreement. [...] The negotiations time has no legal regulation. However, it can be assumed that collective negotiations should be carried out for as long as there is a chance of reaching an agreement.' Following, Mediation - if the negotiations bring a solution to the conflict, the collective dispute ends. If not - mediations take place. They are a separate institution and consist of several phases. Their type and number depend on a path chosen by the parties to the dispute, because the Act leaves them a great liberty in this area. If mediation does not bring a solution, the parties may request for a settlement in the Board of Social Arbitration. It is, however, a weak institution, because its decisions are binding only if the parties agree to it and for this reason, they seldom use this institution. Strike is another solution. But in this case, an additional criterion must be met, namely a referendum. It is valid only if at least half of employees take part and the majority votes in favour of strike. (Cichobłaziński 2010, 2017 and Lankašová 2017) As it is possible to notice, mediation in Polish legal system has an important place in the collective dispute resolution procedure, because it allows the use of all methods of resolving conflicts, before labor unions go to strike - the most severe form of pursuing their interests.

### **The GPT Chat is capable of mediating to prevent strikes? Interview with artificial intelligence.**

The Chat GPT, or Generative Pre-trained Transformer, is an advanced language model developed by OpenAI. It is part of the GPT series, which stands for "Generative Pre-trained Transformer." GPT models are designed to generate human-like text based on the provided input and context (LUND, 2023). Its model has been trained on a vast amount of diverse text data from the internet, allowing it to understand and generate coherent responses to a wide range of prompts and questions. It utilizes a transformer architecture, which enables it to capture long-range dependencies in the text and generate contextually relevant and coherent responses (MCGEE, 2023). As an AI language model, the Chat GPT is not a human but a sophisticated algorithm developed by OpenAI. It has been trained on a diverse range of text sources and has the ability to provide information, answer questions, and engage in conversational exchanges. However, it's important to note that while the Chat GPT strives to generate accurate and helpful responses, it may not always provide perfectly accurate or up-to-date information (SURAMEERY, 2023).

An AI language model, my responses are generated based on a mixture of licensed data, data created by human trainers, and publicly available data. I should note that while I strive to provide accurate and up-to-date information, my responses may not always reflect the most current news or developments. News is constantly evolving, and new information can emerge that may change the context or understanding of a given topic. The authors of this study accessed the website <https://chat.openai.com/> and asked the Chat GPT what it would ask a person to know if they are capable of conducting a mediation session to prevent a strike. The responses from the Artificial Intelligence were as follows (OpenAI, 2023). Next, the Chat GPT was asked to respond to each of the questions. Emphasis was given that it should respond considering that it is an Artificial Intelligence. The responses are described in the following paragraphs.

For the first question "What experience do you have in conducting mediation sessions? Could you provide specific examples related to conflict resolution and preventing strikes?" the answer was that as an AI, I don't possess personal experiences or examples of conducting mediation sessions. However, I can provide theoretical knowledge and best practices in conflict resolution and strike prevention (OpenAI, 2023).

At the second question "What strategies do you employ to establish trust and build rapport with the parties involved in a potential strike situation?", the IA answered that building trust and rapport in a potential strike situation often involves active listening, demonstrating impartiality, acknowledging

concerns, and fostering open communication. It may also involve emphasizing confidentiality, ensuring inclusivity, and focusing on shared interests (OpenAI, 2023).

About the question “How do you ensure a neutral and impartial stance as a mediator during the negotiation process?”, the Chat GPT answered that maintaining neutrality and impartiality is crucial for effective mediation. Techniques such as treating all parties equally, avoiding personal biases, and providing equal opportunities for expression can help maintain a neutral stance (OpenAI, 2023).

“Can you describe your approach to facilitating open communication and active listening between conflicting parties to address their concerns effectively?”. For this question, the IA answered that Facilitating open communication involves creating a safe and respectful environment, encouraging active listening, asking clarifying questions, and summarizing key points. It is important to foster dialogue and ensure that all parties have an opportunity to express their perspectives and concerns (OpenAI, 2023).

Following the procedure, regarding the question “How do you handle power imbalances that may exist between the different stakeholders involved in a potential strike?”, the answer was that Addressing power imbalances requires a careful and proactive approach. Strategies may include ensuring equal participation, providing support for less empowered parties, and encouraging collaborative problem-solving to level the playing field (OpenAI, 2023). The question number 6 was that “What techniques do you use to identify and understand the underlying interests and needs of each party involved in a conflict?” and Chat GPT told us that effective mediation involves uncovering underlying interests and needs. Techniques like asking open-ended questions, employing active listening skills, and conducting private sessions can help reveal individual motivations, interests, and desired outcomes (OpenAI, 2023).

Answering the question “How do you encourage collaboration and foster a problem-solving mindset among the parties to reach a mutually satisfactory resolution?”, the IA said that promoting collaboration and a problem-solving mindset often involves emphasizing common goals, exploring mutually beneficial solutions, encouraging brainstorming, and facilitating negotiations based on shared interests rather than positional demands (OpenAI, 2023). Managing emotions and tension requires empathy, understanding, and the establishment of ground rules for respectful communication and techniques like acknowledging emotions, reframing statements to reduce defensiveness, and suggesting breaks can help deescalate conflicts and foster productive discussions was what Chat GPT told us about the question “how do you address the emotions and potential tension that can arise during mediation, particularly in high-stakes situations like strikes?” (OpenAI, 2023).

The ninth question was can you provide an example of a successful mediation session you have conducted in the past that helped prevent a strike? What strategies did you employ in that specific case? Chat GPT answered that as an AI language model, I don't have personal experiences or the ability to conduct mediation sessions. Therefore, I cannot provide specific examples of successful mediation sessions related to strike prevention (OpenAI, 2023). Finally, the tenth question that the Artificial Intelligence formulated was as follows: “are you familiar with relevant labor laws and regulations that govern the collective bargaining process and can impact strike prevention efforts?”. The answer was that as an AI language model, I have been trained on a wide range of data, including legal information. I can provide general knowledge about labor laws and regulations, but it's important to consult legal professionals or references for specific and up-to-date information on labor laws and their implications for strike prevention (OpenAI, 2023).

Analyzing the questions and answers generated by the machine, it is possible to make some inferences. Initially, as an AI language model, Chat GPT strive to provide helpful and informative responses based on the training data and patterns it have learned from. However, it's important to note that its responses should be interpreted with caution and critical thinking. Some points should be considered in analyzing the responses (OpenAI, 2023). First of all, lack of personal experience: As an AI, Chat GPT don't possess personal experiences or real-world interactions. Its responses are generated based on patterns observed in the training data, which include a wide range of information

sources. While it can provide general insights and suggestions, practical application and judgment should come from qualified human professionals with are extremally relevant. However, Mediation involves human beings whose relationships can be quite complex, which is why experience is necessary to be a Mediator (LUND, 2023). It is necessary to considerate also the general nature of responses: AI responses are designed to be applicable in a broad context and may not account for specific nuances or complexities of individual cases. It's important to consult specialized experts or refer to relevant legal and professional resources for comprehensive guidance. Based on the analysis of the machine's responses, it is also necessary to consider the limitations in legal advice. While Chat GPT can provide general information about labor laws and regulations, it's important to consult with legal professionals or reliable sources for specific and up-to-date legal advice. Laws can vary by jurisdiction, and complex legal matters require careful analysis by qualified experts. And also, the machine is not as up-to-date as legal matters, running the risk of using legislation that is no longer in effect (HILL-YARDIN, 2023).

Reliance on training data is another factor that should be taken into consideration. IA responses are generated based on patterns observed in the training data. While efforts have been made to provide accurate and reliable information, biases or inaccuracies in the training data may inadvertently influence the responses. It's crucial to corroborate the information with multiple sources and exercise critical thinking. At the Mediation procedure it is inevitable (LUND, 2023). Mediation evolves knowledge and context which Chat GPT is enabled to have properly. Its training data goes up until September 2021, and it do not have access to real-time information. Consequently, the IA responses may not reflect the most current events, developments, or legal changes. It's always advisable to consult recent sources and stay updated on the subject matter.

## Conclusions

After the analysis of legislation about mediation in Poland it was possible concluded that the mediation is a method to solve disputes. It involves an impartial and neutral person, the mediator, facilitating the dialogue between the involved parties in conflict. It is a process to help parties find a mutually satisfactory agreement. The mediator is chosen or accepted by the parties and helps them to prevent or resolve conflicts in a consensual way. The mediation has been used in many different disputes in the world, including labor conflicts. In Poland, that institute has been applied it in collective disputes about employment rights, among other cases. Mediation is confidentiality and generally much less expensive than a trial dispute. The mediation helps the parties in conflict to solve the dispute in a more constructive way. Regarding the question “the GPT Chat is capable of mediating to prevent strikes?”, by analyzing the interview conducted by the authors with the artificial intelligence, it was possible to conclude that Chat GPT strive to be a helpful resource to use in Mediation procedure, but it's essential to consider the limitations of AI and seek guidance from qualified professionals for specific and critical matters. The artificial intelligence possesses characteristics that, although useful in a mediation session, cannot be solely relied upon to prevent strikes, such as Lack of personal experience, General nature of responses, Limitations in legal advice, Reliance on training data and it hasn't to have knowledge and context.

## Literature

1. Broome, B. J. (2017), *Negotiating the Nexus: Symbiotic Relationship of Theory and Practice in Conflict Management*. *Negotiation Confl Manage Res*, 10: 252-264. doi:10.1111/ncmr.12105
2. Caser, Ursula, Cebola, Cátia Marques, Vasconcelos, Lia, & Ferro, Filipa. (2017). *Environmental mediation: an instrument for collaborative decision making in territorial planning*. *Finisterra - Revista Portuguesa de Geografia*, (104), 109-120. <https://dx.doi.org/10.18055/Finis6969>.



3. Cichobłaziński, L. (2010) *Mediacje w sporach zbiorowych*. Częstochowa, Wydawnictwo Politechniki Częstochowskiej.
4. Cichobłaziński, L. (2013) *Resolving Collective Disputes in Poland: A Narrative Perspective* in A. P. Müller, L. Becker (Eds.), *Narrative and Innovation, Management – Culture – Interpretation*, Springer Fachmedien Wiesbaden.
5. Dhiaulhaq A., Gritten D., Bruyn T., Yasmi Y., Zazali A., Silalahi M. (2014). *Resolving industrial plantation conflicts in Indonesia: Can mediation deliver?*. *Forest Policy and Economics*. Vol. 41, April 2014, p. 22-30. DOI <https://doi.org/10.1016/j.forpol.2014.01.003>.
6. Elkouri, Frank, and Edna Asper Elkouri (2017). *How Arbitration Works*. Washington: Bureau of National Affairs.
7. Ilostat, 2018, *International Labor Organization* Available at: <https://www.ilo.org/>, Access on: 02.05.2023.
8. Journal of Law. Poland. (1991) *Law about the settlement of collective labor disputes*, created on 23 de May de 1991. Available from: <<https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/22401/91766/F-1456565262/POL22401%20Eng.pdf>>. Access on: 02.02.2023.
9. Hill-yardin, Elisa L. et al. *A Chat (GPT) about the future of scientific publishing*. *Brain, behavior, and immunity*, p. S0889-1591 (23) 00053-3, 2023.
10. Lankašová, R. (2017) *Mediation in Work Environment, In International Conference – Proceedings Work And Organization Psychology 2017 - Work Potential and its Changes over Time*, 16th International Conference WaOP 2017 Proceedings, eds. A. Gregar and M. Horák, May 24 - 25, 2017, in Zlín, pp. 333 – 340.
11. Lund, Brady D.; WANG, Ting. *Chatting about ChatGPT: how may AI and GPT impact academia and libraries?*. *Library Hi Tech News*, v. 40, n. 3, p. 26-29, 2023.
12. Mcgee, Robert W. *Is chat gpt biased against conservatives? an empirical study*. *An Empirical Study* (February 15, 2023), 2023.
13. OpenAI. GPT-3.5-based ChatGPT. Disponível em: <https://www.openai.com/>. Access on: 12.05.2023.
14. Poland. (1997). *Constitution of Republic of Poland*, created on 02 de abril de 1997. Constituição da República da Polónia. *Dziennik Ustaw*, Disponível em: <<http://www.sejm.gov.pl/prawo/konst/angielski/kon1.htm>>. Access on: 02.02.2023.
15. Rittel, H. W. J., & Webber, M. M. (1973). *Dilemmas in a General Theory of Planning*. *Policy Sciences*, 4(2), 155–169. doi:10.1007/BF01405730.
16. Social Dialogue Library - Ministry of Labor and Social Policy. *Mediation in Poland*, Warsaw 2008, p. 45 and Informator 2015, MRPiPS, Warsaw 2016, p. 50.
17. Surameery, Nigar M. Shafiq; SHAKOR, Mohammed Y. *Use chat gpt to solve programming bugs*. *International Journal of Information Technology & Computer Engineering (IJITC)* ISSN: 2455-5290, v. 3, n. 01, p. 17-22, 2023.





# PERSPECTIVE OF SMALL AND MEDIUM-SIZED ENTERPRISES: UTILIZING BIG DATA AS A RESOURCE TO ENHANCE FIRM PERFORMANCE

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**Abstract:** The increasing use of big data has transformed the business landscape, providing companies with vast amounts of data to enhance their performance. While large firms have been quick to adopt big data analytics, small and medium-sized enterprises (SMEs) have been slow to follow suit. This systematic literature review aims to explore the current state of knowledge regarding the use of big data by SMEs and how it affects their performance. The study will review relevant literature published between 2011 and 2022, focusing on the benefits and challenges of using big data in SMEs, as well as the factors that influence their adoption. The review also explores the integration of theoretical frameworks, such as the resource-based view (RBV), dynamic capabilities, and contingency view, to provide a comprehensive understanding of how SMEs can effectively harness big data as a valuable resource.

**Key words:** Big data, firm performance, big data analytics, small and medium-sized enterprises (SMEs).

## Introduction

In recent years, there has been a growing interest in the utilization of big data (BD) and business analytics by companies seeking to generate new insights into consumers, competitors, and supply chains (Ghasemaghaeim, 2021). The global BD and business analytics market size was valued at \$198.08 billion in 2020 and is expected to reach \$684.12 billion by 2030 (Borasi et al., 2021). The pervasive nature of big data is evident across industries, from mobile technologies to banking services, cryptocurrencies, public services such as water or electricity, social media, supply chain analytics, and customer analytics. Big data applications are ubiquitous in all industries, including Uber's use of BD to predict spikes in demand and driver availability, airlines optimizing fuel consumption using analytics generated by weather conditions, passengers, and cargo weights, and Netflix predicting the success of future series based on customer interaction with the platform.

Big data analytics (BDA) is producing remarkable results in various industries. Retailing companies use BDA to enhance customer relationship management, while the healthcare industry uses BDA to moderate operational costs and improve the quality of life. Other sectors, such as manufacturing, are using BDA to improve supply-chain management and enrich industrial automation. Furthermore, BDA can optimize prices, increase profits, increase market share, increase return on investment, maximize sales, and improve financial productivity.

Firms have invested significantly in building their capabilities for processing BD, which could have several advantages for them (Ghasemaghaei & Calic, 2020). However, recent research suggests that investing in BD poses many issues and challenges (Tarafdar, Gupta, & Turel, 2013). Challenges in BD implementation include data integration complexity, getting started with the right project, architecting big data systems, lack of skills or staff, data ownership or other political issues, lack of business sponsorship, dealing with real-time data, inability to build a complete business case, poor data quality, and high costs, among others.

The use of big data (BD) in decision-making has received considerable attention in recent years due to the rapid development of digital technologies. However, there is little research on how to use and exploit it effectively, as big data analytics (BDA) is still a rapidly developing technological business practice. Despite the growing interest in BD, the empirical quantification and theoretical grounding of its effects on firm performance are not clear (Obshonka & Audretsch, 2019). The purpose of this paper is to broaden the discussions on big data applications in industry and their implications in management research using a systematic literature review methodology.

The increasing volume, variety, and velocity of data generated from various sources have given rise to the concept of big data (Chen, Chiang, & Storey, 2012). Big data has the potential to provide actionable insights for organizations to improve their decision-making processes and, ultimately, their performance (Gandomi & Haider, 2015). SMEs, in particular, face unique challenges and opportunities when it comes to leveraging big data.

Big data offers SMEs various opportunities, such as better decision-making, improved customer relationship management, increased operational efficiency, and enhanced innovation (Akter, Fosso Wamba, & Gunasekaran, 2016). For instance, SMEs can use big data analytics to uncover customer preferences and trends, allowing them to tailor their products and services accordingly (De Mauro, Greco, & Grimaldi, 2016).

However, SMEs also face several challenges in leveraging big data, including limited resources, lack of expertise, and data privacy concerns (Côrte-Real, Oliveira, & Ruivo, 2017). SMEs often lack the financial and human resources required to invest in big data infrastructure and to hire skilled data analysts. Moreover, data privacy and security issues pose significant challenges, particularly in light of the stringent data protection regulations in many countries (Dutta, 2017).

Several studies have proposed frameworks and strategies to help SMEs capitalize on big data for improved performance. For instance, Bharadwaj, El Sawy, Pavlou, and Venkatraman (2013) suggest adopting a dynamic capabilities perspective to manage big data resources effectively. This approach emphasizes the need for SMEs to develop their abilities to sense, seize, and transform opportunities provided by big data.

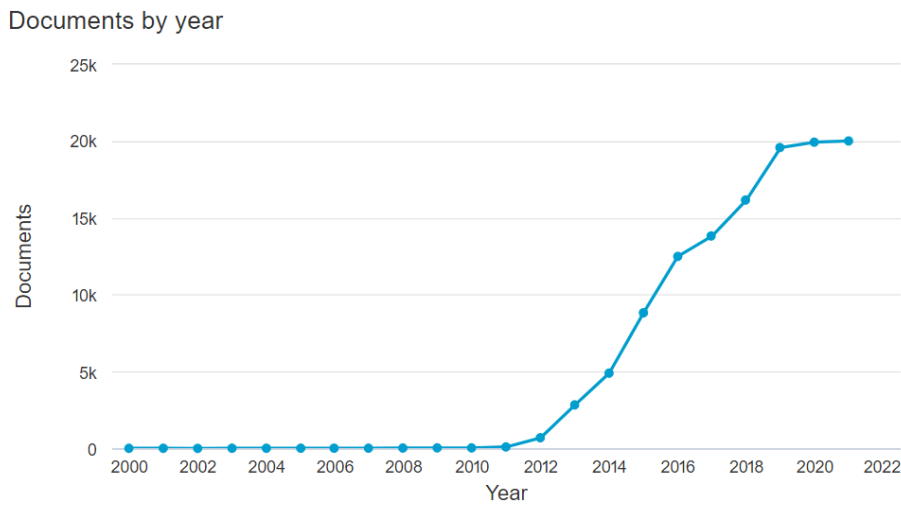
There is a growing body of literature examining the impact of big data on SMEs' performance. For example, a study by Akter et al. (2016) found that big data analytics capability and business strategy alignment significantly improved firm performance in terms of operational efficiency, customer satisfaction, and financial performance. Similarly, Côrte-Real et al. (2017) found a positive relationship between big data analytics capabilities and business value creation in European firms, including SMEs.

In another study, LaValle, Lesser, Shockley, Hopkins, and Kruschwitz (2011) reported that organizations that adopted big data analytics outperformed their peers in terms of both operational efficiency and financial performance. These findings suggest that the effective utilization of big data has the potential to significantly improve SMEs' performance.

Big data (BD) has experienced rapid development in recent years, garnering significant interest for its potential to inform decision-making processes. Despite this growing attention, there remains a dearth of research on the effective utilization and exploitation of big data analytics (BDA) due to its nascent status as an evolving technological business practice.

It is posited that organizations that enhance their BDA capabilities should be able to optimize their performance. However, empirical investigations of this relationship remain scarce and fragmented, particularly within the social sciences. To analyze the evolution of perspectives on this issue, a systematic literature review serves as an essential first step.

Initially, it is crucial to examine the research conducted on the subject in recent years. The trend of research in big data over the past years is illustrated in Figure 1. The figure indicates that research on big data, as a whole, has been on the rise since 2011. The data was obtained through a SCOPUS search using the keyword "big data".



**Figure 1. The number of documents published each year pertaining to the topic of big data**

Source: own study

In recent years, the growth of big data (BD) has been closely linked to the proliferation of mobile and smart devices. The Internet of Things (IoT) has also contributed to the continuous generation of BD due to its increasing popularity. The interactivity between humans and machines has resulted in abundant BD. Moreover, the cost of acquiring data has been decreasing, which benefits real-time collection and processing and changes the relationship between information and decision-making (Lv, Z., 2017).

Nowadays, data technology is widely accepted as an optimization tool. Correlation, recognition, updates, and data collection are becoming more automatic. Countries are starting to adopt new data security technologies and data protection laws, making BD supervision stricter. Data from countries are particularly relevant since they cover resources, finance, food, environment, medical care, security, transportation, and other areas. New applications for BD are released every day, providing solutions for various industries.

BD has business value that enables managers to explore new process, product, and service innovation. To profit from BD, firms need to use it in combination with other existing capabilities or assets. These assets could be human assets, which create the need for investment in human resources, particularly high-skilled data scientists. The right balance between available BD technology and human IT assets is the foundation for creating business value.

## Summary

To gain a comprehensive understanding of the current state of research on big data as a resource for firm performance enhancement, a systematic search was conducted in the SCOPUS database. The search employed phrase keywords such as “big data” and “firm performance,” and the truncation technique with an asterisk (\*) was utilized. The search aimed to identify articles containing these keywords in their titles, abstracts, and keywords using the following search query: TITLE-ABS-KEY (“firm performance”, “big data”).

To further refine the search, the boolean search query “TITLE-ABS-KEY (“firm\* performance”, “big data”) AND (LIMIT-TO (DOCTYPE , “ar”))” was employed, resulting in a total of 101 documents. As the quality of the journals is crucial in evaluating the impact and relevance of the research, the selection process focused on articles published in FT50 or ABS 3, 4, or 4\* journals. The FT50 list comprises the Financial Times' top 50 journals, which are considered leading academic publications in business and management. The ABS Guide ranks journals based on research quality and impact. The selected journals with publications featuring the relevant keywords and meeting the FT50 or ABS 3, 4, or 4\* criteria were included in the review.

- Journal of Business Research
- Industrial Marketing Management
- International Journal of Production Research
- Annals of Operation Research

Applying the filter of the journals above, the number of articles is reduced to 12 papers.

**Table 1. Articles identified using the keywords “firm\* performance” and “big data” in SCOPUS and listed in ABS 3, 4, or 4\***

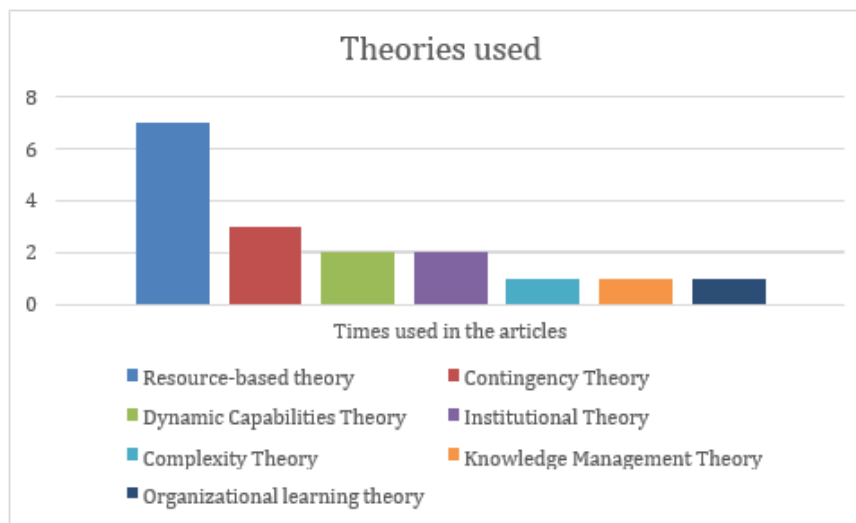
	Article Title
1	Effect of eco-innovation on green supply chain management, circular economy capability, and performance of small and medium enterprises
2	Big data analytics capability and market performance: The roles of disruptive business models and competitive intensity
3	Exploring the relationship between supplier development, big data analytics capability, and firm performance
4	An integrated artificial intelligence framework for knowledge creation and B2B marketing rational decision making for improving firm performance
5	Big data analytics business value and firm performance: linking with environmental context
6	Big data analytics capabilities and firm performance: An integrated MCDM approach
7	Assessing the impact of big data on firm innovation performance: Big data is not always better data
8	Big data analytics and firm performance: Findings from a mixed-method approach
9	Investments in big data analytics and firm performance: an empirical investigation of direct and mediating effects
10	Modelling quality dynamics, business value and firm performance in a big data analytics environment
11	Big data and predictive analytics for supply chain and organizational performance
12	Big data analytics and firm performance: Effects of dynamic capabilities

Source: Own study

#### Linking Theories with Big Data and Firm Performance:

The examination and evaluation of the articles enumerated earlier facilitated the creation of Figure 2, which encapsulates the frequency of various management theories employed in the literature review articles.

The resource-based view (RBV) posits that a firm's competitive advantage is derived from its unique resources and capabilities, which are valuable, rare, inimitable, and non-substitutable (Barney, 2001). Big data can be considered a valuable and rare resource for SMEs, as it enables them to gain insights into customer behavior, market trends, and operational efficiency (Aker, Wamba, & Gunasekaran, 2017). By leveraging big data, SMEs can create a competitive advantage by improving decision-making processes, enhancing customer satisfaction, and increasing efficiency (Chen, Chiang, & Storey, 2012).



**Figure 2. Theoretical Frameworks Explored in the Listed Articles**

Source: Own study

Dynamic capabilities theory suggests that a firm's ability to integrate, build, and reconfigure its internal and external resources is essential for achieving and sustaining a competitive advantage in rapidly changing environments (Teece, Pisano, & Shuen, 1997). In the context of big data, SMEs need to develop dynamic capabilities to effectively utilize the vast amounts of data generated from various sources. By doing so, they can adapt to market changes, identify new opportunities, and respond to competitive pressures (LaValle, Lesser, Shockley, Hopkins, & Kruschwitz, 2011).

The contingency view posits that the effectiveness of an organization's strategies, processes, and structures is contingent upon the organization's alignment with the specific characteristics of its environment (Donaldson, 2001). In the context of big data as a resource for enhanced firm performance, the contingency view can help explain how SMEs can successfully adopt big data analytics by considering the unique characteristics of their specific environments.

According to the contingency view, there is no one-size-fits-all solution for incorporating big data analytics into an SME's operations. Instead, firms must carefully evaluate the specific conditions of their industry, market, and competitive landscape to tailor their big data strategies accordingly (Donaldson, 2001). In doing so, SMEs can ensure that their big data initiatives are optimally aligned with their unique contexts, thereby enhancing their potential for improving firm performance.

For instance, SMEs operating in highly dynamic markets may prioritize the use of big data analytics for real-time decision-making and trend forecasting to stay ahead of the competition (LaValle et al., 2011). In contrast, SMEs in more stable industries may focus on leveraging big data for optimizing internal processes and enhancing customer satisfaction (Chen et al., 2012).

By adopting a contingency view, SMEs can better understand the role of big data in their specific contexts and develop tailored strategies for effectively harnessing big data as a resource for enhanced firm performance.

In general, the resource-based view (RBV), dynamic capabilities, and contingency view theories provide valuable insights into the ways in which small and medium-sized enterprises (SMEs) can harness big data as a resource for enhancing firm performance. By understanding and integrating these theoretical frameworks, SMEs can develop a comprehensive approach to leveraging big data that accounts for their unique contexts and environments, ultimately driving competitive advantage and improved performance.



## Conclusion

In conclusion, the systematic literature review on big data as a resource for enhanced firm performance from the perspective of small and medium-sized enterprises (SMEs) has shed light on the critical role big data plays in today's business landscape. The review highlights the potential benefits and challenges that SMEs face in leveraging big data to improve their performance and competitive advantage.

The review also demonstrates the importance of considering various theoretical frameworks, such as the resource-based view (RBV), dynamic capabilities, and contingency view, in understanding the implications of big data for SMEs. By linking these theories, we gain a comprehensive understanding of how SMEs can effectively harness big data as a valuable resource to bolster their performance.

Also, it includes exploring the role of big data in specific industries, developing scalable big data solutions for SMEs, and examining the interplay between the various theoretical frameworks and big data in the context of SMEs. Such research endeavors will contribute to a deeper understanding of how SMEs can best utilize big data as a resource to enhance firm performance, ultimately driving growth and success in an increasingly data-driven world.

## Literature

1. Ghasemaghaeim, 2021. Understanding the impact of big data on firm performance: The necessity of conceptually differentiating among big data characteristics
2. Ghasemaghaei, M., & Calic, G. (2020). Assessing the impact of big data on firm innovation performance: Big data is not always better data. *Journal of Business Research*, 108, 147- 162. doi:10.1016/j.jbusres.2019.09.062
3. Tarafdar, M., Gupta, A., & Turel, O. (2013). The dark side of information technology use. *Information Systems Journal*, 23(3), 269-275.
4. Obschonka, M., & Audretsch, D. B. (2020). Artificial intelligence and big data in entrepreneurship: a new era has begun. *Small Business Economics*, 55, 529-539.
5. Chen, H., Chiang, R. H., & Storey, V. C. (2012). Business intelligence and analytics: From big data to big impact. *MIS quarterly*, 1165-1188.
6. Gandomi, A., & Haider, M. (2015). Beyond the hype: Big data concepts, methods, and analytics. *International journal of information management*, 35(2), 137-144.
7. Akter, S., Wamba, S. F., Gunasekaran, A., Dubey, R., & Childe, S. J. (2016). How to improve firm performance using big data analytics capability and business strategy alignment?. *International Journal of Production Economics*, 182, 113-131.
8. De Mauro, A., Greco, M., & Grimaldi, M. (2016). A formal definition of Big Data based on its essential features. *Library review*, 65(3), 122-135.
9. Côrte-Real, N., Ruivo, P., & Oliveira, T. (2017). Leveraging Internet of Things and Big Data Analytics.
10. Dutta, K. (2017). Distributed computing technologies in Big Data analytics. *Distributed Computing in Big Data Analytics: Concepts, Technologies and Applications*, 57-82.
11. Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. V. (2013). Digital business strategy: toward a next generation of insights. *MIS quarterly*, 471-482.
12. LaValle, S., Lesser, E., Shockley, R., & Michael, S. Hopkins, and Nina Kruschwitz. 2011. Big data, analytics and the path from insights to value. *MIT sloan management review*, 52(2), 21-32.
13. Begenau, J., Farboodi, M., & Veldkamp, L. (2018). Big data in finance and the growth of large firms. *Journal of Monetary Economics*, 97, 71-87.
14. Barney, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of management*, 27(6), 643-650.
15. Donaldson, L. (2001). *The contingency theory of organizations*. Sage.
16. Borasi, P., Khan, S., & Kumar, V. (2021, Sep). *Big Data and Business Analytics Market 2022*.



# **PERFORMANCE BUDGET AS AN EXPRESSION OF THE CONCEPT OF NEW PUBLIC MANAGEMENT (NPM) ON THE EXAMPLE OF POLAND**

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**Abstract:** One of the important and at the same time complicated aspect of modern polish administration and economy is the issues of local government finances. Since the reactivation of territorial self-government in Poland in 1990 we have been observing a constant process of development in this field. Despite the fact that there are constant attempts to improve the local government finance sector, unfortunately the ideal solution was still not found. The important moment for functioning of finance of local government units was enacting of the currently binding act (Act of 27.08.2009 on public finances), which introduced significant changes in the public finance system. According to the fact that local government units are obliged to effective and economical disposition of public funds, their authorities should apply methods and management tools appropriate to the changing conditions. A task budget is just this modern tool. The goal of this essay is to present the role of a task budget in shaping effective local government finance management based on the NPM concept on the example of Poland.

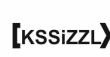
**Key words:** task budget, local government finances, new public management

## **Introduction**

The concept of a new public management enters to management of public finance sector units, a managerial approach, so that we can call free market. The new public management assumes gradual implementation in the public sector of principles and management models that are known and widely used in the private sector. The idea of this concept is to enter actions which force effectiveness' increase of costs from taxes and increase the efficiency of the functioning of public institutions. In Poland, the application of free market mechanisms and the decentralization of competences, as an expression of a new public management, characterized by the public finance law passed in 2009. It is an expression of the growing expectations of citizens in relation to the quality of public services provided by the state and its institutions (Skrzypek 2011, p. 18).

An important issue which characterizes the concept of NPM is a possibility, even a necessity to assess an evaluation of the activities and functioning of public sector entities, in terms of their efficiency and professionalism, based on properly defined measures of their performance. Thus, the priority becomes to use modern managerial tools which allow a realization of public tasks and their rationalization. The subject literature lists, among other things, the following tools to optimize the spending of public funds: quality management systems, internal audit, management control, risk management, cost accounting, multi-annual financial planning and task budgeting (Kaczurak-Kozak 2013, p. 179). The last from mentioned tools that is a task budget is a quite new form of management of public funds. Though, planning and settling the budget in a the task-oriented system is used in many OECD countries, in Poland the common implementation and application of this solution falls on the years 2008-2009. But, the beginnings of task budgets functioning in Poland reached 1994 when in Krakow the reform of cost planning was set out (Owsiak 2005, p.131). Next years, following big cities as Lublin, Szczecin and Poznan started to use the method in managing their funds.

The implementation of the task-based budget idea was possible thanks to the implementation of programs financed by the USAID International Development Agency (the largest of which was the Local Government Partnership Program completed in 2000) and the British Know-HowFund.



([http://www.budzet-zadaniowy.com/budzet\\_zadaniowy\\_w\\_samorzadachindex.html](http://www.budzet-zadaniowy.com/budzet_zadaniowy_w_samorzadachindex.html) read 06/03/2019). Nowadays, it can be established that several dozen of polish local governments use a task budget. In polish practice, while creating it on local government level the attention is put on wide social consultations, describing made choices and presenting the range of possible solutions. In local governments the scope of this tool is very different. It is used fragmentarily, in relation to individual task areas, or as a whole to the full scope of the budget covering both the office itself and all organizational units subordinate to it.

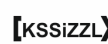
The aim of the article is to present the role of the task-oriented budget in shaping effective local government finance management based on the NPM concept on the example of Poland.

### **The essence of the task budget**

The concept of a task budget was made in a third decade of XX century on the basis of american experience and it is presented as a planning method based on managing public funds by results. Methods of using the task budget worldwide is characterized by high diversity that is why it is so hard to define it. However, following the definitions in the world literature, it is possible to specify their common elements and draw certain generalizations. In the definition by Allen and Tomassi (Allen, Tommasi 2001) it was assumed that the task budget consists of:

- assigning financial operations made by the government or local government to the functions and programs implementing specific socio-economic policy objectives;
- determining the measures for each program or task;
- measuring the costs of implementing the adopted tasks;
- determining the expected results.

The next definition shows a task budget as mechanisms and processes of effective management of public funds which goal is to strenghten dependencies between expenditures and results achieving by complex information usage about the level of task realization. (Robinson 2007, s. 1). In polish subject literature during last decade many interesting attempts have been made to define this concept. Due to the socio-political context, an interesting approach was proposed by Lubińska (Lubińska 2007, p. 9) presenting the task budget as the management of public funds through appropriately specific and hierarchical objectives, aimed at achieving specific results, measured using a set of measures. A similar presentation of the core of the task-based budget can be found in the studies of Pietrzak, Polański and Woźniak (Pietrzak, Polański, Woźniak 2008, p. 114), or Owsiak (Owsiak 2005, p. 294) and Nucińska (2018, pp. 349-359). On the other hand, Postuła and Perczyński emphasize the possibility of extending the time perspective of task implementation using the task budget (Postuła, Perczyński 2010, p. 26). Chojna-Duch (2006, p. 254; Bitner at al. 2017, pp. 176-221) define a task budget as prepared by the administration, a financial plan defining detailed, material and financial plans for the intentions to be implemented by cash disposers. Thus, the task budget itself is defined by a mentioned author as an elementary action characterized by uniformity. Each task budget has its name, goal, quantitatively and qualitatively determined product, its cost and performance indicators. It must be underlined that polish practice of using a task budget is different than this used in the United States where a performance budget (Haggart 1972) includes as well budget programmms which are used for achieving goals in specific areas of local governments and a country itself. The basic trait which differentiate both budgets is a category of a task. In Poland a task budget is the only unit of budget clasification but in the second of mentioned approach is one from many, thus basic. In a technical approach ideas used in Poland lead to show a budget in a form of a statement covering several thousand tasks presented on the task sheets. Such presentation of information makes it difficult for self-government representatives to evaluate the proposed budgets. Additional difficulties are present because of the necessity to make simultaneous review of two budgets: traditional – prepared according to budget and task classification (Pakoński 2000, p. 72). Therefore, the presentation of a task budget in the hierarchical form is accepted. Such a budget



creation lead to use a definition of a synthetic level, usually called: tasks, spheres, areas of activity and operational level (one or two levels) where tasks are subtasked, tasks within the spheres and areas of activity. In each case, the lowest level is action. Mentioned definitions show many advantages which can occur for local governments units which use task budgets. The most important are:

- improving the financial management of the entity by linking expenses with achieving planned goals;
- changing the way of determining directions of spending funds by applying more objective calculation criteria prepared for the task;
- using market mechanisms for individuals applying for funds from the budget;
- greater readability of the task budget for recipients (local community), thus improving communication with them;
- obtaining a more effective way of achieving the assumed results through a clearly defined division of competences and responsibilities (liquidation of collective responsibility) (Kozun-Cieślak 2010, pp. 15-16; Antkowiak 2021, pp. 95–108.).

Taking into consideration the fact that a budget of a local government unit is the most important tool of public funds management, thus the use of the form of the task budget allows for increasing its effectiveness and rationality of management, understood as shaping the right relation between the costs incurred and the benefits obtained (Sierak 2011, p. 106).

### **New Public Management - the essence of the issue**

New public management is a doctrine of a management which is used in public administration that roots are in economy theory, gained the popularity as a concept which is used directly in a practice. It is based on a transition from administration, which is based on rigid procedures and political influence (the so-called bureaucratic model), towards management related to the economic assessment of the effectiveness of activities and using market mechanisms (the so-called managerial model). The economic crisis of 1970s XX century and the growth of the meaning of service market and consumers expectations about the quality of their realization were a direct cause of the emergence of the NPM concept in Anglo-Saxon countries in the 1980s. The increase in interest in this idea applied in practice corresponded with the implementation of numerous scientific researches and a series of OECD publications from the "Public Management Service" series (PUMA)<sup>2</sup>.

As reaction to problems led from mentioned changes there was a decrease in effectiveness of the old style of administration in a public sector. The new narration occurred which propagated in a political practice a wave of reforms driven by pressure to reduce public spending. (Pollitt, van Thiel, Homburg 2007, p. 1)

A traditional (bureaucratic) public administration, based on the so-called The Weber model functioned primarily on the principle of legalism. As a result, it was centralized, required officially confirmed competences of officials and emphasized processes. On the other hand, from a financial point of view, the traditional model of public administration required constant expenditure, including procedural control of spending public funds, but without assessing their effectiveness and the results

<sup>2</sup> Among the publications in this series, the following are worth mentioning: OECD (1997), *Towards Performance-Based Accountability*, Public Management Service, OECD; J. K. Martin (1993), *Symposium on Managing Regulatory Relations Between Levels of Government* Paris, 4-6 October 1993 *Seeking Mutual Gain: Strategies For Expanding Regulatory Cooperation*, Public Management Service, OCDE/GD(93)146; R. Jøsevold (1998), *REFORMING PUBLIC ENTERPRISES -- CASE STUDIES: NORWAY*, Public Management Service, OECD; R. C. G. Haffner, K. G. Berden (1998), *REFORMING PUBLIC ENTERPRISES -- CASE STUDIES: THE NETHERLANDS*, Public Management Service, OECD; OECD (1996), *PERFORMANCE MANAGEMENT IN GOVERNMENT CONTEMPORARY ILLUSTRATIONS*, PUBLIC MANAGEMENT OCCASIONAL PAPERS No. 9, OECD.

achieved. (Ochnio 2012, p. 4) A new concept proposed a radical change of the rules of administration activity by entering responsibility for obtained results and for the quality of services provided. This approach involved in Poland relatively new economic phenomena, such as competition, privatization and deregulation. The result was as following: transferring of part of the management rules in force in the private sector to the public sector. As a result, a new management culture emerged, focusing on the citizen and leading to decentralization of public tasks, using new mechanisms of service delivery (Lis 2019, pp. 197–208). The implementation of the NPM concept included political and task decentralization, the reorganization of the unit structure as well as the introduction of managerial management. An important novelty in this area was the introduction of a contract and agency system. Their task was to separate the role of a public service provider (contractor) from their "producer" (principals - administration) and to separate responsibility for the implementation of tasks from the process of making political decisions of public authorities. (Marchewka-Bartkowiak 2011). The concept of a new public management still evolves and it seems to be a consequence of a criticism. Main allegations about it are about the problems with transferring management methods of commercial entities to public administration grounds due to different final goals. Further obstacles result from the difficulties in measuring the results of the public tasks being performed and the resistance of the administration itself related to the responsibility for establishing and implementing specific objectives. The politicization of the administration is also important for NPM implementation. Nowadays, the next transformation is visible about the model of management in public units. The new model is proposed, which is based mainly on co-management or co-rule, which is called public governance. It is closely related to the issue of civil society and underlines the importance of: stakeholder engagement, transparency and equal treatment, ethical behavior, accountability and solidarity (Raczyńska, Krukowski 2020, pp. 71-86).

### **Problems of measuring effectiveness in the task budget**

A task budget is a modern form of public funds management which is an answer to NPM challenges. This tool is not only to manage effectively the public entities' finances, but also provides a number of additional information, which, based on the budget in the traditional approach, posed many difficulties. Sometimes it even led to the resignation of obtaining this information. The priority issue that is connected with task budget implementation is estimating goals which can be realized by the unit. In reference to units of public sector mentioned goals must be the same presented by the national development strategy, thus supporting development plans defined at higher levels of public administration. Defining goals is connected with the necessity of an adequate documentation and presentation of their implementation in the budget reporting system. Accounting records of undertaken tasks, although of course extremely helpful, do not capture all the effects of tasks carried out by public units. This role is fulfilled by measurer for goal realization which can have a different character and a structure. But, their construction is not an easy task. While building the measurers, one should remember that a goal which realizations they concern are "a situation, a phenomenon, a material, immaterial or actual state, which we want to achieve in the future" (Oleksyk, <http://budzet-zadaniowy.info/artykuly/arykul/cele-i-miernik-w-budzetuzadaniowym> /Page 1). In task budgeting, goal setting is performed using the SMART method. According to its guidelines, the goals should be (Orłowski 2010, p. 90-91):

- specific – that is, as precisely as possible, so that their analysis, interpretation and measurement method does not raise any doubts;
- measurable – each goal must have a specific implementation indicator, which should be characterized by simplicity, exhaust all aspects of the goal to be achieved and unambiguously indicate the degree of achievement of the goal;
- acceptable – the adopted goal must have a form that allows all organizational and subordinate units involved in its implementation to understand and accept;

- real – goals must be feasible with the resources;
- timely – the achievement of goals must be close within a given time frame, that is, have a clearly defined start and finish date for the goal.

Following the mentioned rules allows to make action plans which are going to be realized in the closest future.

In case of public funds management the attention should be put on the fact that the goal should be the challenge at the same time, which realization will transfer, among other things, into raising the standard of living of the society, increasing the competitiveness of a given area or increasing the investment attractiveness.

In Poland the basic form of planning on local government level is setting general goals on government level. The core of task budget is about setting long - term plans in terms of key areas of functioning of the whole country. The next stage after formulating the goals is to set a schedule for their implementation, which should also include a control procedure. Ongoing monitoring and evaluation of the tasks being performed serves as a final assessment of the implementation of the adopted objectives. The schedule prepared in this way enforces the determination of measures to achieve the objectives. Properly selected measures should be characterized by: relevance, adequacy, apoliticality, complexity, neutrality, credibility, economy, continuity, relevance, speed of acquisition, as well as credibility (Chrzanowski 2011, p. 350).

Measurers of impacts are used to measure long- term effects of realized tasks. Measurers may refer to direct results of undertaken tasks or these which are observed in a longer period of time. A mentioned group of measurers may refer to results of realizes tasks which occurrence was conditioned by the existence of additional factors, and thus the tasks implemented indirectly contributed to the achieved effects.

The effects of undertaken actions are measured using result measures and relate to immediate effects of tasks.

Measurers of a product give the information about performing a specific task at a specific time, e.g. an increase in a particular component of public goods.

Next, there is a group of effectiveness measurers which task is to measure a level of achieving defined goals. They are used on every level of a task clasification whilst effectiveness refers to the level of advancement of the actions initiated and the measurement of deviations in their implementation.

The last category are efficiency measurers, thanks to which the achieved results are linked to the expenditures incurred. Efficiency can be understood in two ways, that is, focusing on minimizing costs and maximizing the result, or striving to achieve results at a rigidly determined amount of costs.

The special attention should be put on measurers which task is to measure the quality and satisfaction. Thus, measurers of satisfaction of for example stakeholders of local government units are more and more often used in assessment of task realization which are undertaken by task units then a measurement of a quality is still the measurer underestimated and difficult.

In Poland using a task budget as a new and complex tool was connected with many mistakes during first years of its usage as well as with the necessity to overcome the resistance of public administration. The introduction of this instrument was more than related to the increase in the cost of managing public entities due to: the need to integrate strategic documents with expenditure plans going beyond the annual budget (Lubińska, 2007, p. 22-33); the hierarchy of the tasks carried out (Burzyńska, 2011, p. 263-264); deficiencies in the adopted measures of spending public funds (Komorowski, 2012, p. 16, 46-48); adjusting the measures to the tasks being performed (Lubińska, 2007, p. 22-33); the need to develop a new classification of expenses (Zawadzka-Pąk, 2014, p. 23-27); labor intensity and cost of data collection and reporting (Burzyńska, 2011, p. 263-264); involvement of managers with wide knowledge in the field of management and planning (Posmyk, 2013, p. 59).

On the mistakes and abuses list noted down in relation with a task budget usage there can be placed: wrong selection of measures, and, consequently, incorrect interpretation of phenomena and support of



undesirable processes, generally formulated scope and purpose of the task; poor estimation of the costs of tasks implementation; Difficulties in the assessment of the budget in the new system by the authorities constituting a preventive increase in expenses due to the possibility of increasing the deficit and public debt (Łada, Dziubiński 2017).

In Poland implementation of a task budget meets resistances connected with: the lack of a clearly defined public sector framework in the economy; insufficient knowledge of the task budgeting method and the lack of the possibility of direct implementation of foreign standards; simultaneous implementation of NPM and its tools; the skeptical attitude of public authorities and its representatives at local levels towards the new concept of public management; the necessity of cooperation between government and self-government administration units as well as between ministries; instability of the government administration system and a large number of developed government strategies and programs; lack of compliance of legal norms and standards for performing public tasks with the actual structures and capabilities of individuals; the necessity of concluding political compromises; and the reluctance to undergo additional control procedures. In practice, functioning of polish local governments units factors like: listed limitations, costs and difficulties in implementing the task budget instrument are used by the opponents of new managerial methods for undermining the very idea of task budgeting.

## Summary

Conducted analysis confirms that implementing a task budget is not an easy process. It needs coordination of work of different size local government's units- starting with the adaptation of the accounting system or the instrumentation used to assess the implementation of tasks resulting from the adopted plans, by changing the awareness of staff employed in local government administration up to introduction of organizational changes at all levels of local government structures. According to polish legislation a traditional budget is still an obligatory tool spending public funds, but supplementing it with a performance approach shows greater utility for the purposes of efficient and effective management.

## Literature

1. Allen R., Tommasi D. (2001), *Managing Public Expenditure. A Reference Book for Transition Countries*, OECD.
2. Antkowiak P. (2021), *Budżet zadaniowy w gminie jako sposób na racjonalne gospodarowanie środkami publicznymi*, Środkowoeuropejskie Studia Polityczne, No 3, pp. 95–108.
3. Bitner M., Chojna-Duch E., Grzybowski M., Chowaniec J., Karwat P., Kornberger-Sokołowska E., Lachowicz M., Litwińczuk H., Modzelewski W., Radzikowski K., Supera-Markowska M., Ślifirczyk M., Tetlak K., Waluga M. (2017), *Prawo finansowe. Prawo finansów publicznych. Prawo podatkowe. Prawo bankowe*. Wolters Kluwer, Warszawa.
4. Burzyńska, D. (2011), *Budżet zadaniowy narzędziem zarządzania finansami jednostek samorządu terytorialnego*, *Studia Prawno-Ekonomiczne*, 84 (8), pp. 251–266.
5. Chojna-Duch E. (2006), *Polskie prawo finansowe. Finanse publiczne*, Wydawnictwo Prawnicze LexisNexis, Warszawa.
6. Chrzanowski M. (2011), Mierniki budżetu zadaniowego dla funkcji 17 Równomierny rozwój kraju, [in:] *Budżet zadaniowy jako nowoczesne narzędzie zarządzania gospodarką narodową*, A. Siedlecka (red.), Państwowa Szkoła Wyższa im. Papieża Jana Pawła II, Biała Podlaska.
7. Czarnecki K. (2011), *Idee i praktyki Nowego Zarządzania Publicznego*, *Zarządzanie Publiczne* Nr 1(15)/2011, pp. 5-19.
8. Haffner R. C. G., Berden K. G (1998), *REFORMING PUBLIC ENTERPRISES -- CASE STUDIES: THE NETHERLANDS*, Public Management Service, OECD.
9. Haggart S. (ed.) (1972), *Program budgeting for school district planning*; *Educational Technology Publications*; Englewood Cliffs; New Jersey.
10. Izdebski H. (2007), *Od administracji publicznej do public governance*, „Zarządzanie Publiczne”, nr 1, p. 13
11. Jøsevoid R. (1998), *REFORMING PUBLIC ENTERPRISES -- CASE STUDIES: NORWAY*, Public Management Service, OECD.
12. Kaczurow-Kozak M. (2013), *Wdrażanie i konstrukcja budżetu zadaniowego w Polsce*, [in:] *Studia Lubuskie*, Tom IX, ed. P.K. Marszałek, Wydawnictwo Państwowej Wyższej Szkoły Zawodowej w Sulechowie, Instytut Prawa i Administracji, Sulechów.



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13. Komorowski, J. (2012), *Budżet zadaniowy jako narzędzie racjonalizacji gospodarki budżetowej* [in:] P. Albiński (ed.), *Budżetowanie zadaniowe w kontekście sanacji finansów publicznych w krajach Unii Europejskiej*. Warszawa: Oficyna Wydawnicza SGH.
14. Kozun-Cieślak G. (2010), *Budżetowanie w jednostkach samorządu terytorialnego – reorientacja z administrowania na zarządzanie*, *Finanse Komunalne*, nr 9.
15. Lis A. (2019), *New Public Management – wykorzystanie koncepcji Nowego Zarządzania Publicznego na uczelniach. Wyzwania w obliczu dynamicznie zmieniającego się otoczenia*. [in:] *Strategie i innowacje organizacyjne polskich uczelni* (eds.) Sułkowski Ł., Górniak J., Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków, pp. 197–208.
16. Łada M., Dziubiński T. (2017), *Budżet zadaniowy – narzędzie poprawy efektywności i tworzenia fasady legitymizacyjnej*, *Finanse, Rynki Finansowe, Ubezpieczenia* nr 1/2017 (85), pp. 93–103, DOI: 10.18276/frfu.2017.1.85-08.
17. Lubińska T. ed. (2007), *Budżet zadaniowy w Polsce. Reorientacja z wydatkowania na zarządzanie pieniędzmi publicznymi*, Wydawnictwo Difin, Warszawa.
18. Lubińska T., Strąk T., Lozano Platonoff A., Będzieszak M., Godek M. (2009), *Budżet zadaniowy w Polsce – istota, struktura, metodyka*, [in:] T. Lubińska (ed.), *Nowe Zarządzanie Publiczne – skuteczność i efektywność. Budżet zadaniowy w Polsce*, DIFIN, Warszawa.
19. Marchewka-Bartkowiak K. (2011), *Agencje wykonawcze*, „INFOS. Zagadnienia Społeczno-gospodarcze”, nr 17(109).
20. Martin J. K. (1993), *Symposium on Managing Regulatory Relations Between Levels of Government Paris, 4-6 October 1993 Seeking Mutual Gain: Strategies For Expanding Regulatory Cooperation*, Public Management Service, OCDE/GD(93)146.
21. Nucińska J. (2018), *Budżet zadaniowy jako narzędzie pomiaru skuteczności działania wybranych jednostek samorządu terytorialnego*, *Nierówności Społeczne a Wzrost Gospodarczy*, No 56, pp. 349-359.
22. Ochnio M. (2012), *Nowe zarządzanie publiczne, podstawowe cechy modelu. Jego zastosowanie w Polsce*, Stowarzyszenie Instytut Zmian, Working Paper nr 1.
23. OECD (1996), *PERFORMANCE MANAGEMENT IN GOVERNMENT CONTEMPORARY ILLUSTRATIONS*, PUBLIC MANAGEMENT OCCASIONAL PAPERS No. 9, OECD.
24. OECD (1997), *Towards Performance-Based Accountability*, Public Management Service, OECD.
25. Oleksyk P. (2006), *Cele i mierniki w budżecie zadaniowym*, <http://budzet-zadaniowy.info/artykuly/arykul/cele-i-mierniki-w-budzecie-zadaniowym>.
26. Orłowski W.M. (2010), *Cele formułowane w budżecie zadaniowym jako niezbędny element zarządzania środkami publicznymi przez efekty*, [in:] M. Postuła, P. Perczyński (eds.), *Budżet zadaniowy w administracji publicznej*, Ministerstwo Finansów, Warszawa.
27. Owsiak S. (2005), *Finanse publiczne. Teoria i praktyka*, PWN, Warszawa.
28. Pakoński K. (ed.) (2000), *Budżet – zintegrowane zarządzanie finansami*, Municipium, Warszawa.
29. Pietrzak B., Polański Z., Woźniak B. (2008), *System finansowy w Polsce*, t. 2, PWN, Warszawa.
30. Pollitt Ch., van Thiel S., Homburg V. (2007), *New Public Management in Europe*, Published: October 2007 in Management Online REview, [www.moreexpertise.com](http://www.moreexpertise.com)
31. Posmyk, E. (2013), *Budżet zadaniowy jako skuteczne narzędzie zarządzania finansami JST, ze szczególnym uwzględnieniem funduszy unii europejskiej*. *Studia Oeconomica Posnaniensia*, 1 (4) (253), pp. 48–61.
32. Postuła M., Perczyński P. (eds) (2010), *Budżet zadaniowy w administracji publicznej*, Wyd. II (poprawione), Ministerstwo Finansów, Warszawa.
33. Raczyńska M., Krukowski K. (2020), *Zarządzanie w administracji publicznej. Od idealnej biurokracji do zarządzania procesowego*, Monografie i Studia Instytutu Spraw Publicznych Uniwersytetu Jagiellońskiego, Kraków, pp. 71-86.
34. Robinson M. (2007), *Performance Budgeting Models and Meanisms*, [in:] M. Robinson (ed.), *Performance Budgeting*, IMF.
35. Sierak J. (2011), *Budżet zadaniowy jako narzędzie wzrostu efektywności gospodarowania finansami w jednostkach samorządu terytorialnego*, *Studia i Prace Kolegium Zarządzania Finansów*, ZN nr 107, Warszawa.
36. Skoczylas W. (2011), *Mierniki monitorowania celów i zadań jednostki samorządu terytorialnego*, *Zeszyty Naukowe Uniwersytetu Szczecińskiego* Nr 669 *Finanse, Rynki Finansowe, Ubezpieczenia* Nr 42, pp. 173-184.
37. Skrzypek E. (2011), *Nowe zarządzanie publiczne – budżet zadaniowy*, [in:] Siedlecka A. (red.), *Budżet zadaniowy jako nowoczesne narzędzie zarządzania gospodarką rynkową*, Wydawnictwo Państwowej Szkoły Wyższej, Biała Podlaska.
38. Ustawa z dnia 27.08.2009 r. o finansach publicznych, (Dz. U. 2009, nr 157, poz. 1240 z późn. zm.).
39. [www.budzet-zadaniowy.com/budzet\\_zadaniowy\\_w\\_samorzadach/index.html](http://www.budzet-zadaniowy.com/budzet_zadaniowy_w_samorzadach/index.html) (access: 06.03.2019).
40. Zawadzka-Pak U.K. (2014), *Konstrukcja prawna, wdrażanie i realizacja budżetu zadaniowego we Francji i w Polsce*, Kraków-Legionowo: edu-Libri.



# FORMULATING INSTITUTIONAL POLICIES AND MECHANISMS FOR GENDER EQUALITY IN THE HIGHER EDUCATION SECTOR IN SYRIA: WORKING PAPER FOR NATIONAL PERSPECTIVE

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**Abstract:** This research examines the formulation of national policy paper in the scope of gender equality at higher education sector in Syria. The research produces a situation analysis of female academics' environment, representation and needs for training examining the justification and importance of introduction of Gender Equality education. The paper examines a private higher education institution investigating the higher education environment in Syria highlighting the situation after 2011. The methodology applied in diagnosing the situation, is based on an Erasmus + Capacity building in Higher Education project, namely FREE Project. The methodology employs the design of questionnaire survey administered at the research target groups. A one-way translation from English to Arabic is performed by AIU and verified by experts. The sample design employs nonprobability sampling techniques. The size of the sample is 47 observations for academics. The findings of the analysis are reported across individual, group, and institutional levels, examining the project target groups. The finding of the situation analysis leads to the identification and formulation of dimensions for gender equality in the scope of higher education at Syria. The first dimension of this national policy paper is associated with the lack of Gender Knowledge in Education and Research in Syria. The second dimension reflects the need to revise Gender Equality policies in Employment and HR Practices. The recommendations of the national policy brief indicate strong need to introduce the concept of gender equality in teaching and research and promote, where appropriate, inclusion in the curricula. The national policy brief also recommends policy reforms related to employment and HR practices to ensure equality, equity between men and women.

**Key words:** gender equality, institutional policy, education sector.

## Introduction

To succeed in today's new paradigm of academic learning and research environment, higher education institutions need sustainable leadership in academic environment that can transcend time, place, geography, race, and above all gender. Prior academic research indicates that there is requirement for a greater number of female academics in the Middle East and South Mediterranean region. Challenges associated with social, cultural, economic and gender issues are evident factors that could impair female academics from taking leadership roles in academic environment. On the other hand, information overload, technological advancement and connectivity, battle for analytical and research competencies and increasing ethical dilemmas have been among important factors stimulating the need for female leaders, who acquire effective competencies and that could transcend cultural, geographical, political, racial and national aspects.

Equality is one of the five values on which the European Union has based its foundation on. The EU has put significant and strategies to establish and sustain gender equality which was positively reflected on the social, economic, political and other important aspects of European society. Gender inequality as a phenomenon under examination reflects negatively on the human, social, economic and political aspects of a society. Establishing economic independence across both men and women has a positive impact on the economy and will result in better utilization of human capital in a given nation. Gender gap exists in different sectors where women are found to be overrepresented in lower paid sectors and underrepresented in senior management levels and decision-making positions

Generally, the topic of gender equality is significant because gender gap has 50 % impact on total population. The rationale and significance of the gender equality is that if 50 % of human beings are not contributing effectively to different social, economic, professional and political aspects of life, then

this society is not fully or effectively employing or achieving its full potential. The Middle East and North Africa region is no exception to this approach.

The global gender gap index is measured in four dimensions: economic participation and opportunities, educational attainment, health, survival and political empowerment. Economic participation sub index, which is a significant indicator in the scope of this project, is defined in three main approaches: the participation gap, the remuneration gap and the advancement gap. In addition, education attainment is sub index indicator with a crucial significance for project FREE. Educational attainment is measured in by examining the gap men and women access to education through ratios of female to male in primary, secondary and tertiary levels of education, as well as female versus male literacy rates.

The prevalent organizational environment of Higher Education industry in the Middle eastern region is generally considered as male dominated paradigm which is characterized by (1) deficiency in the development of a sustainable development training programs for its human academic resources particularly in the scope of female executive leadership, (2) lack of career support and counselling centres for female academics and students subject to different forms of discrimination at Higher Education institutions; (3) lack of integration of gender issues at courses and curricula levels; (4) and lack of strategic emphasis and investment in development of scientific research centres in the scope of gender equality and female empowerment.

### **Higher Education Environment in Syria**

Universities at Syria definitely need the knowledge and expertise of social and technical innovation skills to create a sustainable future for Syria. Before 2011 Higher Education sector was expanding as the introduction of private universities in Syria through a legislation which was applied in 2001 allowed the operation of Syrian private HEIs. Before the devastating war in Syria and between 2001 and 2010 private universities in Syria were growing gradually and were competing to win and recruit students primarily undergraduates. At 2011 a long-term crisis has torn Syria over the past eight years, which has created a devastating situation on a social, economic, environmental and political levels including both private and public sectors. Higher education is still operating; however, it has gone through significant declination and worsening through the past eight years of struggle and devastation. Many people in Syria either lost their jobs, their assets and properties or in the worst cases their lives. The devastating situation drove many individuals including students and academics to leave Syria seeking safer and better living conditions. Currently and after 8 years of war, destruction and devastation on human, social, economic and environmental levels the subject of equality and sustainable development is even more vital than previously, considering the economic background and context which characterizes Syria, particularly reflecting on the social and economic environment. Before 2011 Syrian Higher Education was going through a development phase, characterised by modernising teaching and research environments and knowledge transfer, accreditation with international and mainly EU partners. After 2011 and during the past eight years Syrian Higher Education is characterised with different challenges associated with its infrastructure, operational, human, technical, intellectual and social levels (Dalati & Alchach, 2018). Currently, the economic and political environment in Syria became more complicated particularly after the global pandemic and its effect on Syria in different aspects including the higher education infrastructure (Rouh, Dalati, and Al Bich 2021).

### **Methodology**

The methodology section encompasses the sampling design and the questionnaire design. The following sections clarify the main methodology factors related to sampling design, strategy and size, and to data collection design. It is critical to clarify that this research is part of an Erasmus + project which is dedicated to Capacity building in Higher Education, Namely FREE project (<https://freeproject.eu/>). The sample unit of analysis comprises of academic staff. The sample strategy a non-probability sampling

approach. A quota sampling is applied to improve representativeness (Cooper, D. and Schindler, 2014). A proposed quota sampling strategy, has divided the sample into different subgroups indicating 9 faculties operating at a private university in Syria. The size of the sample in this current study is 47 academics Figure 1 illustrates sampling design and size. Data was collected between June - July 2019. Research unit of analyses is based on academic staff at private university in Syria. The first model questionnaire is for academics. This prototype will be oriented for academic staff. The questions will be customized taking into consideration the field of expertise, research and teaching, as well as training needs for this category. The academics prototype questionnaire is designed addressing the individual, professional, group, and institutional characteristics, as well as training needs of this target group. The questions are customized taking into consideration the characteristics of this target group. The questions are customized taking into consideration the field of expertise, knowledge and strategic scope of this target group, as well as training needs for this category.

## Analysis and Findings

Academics are teaching and research staff, who are associated with developing research in the scope of gender equality, equity and curriculum development. Academic staff analysis is examined on different levels, including demographical, individual, group, professional and institutional levels.

### Demographic profile

The demographic profile comprises academic staff members from all faculties, providing data about age, gender, educational level, position, and work experience. At faculty level, 31.9% of respondents are from the business administration, 12.8% from pharmacy, 17% from information technology, 12.8 % from architecture, 6.4 % from languages' department, 10.6% from the Fine Arts, and finally 8.5 % from the University Requirements. The majority of respondents (34%) were between 40 -50, and 17% was equal between respondents who are less than 30 and those between 30 and under 40. 19.1% goes to age group 50 and 60, whereas the least goes to 60-70 age group, with 4.3%, and 8.5% goes to age group 70 and above. Females account for 53.2 %, compared to 44.7% males, and 2.1 % who prefer not to say. 97.7 % of respondents are Syrians, whereas 2.3% have other nationalities. 59.6% of academic staff are PhD holders, 31.9% are holders of Master's degree, while 8.5% are Bachelor holders. 27.7% of respondents are part time staff, whereas 72.3 % are fulltime staff. Respondents' academic levels range between lecturer and professor. Most of them are instructors (42.6%), while 8.5% are professors. 19.1 % of respondents are lecturers, whereas 21.3 % are assistant professor compared to 2.1 % only associate professor. In terms of work experience, 26.1 % of academic staff accompanied the university since its establishment, 10 – 15 years. 43.5 % have work experience between 1-5 years, while 13% have 5-10 years of experience. 8.7% have between 15 years and under 20 years, and 2.2 % have 30 and above years of experience. Table 1 illustrate demographical data analysis for academics.

*Table 1. Demographical data – academics (n =47)*

<b>Faculty</b>	<b>Frequency</b>	<b>Percent %</b>
Business Administration	15	31.9
Pharmacy	6	12.8
Information Technology	8	17.0
Architecture	6	12.8
Languages	3	6.4
University requirement	4	8.5
Fine Arts	5	10.6
Total	47	100.0
<b>Age Categories</b>	<b>Frequency</b>	<b>Percent %</b>
less than 30	8	17.0
30 years – under 40 years	8	17.0

40 – under 50	16	34.0
50 – under 60	9	19.1
60- under 70	2	4.3
70 and above	4	8.5
Total	47	100.0
<b>Gender</b>	<b>Frequency</b>	<b>Percent%</b>
Male	21	44.7
Female	25	53.2
prefer not to answer	1	2.1
Total	47	100.0
<b>Education Level</b>	<b>Frequency</b>	<b>Percent %</b>
Bachelor	4	8.5
Master	15	31.9
PhD	28	59.6
Total	47	100.0
<b>Academic Level</b>	<b>Frequency</b>	<b>Percent %</b>
Lecturer	9	19.1
Instructor	20	42.6
Assistant Professor	10	21.3
Associate professor	1	2.1
Professor	4	8.5
Other Academic level	3	6.4
Total	47	100.0

### Departmental Level – Curriculum and Research:

Almost half the respondents (47.7%) signified that courses which address gender issues in their departments are provided to a minimum extent, while only 2.3% indicated opposite. 27.3% were not sure, whereas 11.4% said that gender issues are addressed to a good extent and the same percentage indicated to a little extent. Figure 4 illustrates percentages on extent to which Gender Equality is integrated at faculty courses at AIU.

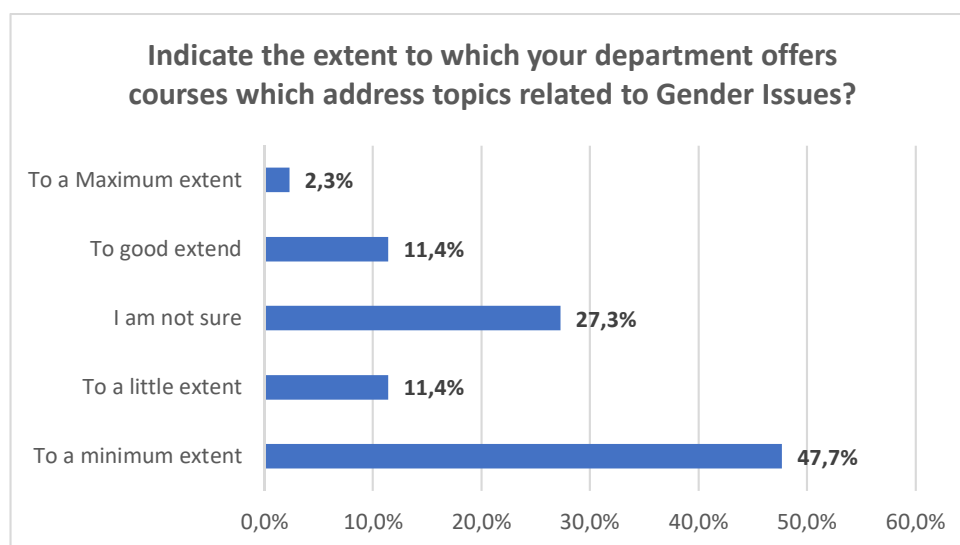


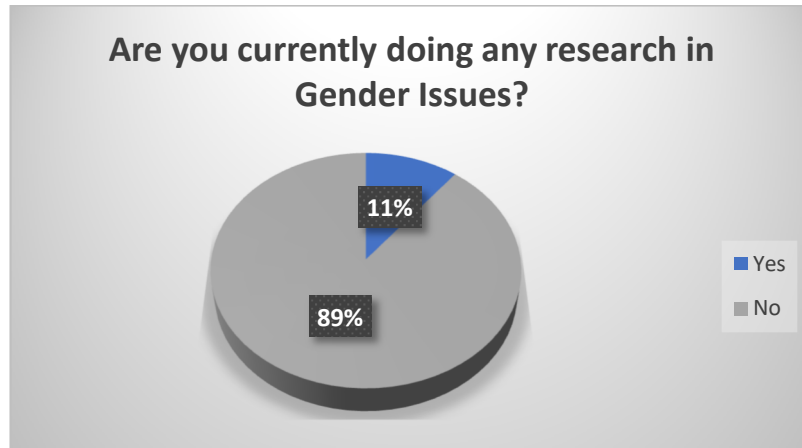
Figure 1. Integration of Gender Equality in faculty courses (Source: FREE Questionnaire Survey)

Source: own study

Descriptive analysis proves that there is little awareness about gender issues since 87% of respondents are not aware of any student's research related to gender issues, compared to only 13%



demonstrating otherwise. Furthermore, 89.4% are not currently doing any research that address gender issues, compared to only 10.6% who are doing so. Figure 5 illustrates percentages on academics performing research in gender issues.



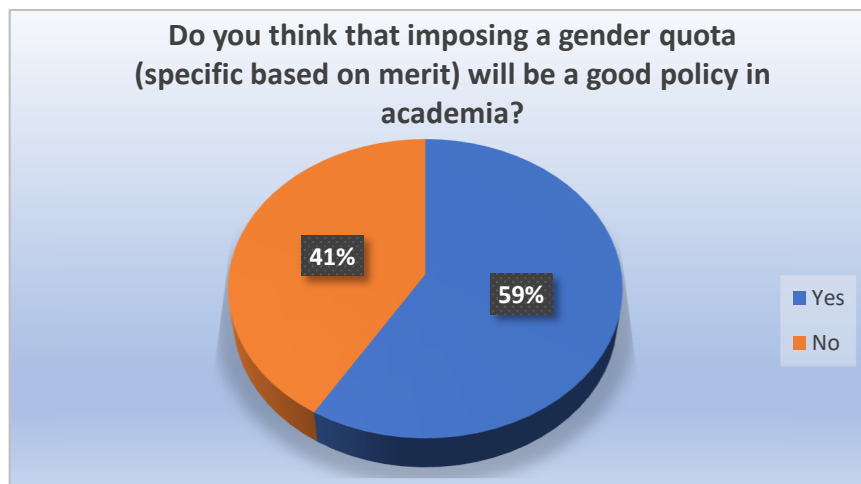
*Figure 2. Research production in the Gender Issues (Source: FREE Questionnaire Survey)*

Source: own study

## Institutional Level

### Gender inequality – Institution HR practices:

Respondents were asked if a gender quota, based on merit, policy would be good, 58.7% agreed and 41.3% disagreed. 40.4% indicated that positions should be given based on abilities and not only gender. 10.6 % justified that it might be viewed as unfair. 6.4 % said it will not be helpful, and only 4.3 % said it is not necessary. Figure 6 illustrates percentages on introduction of gender quota in higher education.



*Figure 3. Gender Quota based on merit (Source : FREE Questionnaire Survey)*

Source: own study

Descriptive data analysis generally reflects perceived agreement levels of respondents towards HR practices, where the highest mean score (4.13) goes to equal opportunities for promotion for both men and

women. Whereas, the lowest mean score (3.13) goes to providing training programs for women. This signifies the lack of training programs oriented for women and the critical need for this kind of training. Table 2 illustrates average mean scores and standard deviation on factors associated with HR practices.

*Table 2. HR Practices at Institution*

HR Practices at Institution	M	SD
1. Training programs for women	3.13	1.23
2. Equal opportunities for promotion for both men and women	4.13	1.08
3. Common recruitment & selection policy which is equal	3.97	1.09
4. Performance appraisal is independent of gender	4.11	.95
5. This university has Gender Equality at workplace	3.72	1.01
6. This university is a women friendly workplace	4.00	.89
7. Equal vacations all employees	4.08	.92
8. Common training and development policy for all.	3.74	.98
9. Fair reward and recognition policy	4.02	.93
10. Women get proper maternity leaves as per the law	4.12	.87
11. Women are allocated the same rewards as men	4.08	.95
12. Women are allocated the punishments as men	4.10	.94
13. Women are given leadership roles	3.91	1.01
14. I feel included in decision-making processes	3.27	1.03

Source: own study

### Sexual Harassment, Sexism, and Stereotypes

Generally, descriptive analysis demonstrates higher percentages of respondents who neither experienced nor observed sexual behaviour, ranging from 85.1 % for those who neither experienced nor observed sexual teasing, jokes or remarks, to 91.5 % for those who neither experienced nor observed pressure for sexual favours, or sexual assault. 6.4% experienced sexual teasing, jokes or remarks, with another 6.4% who observed this behaviour, and only 2.1% who experienced and observed this phenomenon, while 85.1% neither observed nor experienced this. 6.4% experienced unwanted physical contact, while 4.3% observed this, while 89.4% neither observed, nor experienced. However, the subject of sexual harassment behaviour is a complex issue as it is differently interpreted across cultures. Moreover, higher percentages indicating neither observed nor experienced can be related to conservative culture of the Middle East. Such topics are perceived as taboos. Table 3 Illustrates descriptive data analysis on sexual harassment at institution for academics.

*Table 3. Sexual Harassment at Institution*

Sexual Harassment at Institution	Experienced	Observed	Observed and experienced	Neither	Total
Sexual/sexist teasing, jokes, remarks or questions	6.4%	6.4%	2.1%	85.1%	100.0%
Pressure for dating	6.4%	2.1%	2.1%	89.4%	100.0%
Sexual/sexist letters, phone calls, emails	6.4%	0.0%	2.1%	91.5%	100.0%
Leaning over, cornering, pinching, touching, unwanted physical contact	6.4%	4.3%	0.0%	89.4%	100.0%
Pressure for sexual favours	8.5%	0.0%	0.0%	91.5%	100.0%
Stalking	6.4%	4.3%	2.1%	87.2%	100.0%
Physical/sexual assault	6.4%	2.1%	0.0%	91.5%	100.0%

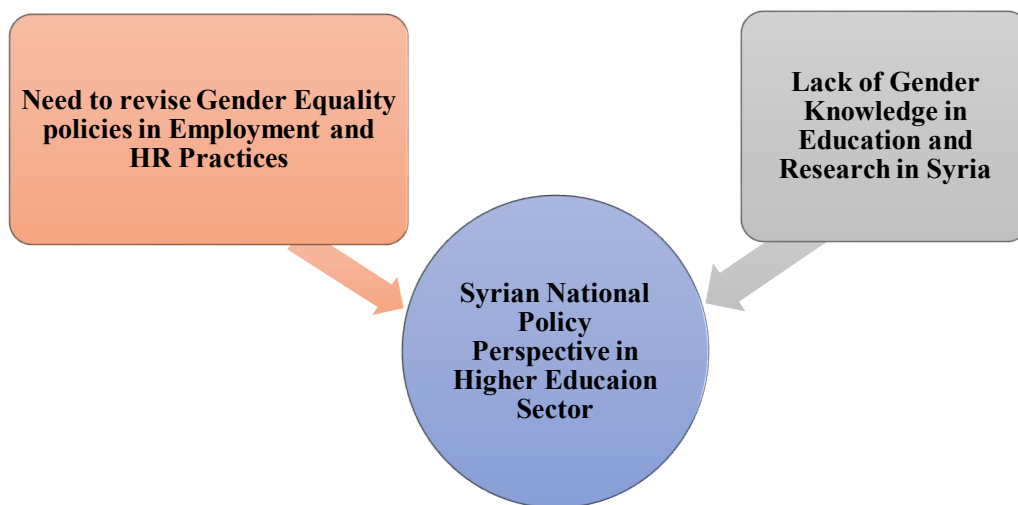
Source: own study

### Discussion

The results disclose finding on departmental, group and institutional levels. At a departmental level, results disclose that courses which addresses gender issues are at the very minimum levels. This brings a very interesting and predictable results that gender issues including the subject of gender equality and equity are not addressed adequately at the higher education institution. The results confirm little awareness exists on the subject of gender equality. Moreover, the results reveal minimal levels of gender research being performed in this scope at target institution. This is another finding which requires attention in the scope of developing institutional policies to introduce gender equality in higher education sector.

At the institutional level, results disclose that the introduction of gender quota based on merit would be considered as a good policy to boost female representation at various domains in higher education. However, the results vary across gender, indicating higher level of support by female academics, to the introduction of gender quota within higher education sector. The results disclose Human resources management at the target institution is regarded as a strength where the focus of human capital is evident and significant. The examination of sexual harassment does not reveal significant concern, although the discussion of this topic is sensitive. Alternative methodology would bring deeper insight on the topic, including focus groups or individual in-depth interviews.

Moreover, the results show that female academics at this private HE institution have positive perception and feel empowered as women working in higher education sector. Moreover, the results disclose that training in the scope of self- empowerment and Gender Equality are very significant and crucial for this target group. Figure 5 illustrate the need Syrian national policy perspective in Higher education sector.



*Figure 4. Syrian National Policy Perspective*

Source: own study

## Conclusion

The national policy paper reflects commitment to the principles of equity and equality in the field of higher education. Effective implementation of this tool will request senior levels of management at university level. Gender equality principles have been created from global and international initiatives, where governments have been dedicated themselves to promoting gender equality and reflecting this initiative in the formulation of national policies, which supports this global goal.

This national policy brief serves as internal guidance tools outlining vision, mission and strategic priorities and processes for infusion of gender equality perspective in the scope of higher education in Syria. The national policy brief should provide blueprint for the implementation and institutionalisation of equality in target higher education institutions.

## Literature

1. Cooper, D. and Schindler, P. (2014). Business Research Methods. In *Social Research* (12th Editi). Retrieved from <http://www.amazon.com/Business-Research-Methods-Alan-Bryman/dp/0199284989%5Cnhttp://130.209.236.149/headocs/31businessresearch.pdf>
2. Dalati, S., & Alchach, H. (2018). THE EFFECT OF LEADER TRUST AND KNOWLEDGE SHARING ON STAFF SATISFACTION AT WORK: INVESTIGATION OF UNIVERSITIES IN SYRIA. *Business, Management and Education*. <https://doi.org/10.3846/bme.2018.2852>
3. Ferrell, O. C., & Hartline, M. D. (2011). Marketing strategy Text and Cases. ... *of Business and ....*
4. Forum, W. E. (2018). *The Global Gender Gap Report 2018*.
5. Investigating the Perceived Comparison of Work from Office vs. Work from Home during Covid-19: An Empirical Study. *Journal of Service, Innovation and Sustainable Development*, 2(2), 53-69. DOI:10.33168/SISD.2021.0205
6. UNESCO (2017) Women in Science, United Nations Educational, Scientific and Cultural Organisation. doi: 10.1038/s41570-017-0042.
7. World Economic Forum (2018) The Global Gender Gap Report
8. World Economic Forum (2021) The Global Gender Gap Report
9. World Economic Forum (2023) The Global Gender Gap Report
10. FREE (2023) <http://www.freeproject.eu> (date accessed May 2023)



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# THE APPLICABILITY OF GENERATIVE ADVERSARIAL NETWORKS IN THE MANAGEMENT OF CONTEMPORARY BUSINESS ORGANIZATIONS

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**Abstract:** Artificial intelligence solutions especially those based on neural networks and machine learning are now being applied in more and more areas supporting the management process of a modern business organization. A special role can be played by GAN (a generative adversarial network) that can support and optimize the decision-making process at all its stages and levels. The purpose of the paper is to present the possibilities of GAN networks applications, including an identification of the benefits of their potential implementation in contemporary business organizations. The research part was based on a qualitative approach, where the research sample included 30 respondents. Open-ended research questions were posed and they focused on the advantages and disadvantages of using GAN networks in the process of supporting the management of a business organization.

**Key words:** Artificial Intelligence, machine learning, deep learning, neural networks, business analytics, natural language processing, decision making support.

## Introduction

The contemporary intelligent technologies such as business intelligence systems, narrow Artificial Intelligence solutions based on machine learning, deep learning and reinforcement learning, big data analytics, data mining techniques support managers in the process of a contemporary business organization management. Nowadays applicability of intelligent solutions embrace business organizations, companies, enterprises of all industry branches. One of the latest solutions embrace the domain of machine learning applied in many areas of business activity.

The aim of the paper is to answer three research questions:

- 1) What is the current state of GANs application in contemporary business organizations
- 2) What are the advantages resulting from GANs application in business organizations
- 3) What are the threats resulting from GANS application in business organizations

## Characteristic of Generative Adversarial Networks

The notion of Generative Adversarial Networks was introduced by Ian Goodfellow et al. in 2014 year when the authors proposed “a new framework for estimating generative models via an adversarial process, in which two models are simultaneously trained: a generative model G that captures the data distribution, and a discriminative model D that estimates the probability that a sample came from the training data rather than G. The training procedure for G is to maximize the probability of D making a mistake” (Goodfellow et. al. 2014). The authors of GAN concept further state that when “G and D are defined by multilayer perceptrons, the entire system can be trained with backpropagation and in such a situation there is no need for any Markov chains or unrolled approximate inference networks during either training or generation of samples” (Goodfellow et. al. 2014). So, GANs may constitute an alternative to another solutions such as Boltzmann machine and Autoencoders. R. Agrawal breaks the GAN into 3 words it is: generative – how data is generated, adversarial – model training in an adversarial setting, networks – the application of deep neural networks for training. Jabbar and Omar state that “GAN is the most common learning model in both semi-supervised and unsupervised learning where



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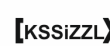
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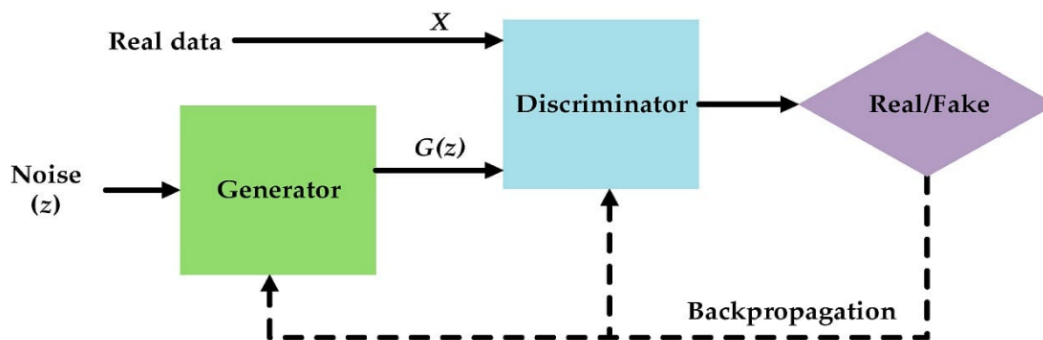
Faculty  
of Management



Department of Applied Sociology  
and Human Resource Management



GAN takes a supervised learning approach to do unsupervised learning by generating fake or synthetic looking data” (Jabbar and Omar 2020). J. Feng et. al describing the basis of GAN functionality state that “in simple terms G wants to deceive D and maximize the probability that D makes a mistake by generating high-quality samples, and D wants to make the best possible distinction between real samples  $x$  and generated samples  $G(z)$ . The optimization of GAN is realized by finding the Nash equilibrium between G and D. G and D are optimized by the value function  $V(D,G)$ ” (Feng et. al. 2020).



**Fig. 1 The model of Generative Adversarial Network (GAN)**

Source: J. Feng et. al. (2020) Generative Adversarial Networks Based on Collaborative Learning and Attention Mechanism for Hyperspectral Image Classification, <https://www.mdpi.com/2072-4292/12/7/1149/htm>

Cheng et al. on the basis of literature review evokes inspiration for GAN network functionality on the basis of zero-sum game theory “defined as a game in which two parties are strictly opposed to each other, where the gains of one party are bound to bring losses of the other party, and the gains and losses of both parties add up to zero” (Cheng et. al. 2020). Another comparison is presented by M. Tatariants who demonstrates the idea of GAN functionality referring it to e.g. writer and editor and who claims “GAN is like a writer and an editor, or an artist and a critic who always interact with each other, improving their skills, as well as generative and discriminative models during training” (Tatariants 2021).

N. Barla underlines the fundamentals of Generative Adversarial Networks functionality stating that two networks should be trained independently. There can be distinguished the following GAN variants as Deep Convolutional GAN (DCGAN) using convolutional neural nets (CNNs) allowing for e.g. generation of higher quality images; Conditional GANs (CGAN) where some extra information is added and which are applied in e.g. image-to-image translation where e.g. Pix2Pix can be used in day-to-night or night-to-day images translation, low resolution to high resolution, sketch-to-drawing; CycleGAN using unpaired instead of paired image translation; text-to-image synthesis, such as StackedGAN; face inpainting known also as face completion; video generation (Barla 2023). Another types of GAN’s include: fully connected GANs, Laplacian Pyramid of Adversarial Networks (LAPGAN), Generative Recurrent Adversarial Networks (GRAN), Adversarial Autoencoders (AAE), Information maximizing GANs (InfoGAN) and Bidirectional GAN (BiGAN).

There are many positive features resulting from GANs application but there can also be distinguished a few threats which are connected with the application of generated fake content like videos or images called deep fakes and which can be applied with a bad intention in different advertisement or political campaigns presenting untrue information.

As far as the future of GANs development is concerned it is worth mentioning Quantum Generative Adversarial Networks where Ngo, Nguyen and Thang conducted a survey concerning its recent advances seeking to augment machine learning in a quantum way. Such a solution called QuGAN “may have a fully quantum or a hybrid quantum–classical architecture, which may need additional data processing in the quantum–classical interface. As quantum machines only work with data stored in

quantum states, classical data must be encoded into this form of data using e.g. basic, amplitude or angle encoding and what is more thanks to the superposition property of quantum computing, multiple inputs into a single quantum state can be encoded.” (Ngo et. al. 2023).

## **Application areas and advantages of Generative Adversarial Networks implementation**

There exist multiple applications of GAN networks in many areas from computer vision including image generation, translation (Zhengwei 2020), through drug discovery and various molecule development in pharmaceutical industry, diagnosis purpose imaging in the medicine or healthcare domain to GAN application in the support of contemporary business organizations management including support of decision making process. Alqahtani et. al conducted the review of GANs application in many different areas of which it is worth mentioning: generation of high quality images, upscaling which is generation of higher resolution image from lower resolution one; person re-identification allowing tracking the trajectory of a person (it is an example of security application); object detection (applied e.g. surveillance, image retrieval and driver assistance systems); video prediction and generation (predicting next frames in videos); facial attribute modification with face aging and rejuvenation (prediction of future looks); anime character generation; image to image and text to image translation; human pose estimation; de-occlusion which is removing the blocking of another object; image mixing; domain adaptation; sequential data based applications in speech and music domain; improving classification and recognition (Alqahtani 2019).

In the management of business organizations such solutions are applied in design and management of business processes where e.g. Ch. Van Dun et al. propose the approach called ProcessGAN to combine business process improvement (BPI) and computational creativity (Christopher van Dun et. al. 2023). The GAN networks can be integrated into business models of contemporary business organizations. A. Gonfalonieri states that besides its most common application related to image and/or content generation e.g. text to image and image to image translation “they can be used to re-formulate and solve several existing and machine learning problems in new ways” (Gonfalonieri 2020) and mentions “utilization of synthetic images produced by GAN for data augmentation purpose in projects”. The GAN having tremendous impact on creativity can support designing future products and can be combined with another machine learning based solutions such as sentiment analysis tools in order to explore new trends and allowing to notice “how consumers respond to new products” and what is more “GAN generated content will become difficult to distinguish from real content” (Gonfalonieri 2020).

Another worth mentioning application of GAN networks is the marketing area where they can improve products descriptions. One of such an example is presented by R. Martinez and J. Kamalu where the authors analyzed “how GAN models can replicate text patterns from successful product listings on Airbnb – apartment rental platform”. Such solutions can “increase the accuracy of product recommendations on websites” (Martinez Kamalu 2018).

In case of fashion industry so called Pose Guided Generation Network (which can be trained on the e.g. DeepFashion dataset) can be applied to present “person images in arbitrary poses based on an image of that person and a novel pose” (L. Ma et. al 2017). GAN gives the possibility to “automatically generate images for a given product” as well as logos and with connection to AI assistants can lead to “reach a target audience” (L. Ma et. al 2017). In advertisement there exist possibility to create videos, images, audio files to compare fictitious content with a real one or create a multi-layer images.

The anomaly detection finds its application in detecting fraudulent transactions where GANs are able to generate new data (Sabuhi et.al. 2021). In the finance domain GANs can be applied in “making accurate forecasts on the closing price of stocks” and these research results conducted by Staffini confirm that “financial time series forecasting may benefit from employing GANs”. Those networks can also find weaknesses of another IT systems (Staffini 2022).

The table 1 presents the selected areas of GAN application in contemporary business organizations focusing mainly on the marketing and promotion areas, business processes improvement and automation.

*Table 1. Areas of GAN applications in the management of business organizations*

Business application area of GAN	Detailed application of GAN
Marketing and promotion area	Content and images generation, pose generation e.g. in a fashion industry, customer behaviour simulation
Business processes management e.g. in the area of production, logistics	Improvement, optimization and automation of processes, simulation of different scenarios,
Advertisement domain	Generation of a realistic video and audio content
E-commerce	Images of product or services offers generation
Entertainment domain	Augmented and virtual reality, chatbots
Architecture and 3D designing	Offices and houses decor
IT systems security	Anomaly detection, data privacy ensurance

Source: Authors' study based on conducted research and literature review

The GANs interconnected with another intelligent solutions such as big data analytics, BI on premise and cloud analytics systems, data mining tools, AI and machine learning tools based on supervised, semi-supervised and unsupervised learning have significant impact on the acceleration, increase of efficiency and efficacy of decision making process (Sobczak, Ziara 2023). The application of Robotic Process Automation (RPA) allows for automation of many tasks (Sobczak, Ziara 2021). Large language models and other solutions of Natural Language Processing such as sentiment analysis together with previously mentioned technologies constitute a holistic view on the management process of contemporary business organizations (Ziara 2022a). What is more deep learning and reinforcement learning solutions improve decision making process at all its stages and levels (Ziara 2022b).

## Research methodology

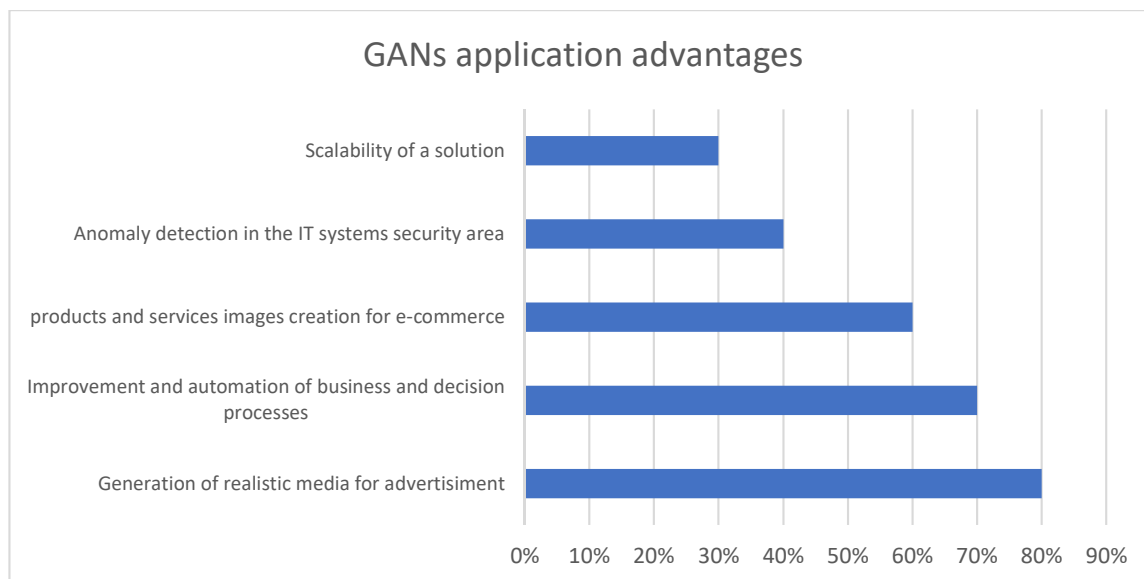
The qualitative study was conducted in November 2022 on a group of 30 respondents (n=30), who were second-cycle students of Management and Finance and Accounting (Faculty of Management, Czestochowa University of Technology, Poland), most of whom work in companies that have implemented intelligent technological solutions based on machine learning – (90% of respondents). The 10% of respondents declared that intelligent technologies supporting the management process of a given company will be implemented soon. In open-ended questions, respondents were asked to indicate the advantages and disadvantages of using GANs in the management of a modern business organization, additionally indicating branches of its implementation. The research limitations may be connected with the size of research sample and the fact that not all respondents work in companies that have implemented machine learning.

## Presentation of research results

The results of the survey indicated such advantages of GANs application as (figure 2):

- The possibility of content creation for advertisement purposes 80% of respondent,
- The possibility to improve and automate business and decision processes 70%,
- Products and services images creation for e-commerce purpose 60%,
- Anomaly detection in the IT security domain.
- Scalability of a solution 30%
- Finding weaknesses in the functionality of other systems 10%

It is worth noting that the answers are consistent with the benefits indicated by other authors and presented in the literature of subject review.



**Figure 2. GANs application advantages within selected industries**

Source: Authors' study based on conducted research

The main disadvantages of using GANs according to respondents' answers are connected with the possibility of deep fake generation having negative impact on business activity/reputation. Another disadvantages are connected with ensuring appropriate safety of this solution.

## Conclusion and future research recommendations

The latest solution in the area of artificial intelligence and especially machine learning such as GANs can play a significant role in many areas of managing a modern business organization improving many areas and industry branches. The future of the development of such solutions is related to the further increase in the power of computing units, the use of modern hardware solutions such as hardware simulation of neural networks using neuromorphic systems. Another promising direction of development are quantum GANs. The paper outlined the current state, benefits and threats resulting from GANs application in various branches of contemporary business organizations. It can be concluded that this promising intelligent technology implemented in multiple areas has many advantages which prevail over its disadvantages.

## Literature

1. Agrawal R.: An End-to-End Introduction to Generative Adversarial Networks(GANs). <https://www.analyticsvidhya.com/blog/2021/10/an-end-to-end-introduction-to-generative-adversarial-networksgans/>
2. Alqahtani, Hamed & Kavakli, Manolya & Kumar Ahuja, Dr. Gulshan. (2019). Applications of Generative Adversarial Networks (GANs): An Updated Review. Archives of Computational Methods in Engineering. 28. 10.1007/s11831-019-09388-y.
3. Barla N. (2023) Generative Adversarial Networks and some of GAN applications: Everything you need to know, <https://neptune.ai/blog/generative-adversarial-networks-gan-applications>
4. Cheng J., Tang X., Zhang Y., Yang Y., Xiong N., Lei F. (2020): Generative Adversarial Networks: A Literature Review. (2020, December 31). KSII Transactions on Internet and Information Systems. Korean Society for Internet Information (KSII). <https://doi.org/10.3837/tiis.2020.12.001>

5. Feng, J.; Feng, X.; Chen, J.; Cao, X.; Zhang, X.; Jiao, L.; Yu, T. (2020) Generative Adversarial Networks Based on Collaborative Learning and Attention Mechanism for Hyperspectral Image Classification. *Remote Sens.*, 12, 1149. <https://doi.org/10.3390/rs12071149>, <https://www.mdpi.com/2072-4292/12/7/1149/htm>
6. Gonfalonieri A. (2020): Integration of Generative Adversarial Networks in Business Models, <https://towardsdatascience.com/integration-of-generative-adversarial-networks-in-business-models-47e60263aec4>
7. Goodfellow, Ian & Pouget-Abadie, Jean & Mirza, Mehdi & Xu, Bing & Warde-Farley, David & Ozair, Sherjil & Courville, Aaron & Bengio, Y.. (2014). Generative Adversarial Networks. *Advances in Neural Information Processing Systems*. 3. 10.1145/3422622.
8. Jabbar A., Omar B. (2020) A survey on Generative Adversarial Networks: Variants, Applications, and Training, <https://arxiv.org/ftp/arxiv/papers/2006/2006.05132.pdf>
9. Ma L., Jia X., Sun Q., Schiele B., Tuytelaars, van Gool L. (2017): Pose Guided Person Image Generation. 31<sup>st</sup> Conference on Neural Information Processing Systems (NIPS 2017), [https://proceedings.neurips.cc/paper\\_files/paper/2017/file/34ed066df378efacc9b924ec161e7639-Paper.pdf](https://proceedings.neurips.cc/paper_files/paper/2017/file/34ed066df378efacc9b924ec161e7639-Paper.pdf)
10. Martinez R.D., Kamalu J.K.: (2018) Using General Adversarial Networks for Marketing: A Case Study of Airbnb, available at <https://arxiv.org/abs/1806.11432>
11. Ngo, Tuan A., Tuyen Nguyen, and Truong Cong Thang. (2023). "A Survey of Recent Advances in Quantum Generative Adversarial Networks" *Electronics* 12, no. 4: 856. <https://doi.org/10.3390/electronics12040856>
12. Sobczak A, Ziora L. The Use of Robotic Process Automation (RPA) as an Element of Smart City Implementation: A Case Study of Electricity Billing Document Management at Bydgoszcz City Hall. *Energies*. 2021; 14(16):5191. <https://doi.org/10.3390/en14165191>
13. Sobczak A., Ziora L. (2023): Intelligent Technologies Supporting the Management of a Smart City. Qualitative Approach. *Proceedings of the 56th Hawaii International Conference on System Sciences, HICSS 2023, University of Hawaii, USA*
14. Staffini A. (2022): Stock Price Forecasting by a Deep Convolutional Generative Adversarial Network. *Front. Artif. Intell., Sec. Artificial Intelligence in Finance, Volume 5 - 2022* | <https://www.frontiersin.org/articles/10.3389/frai.2022.837596/full> <https://doi.org/10.3389/frai.2022.837596>,
15. Tatarants M. (2021) GAN Technology: Use Cases for Business Application, <https://mobidev.biz/blog/gan-technology-use-cases-for-business-application>
16. van Dun Ch., Moder L., Kratsch W., Röglinger M (2023): ProcessGAN: Supporting the creation of business process improvement ideas through generative machine learning, *Decision Support Systems*, Volume 165, 113880, <https://doi.org/10.1016/j.dss.2022.113880>, <https://www.sciencedirect.com/science/article/pii/S0167923622001518>
17. Zhang, W., Yu, Y., Xing, E. P., & Hoi, S. C. H. (2020). Generative Adversarial Networks in Computer Vision: A Survey and Taxonomy. *arXiv preprint arXiv:1906.01529*. <https://arxiv.org/abs/1906.01529>
18. Ziora L. (2022a), Natural Language Processing in the Support of Business Organization Management [in:] *Intelligent Systems and Applications 2021* (red.) ARAI Kohei. *Lecture Notes in Networks and Systems* nr 294, Springer, Cham, pp. 76-83 (Intellisys 2021 Amsterdam)
19. Ziora L. (2022b), Machine-Learning Solutions in the Management of a Contemporary Business Organisation: a Case Study Approach in a Banking Sector. [in:] *Rational Decisions in Organisations. Theoretical and Practical Aspects* (red.) Adam Frederic, Kuchta Dorota, Stanek Stanisław. Taylor and Francis Group. New York





## PRO-SOCIAL ACTIVITIES IN THE FIELD OF HOUSING RESOURCE MANAGEMENT ON A SELECTED EXAMPLE

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**Abstract:** The main reason for the creation of this article is to diagnose the activities of the Municipality of the City of Częstochowa in terms of cooperation with the environment to develop appropriate pro-social activities in the management of municipal resources, which can be considered as the originality of the presented material. The research hypothesis is: Undertaking the cooperation of municipalities with the scientific and economic environment to develop innovative pro-social solutions in municipal resource management is important for residents. The research instrument was a structured survey questionnaire prepared by the authors of the article. The survey was conducted in 2022. There were 362 correctly completed questionnaires. The research results confirmed the significance of the cooperation of the municipality with the environment as well as the positive assessment of actions taken in the opinion of residents of municipal resources.

**Keywords:** management, municipal resources, pro-social activities, municipality

### Introduction

Municipal housing resources consist of real estate owned by the municipality, which has not been handed over in perpetual usufruct (Journal of Laws 2023.344). The basis for the creation of municipal housing resources is the studies of the conditions and directions of spatial development of municipalities, adopted on the basis of the provisions on spatial planning and development (Journal of Laws 2023.344). The creation and use of municipal housing resources is one of the main tasks of municipalities to create conditions to meet the housing needs of the self-government community - as stipulated in Art. 4 Sec. 1 of the Act on the protection of tenants' rights, housing resources of the municipality and on the amendment of the Civil Code (<https://www.prawo.pl>). Residential premises constituting housing resources of the municipality, except for social housing and premises intended for rent for the duration of the employment relationship, may be rented only for an indefinite period. To perform its tasks, the municipality may also rent premises from other owners and sublet them to persons whose households have a low income (Kabus, Dziadkiewicz 2022, pp. 3-4).

The conditions and development of the knowledge-based economy bring about that nowadays municipalities must face many new challenges related to the need to adapt to changes and transformations taking place in the environment (Dziadkiewicz 2014, pp. 27-28). Pro-social activities, including the search for knowledge necessary to manage the resources of the municipality, become the basis for modern entrepreneurship. The effective introduction of new ideas requires the acquisition or supplementation of knowledge in terms of the implementation of this process, considering the specificity of the changes made (Gill, Maung, Chowdhury 2016, p. 566). Therefore, it becomes necessary for the environment of the city authorities to cooperate with the scientific field. This will allow for accelerating the implementation of the assumed development objectives.

The space for pro-social activities is inscribed in the skillful management of business and science relations, bringing not only mutual benefits, but it also significantly affects the development of the local economy (Witek 2012, pp. 382-383).

In view of the above, municipalities should strive to ensure proper housing management, and thus effective and efficient management of housing resources created and owned by them, i.e., municipal housing resources (Nalepka 2018, p. 67). In turn, the applied management methods, along with



consultation with scientists should translate into an improvement in the quality of life of residents, in particular safety and satisfaction (Talib, Rahman, Qureshi 2010, pp. 115-116).

The objective of the article is to identify the activities of the municipality in terms of cooperation with the environment to develop appropriate pro-social activities in the management of municipal resources on the example of the Municipality of the City of Częstochowa. The research tool was a questionnaire. The survey was conducted in June 2022 among residents of municipal resources in the city of Częstochowa, the Silesian Voivodeship, Poland. The conducted research included in the article potentially extends the literature on the subject, presenting pro-social activities in municipal resources on a specific example. In addition to scientific values, the study also has a practical aspect that can be used by municipalities and managers of municipal housing resources as support in conscious and effective planning and implementation of pro-social activities in resource management to improve the living conditions of residents.

## Research methods

The main objective of the study was to diagnose the activities of the municipality in the field of cooperation with the environment to develop appropriate pro-social activities in the management of municipal resources on the example of the Municipality of the City of Częstochowa. The adoption of the objective of the study influenced the formulation of the research hypothesis:

*RH: Undertaking the cooperation of municipalities with the scientific and economic environment to develop innovative pro-social solutions in the management of municipal resources is important for residents.*

The research tool was a structured survey questionnaire prepared by the authors of the article. Following the principle of respondent data disclosure, the questionnaire was filled in anonymously. Simple one-dimensional balanced scales were used to represent the measured values, which reflected the values assigned by the respondents to the evaluated features.

Depending on the question, a forced scale was used, in which the respondent indicated a strictly defined category on the scale, and an unforced one, when they were unable to express their opinion. The respondents' task was to respond to the provided answer options, according to a certain degree to which they agreed with it. The intensity of the respondent's attitude was measured using a bipolar, five-point ordinal scale, described verbally and numerically. The answers were given numerical values (e.g., from 1 to 5), keeping the principle that the assigned values should increase in accordance with the nature and direction of the defined feature. A Likert Scale was used, where 5 amounts to definitely significant; 4 - significant; 3 - insignificant; 2 - definitely insignificant and 1 - no opinion. The answers of 362 respondents were analyzed. The participants of the study were residents of municipal resources in Częstochowa. 400 completed questionnaires were received, 90.5% of which, i.e., 362 (N=362) questionnaires were correctly completed. The questionnaire contained the main part and demographics. The study considered such variables as: the respondents' gender, age, education, and source of income (Table 1).

*Table1. Characteristics of the respondents in terms of the variables*

<b>gender</b>	female	173	47.8%
	male	189	52.2%
<b>age</b>	under 18	4	1.1%
	18-25	19	5.3%
	26-35	52	14.4%
	36-45	100	27.7%

	46-55	98	27.1%
	56-65	66	18.3%
	over 65	22	6.1%
	ND	1	
<b>education</b>	primary	21	5.8%
	vocational	51	14.2%
	secondary	136	37.8%
	higher	152	42.2%
	ND	2	
<b>Source of income</b>	full-time or part-time job	201	55.5%
	earning a living from farming	3	0.8%
	student/pupil	12	3.3%
	own business	48	13.3%
	contract work	30	8.3%
	pensioner/annuitant	33	9.1%
	odd job	17	4.7%
	unemployed	9	2.5%
	other	9	2.5%
<b>Total</b>		<b>362</b>	<b>100.0%</b>

N=362, ND- no data

Source: Own study

The respondents in the study were 173 women and 189 men. The largest group was people aged 36-45 (27.7%), as well as people aged 46-55 (27.1%). Among the respondents, there were only 4 people under the age of 18 (1.1%) and 19 people (5.3%) aged 18-25. The largest number of respondents was people with higher education - 152 (42.2%). Primary education was indicated by only 21 respondents (5.8%), and two did not answer this question. The most frequently indicated primary source of income was full-time employment, accounting for 55.5% of all the responses. 13.3% of the respondents run their own company, 8.3% work on a contract basis. 33 respondents (9.1%) live on an annuity or pension, and 17 (4.7%) on casual work. The study involved 12 students (3.3%) and 3 respondents earning their living from farming (0.8%). 9 were unemployed, which amounted to 2.5% of the respondents.

## Results

In the Development Strategy for the City of Częstochowa 2030+, which was adopted by Resolution No. 435.XXXII.2016 of the Częstochowa City Council of December 1, 2016, in the chapter *Mission, vision and strategic goals*, there is, among other things, an obligation to make Częstochowa, in the perspective of 2030, a city friendly to residents, offering a high quality of life, understood not only as material living conditions, health, education, economic and cultural activity, free time and social relations, personal security, quality of infrastructure, natural environment, but also subjective well-being, understood as the satisfaction that people derive from various aspects of life as a whole, mental well-being and felt emotional states, a city efficiently managed in an effective, efficient way and through partnership, by means of increasingly integrated activities covering entire urban functional areas and active cooperation with residents (Strategy of the City of Częstochowa).

Therefore, in this paper, the issues related to pro-social activities of the municipality in the field of the management of municipal resources and the level of the respondents' acceptance of these activities have been interpreted. The survey included, among others, such activities as: strengthening the

cooperation between the scientific community and the economic environment, implementing the results of scientific research and development works in practical activities of the municipality to improve the quality of life, analyzing the social needs of tenants, participating in the scientific life of the university, observing achievements of other municipalities from the point of view of commercialization opportunities or indicating areas for the application of social innovation. The answers obtained in the survey and the applied statistical methods made it possible to examine the extent to which the municipality implements pro-social initiatives and whether these activities are accepted by the tenants of municipal resources. The respondents were asked whether, in their opinion, the specified pro-social activities undertaken by the municipality are important to them (Table 2)

The conducted analyzes showed that activities undertaken by the municipality in the field of cooperation with the environment to develop pro-social solutions in the management of municipal resources are accepted by inhabitants. Strengthening the cooperation between the scientific community and the economic environment was considered important by 48.6% of the respondents and as very important by 17.1%. Only 1.4% of those surveyed acknowledged that the activities undertaken in the field of cooperation with scientists are completely irrelevant in activities of the municipality. Another analyzed question concerned whether, according to the respondents, the implementation of the results of scientific research and development works in practical activities of the municipality affect the effective management of the municipality in terms of municipal resource management. The analysis showed that 179 (49.4%) respondents indicated this action as important, and 71 people (19.6%) as very important. 57 (15.7%) of the respondents claim that the implementation of research in the management of housing resources is insignificant. Further activities, i.e., promoting technological offer through participation in exhibitions, conferences, and fairs (48.8% - important, 19.1% - very important), analysis of social needs of tenants (46.7% - important, 26.5% - very important) and controlling scientific research results in terms of their practical usefulness were considered significant by the vast majority of the respondents (46.1% - significant, 19.9% - very important).

## Discussion

The subject matter referred to in the presented study is the result of the analysis of the data collected using the survey. It focuses on pro-social aspects of activities in terms of municipal resource management in the Municipality of the City of Częstochowa. The authors made an attempt to show the areas of cooperation of the municipality and the environment to develop effective solutions in the management of municipal resources, which translate into an improvement in the quality of life of residents. The research results presented in the article allowed the following conclusions to be drawn:

- the respondents see the legitimacy of the cooperation of the municipality with the scientific and economic environment to develop activities supporting pro-social solutions,
- the research showed that the implementation of the results of scientific research and development works in practical activities of the municipality is significant or definitely significant for the inhabitants of resources,
- promoting technological offer through participation in exhibitions, conferences, and fairs is statistically significant,
- the results of the survey confirmed that the analysis of the social needs of tenants by the municipality is important and very important for the respondents,
- the respondents recognized that controlling the results of scientific research in terms of their practical usefulness is important in terms of municipal resource management.

*Table 2. Assessment of the significance of activities of the municipality*

Type of operation				F	M	F-%	M-%
strengthening the cooperation between the scientific community and the economic environment	I have no opinion	51	14.1%	19	32	11.0%	16.9%
	definitely insignificant	5	1.4%	2	3	1.2%	1.6%
	insignificant	68	18.8%	36	32	20.8%	16.9%
	significant	<b>176</b>	<b>48.6%</b>	82	94	47.4%	49.7%
	definitely significant	<b>62</b>	<b>17.1%</b>	34	28	19.7%	14.8%
		<b>362</b>	<b>100.0%</b>	<b>173</b>	<b>189</b>	<b>100.0%</b>	<b>100.0%</b>
implementing the results of scientific research and development works in practical activities of the municipality	I have no opinion	48	13.3%	18	30	10.4%	15.9%
	definitely insignificant	7	1.9%	2	5	1.2%	2.6%
	insignificant	57	15.7%	29	28	16.8%	14.8%
	significant	<b>179</b>	<b>49.4%</b>	85	94	49.1%	49.7%
	definitely significant	<b>71</b>	<b>19.6%</b>	39	32	22.5%	16.9%
		<b>362</b>	<b>100.0%</b>	<b>173</b>	<b>189</b>	<b>100.0%</b>	<b>100.0%</b>
promoting technological offer through participation in exhibitions, conferences, and fairs	I have no opinion	49	13.6%	18	31	10.4%	16.5%
	definitely insignificant	7	1.9%	3	4	1.7%	2.1%
	insignificant	60	16.6%	32	28	18.5%	14.9%
	significant	<b>176</b>	<b>48.8%</b>	82	94	47.4%	50.0%
	definitely significant	<b>69</b>	<b>19.1%</b>	38	31	22.0%	16.5%
	ND	1		0	1		
		<b>362</b>	<b>100.0%</b>	<b>173</b>	<b>189</b>	<b>100.0%</b>	<b>100.0%</b>
analyzing the social needs of tenants	I have no opinion	42	11.6%	14	28	8.1%	14.8%
	definitely insignificant	10	2.8%	3	7	1.7%	3.7%
	insignificant	45	12.4%	22	23	12.7%	12.2%
	significant	<b>169</b>	<b>46.7%</b>	74	95	42.8%	50.3%
	definitely significant	<b>96</b>	<b>26.5%</b>	60	36	34.7%	19.0%
		<b>362</b>	<b>100.0%</b>	<b>173</b>	<b>189</b>	<b>100.0%</b>	<b>100.0%</b>
controlling the results of scientific research in terms of its practical usefulness	I have no opinion	52	14.4%	21	31	12.1%	16.4%
	definitely insignificant	10	2.8%	5	5	2.9%	2.6%
	insignificant	61	16.9%	28	33	16.2%	17.5%
	significant	<b>167</b>	<b>46.1%</b>	74	93	42.8%	49.2%
	definitely significant	<b>72</b>	<b>19.9%</b>	45	27	26.0%	14.3%
		<b>362</b>	<b>100.0%</b>	<b>173</b>	<b>189</b>	<b>100.0%</b>	<b>100.0%</b>

N=362, ND – no data, F- female, M-male

Source: Own study

The empirical research conducted in this study confirmed the hypothesis. With regard to the hypothesis put forward, it should be stated that housing resource management processes should assume cooperation with the economic and scientific environment and the implementation of scientific research results in shaping models for the management of municipal housing resources to meet social needs, strengthen social ties and create new cooperation models.

## Literature

1. Dziadkiewicz, M. (2014). *Centre of Social Integration as a tool of professional reintegration of the permanently unemployed in Czestochowa*, pp. 26-30, Polish Journal of Management Studies, Vol. 9.
2. *Dziennik Ustaw* 2023.344 Gospodarka nieruchomościami. Dział 2. Rozdział 2. Art.24. 25
3. Gill A., Maung M.T., Chowdhury R.H. (2016), *Social capital of non-resident family members and small business financing: Evidence from an Indian state*, pp. 558-582, International Journal of Managerial Finance, 2016, Vol. 12 No. 5, <https://doi.org/10.1108/IJMF-01-2015-0001>
4. <https://www.prawo.pl/samorzadz/zasob-mieszkanow-gminy,78507.html> (accessed on: 17.04.2022)
5. Kabus J., Dziadkiewicz M.(2022), *Residents' Attitudes and Social Innovation Management in the Example of a Municipal Property Manager*, pp.1-20, Energies, 2022, Volume 15(16), 5812. <https://doi.org/10.3390/en15165812>



6. Nalepka A. (2018), *Modele zarządzania gminnym zasobem nieruchomości*, pp. 65-75, Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie, Nr 792.
7. Strategia Rozwoju Miasta Częstochowa 2030+ została przyjęta Uchwałą Nr 435.XXXII.2016 Rady Miasta Częstochowy z dnia 1 grudnia 2016 r. <https://bip.czystochowa.pl/uchwala/1153153/uchwala-nr-435-xxxii-2016> (accessed on: 17.04.2022).
8. Talib F., Rahman, Z., Qureshi, M.N. (2010), *The relationship between total quality management and quality performance in the service industry: a theoretical model*, pp. 113-128, International Journal of Business, Management and Social Sciences Vol. 1, No. 1.
9. Witek J. (2012), *Budowanie relacji biznes - nauka - samorząd w oddziaływaniu na rozwój klastrów*, pp. 381-395, Zeszyty Naukowe Uniwersytetu Szczecińskiego, No. 94 Klastry - wiedza, innowacyjność, rozwój



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## **POSITIVE MANAGEMENT COMMUNICATION: INTERACTIONAL PRACTICES THAT PROMOTE POSITIVE RELATIONSHIPS**

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**Abstract:** The movement toward studying positive processes and outcomes has gained prominence across multiple disciplines and domains, including psychology, management, and communication. One area of particular interest concerns positive interpersonal interactions. A language and social interaction approach examines real-life moments in which participants create the positive through their joint actions. A case study shows how formulating what another speaker has said creates a moment of transcending differences. Such research provides a way to understand how positive outcomes emerge from specific interactional practices. It invites attention to linguistic and cultural generalizability of our understandings of the positive. Finally, it offers insight for managers seeking to create workplace relationships that supportive individual and organizational flourishing.

**Key words:** positive psychology, positive organizational scholarship, positive communication, interpersonal communication, language and social interaction, formulations, listening

### **Introduction**

Scholars and practitioners across a number of academic disciplines and fields of inquiry have turned attention to the positive. Rather than beginning with troubles, problems or pathology, focus is placed on identifying and nurturing practices that work well. This movement arose first in Positive Psychology (Positivepsychology.com), led by Martin Seligman, Christopher Peterson, Mihaly Csikszentmihalyi, Sonja Lyubomirsky, and others. Positive psychologists seek enduring insights into variables and processes that contribute to human happiness, well-being, and flourishing. Although this work has conceptual roots in humanistic psychology (Carl Rogers, Abraham Maslow, etc.), its practitioners have at times sought to distance themselves from humanistic psychological claims that are perceived to lack sufficient scientific support (Hefferon, Bonniwell, 2011, p. 10). Research and practice have contributed to ongoing revision and evolution of key concepts. Second wave positive psychology (Gil, 2021; Wissing, 2022) reframes simpler conceptions to acknowledge that positive and negative forces operate in a necessary yin-yang relationship. Processes that promote well-being in one context might prove more negative in another. Relationships can be both valuable and harmful, meeting some needs while failing to meet or interfering with others. Pathology and flourishing need to be considered as complementary, not competing or mutually exclusive, areas of emphasis. Third wave positive psychology embraces models of greater complexity, moving beyond emphasis on the individual, encouraging more meaningful interdisciplinarity, interest in cultural variation and complexity, and meta-theoretical and methodological diversity (Wissing, 2022). One manifestation of more collective conceptions of happiness is the World Happiness Report (2023) which compares people by nation across composite indices of health, safety, freedom, well-being, etc. As the positive movement spreads to more disciplines, the first handbook of positive education has been published (Kern, Wehmeyer, 2021).

Reflecting parallel interests, Positive Organizational Scholarship (POS; Cameron, Spreitzer, 2012) concerns how individuals, workplace relationships, and organizations thrive and flourish. The Center for Positive Organizations at the University of Michigan frames POS as promoting “A world where both organizations and their people are energized and enthusiastic, finding purpose, productivity, and passion at work” (Center for Positive Organizations, 2023). Contemporary research topics include ethics and virtues, culture, compassion (e.g., Dutton, Workman, Hardin, 2014), meaning and purpose, identities



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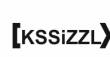
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(e.g., Dutton, Roberts, 2009), relationships (e.g., Hinz, Stephens, van Oosten, 2023), and leadership (e.g., Biganeh, Young, 2021; Seppälä, Cameron, 2022).

In the communication studies discipline, Positive Communication has been the focus of multiple anthologies (e.g., Socha, Pitts, 2012; Pitts, Socha, 2013; Muñoz-Velázquez, Pulido, 2019), a textbook (Mirivel, 2014), and several communication conferences. It is the central theme of a forthcoming special issue of the *International Journal of Business Communication*. A newly formed Positive Communication Network recently hosted its inaugural conference (Positive Communication Conference 2023).

### Locating the positive in interaction

There is considerable variety in how scholars conceptualize and operationalize positive communication. Socha and Beck (2015, p. 179) define positive communication to include message processes that “facilitate and promote individual, relational, and organizational health and wellness.” Their approach emphasizes communication that contributes to meeting human needs. Browning, Morris and Kee (2012) provide a model of positive organizational communication anchored in two key “standards” that, they argue, help organizations flourish. The first, integrative communication, is characterized by inclusiveness, respect, and support. Practices that support it include dialogue, information sharing, and pursuit of public goods. The second standard, constructive interaction, is characterized by a future orientation, a solution focus, and collaborative interaction. Practices that support it include conversation, therapeutic interaction, innovative conference models, and overarching narrative vision. Browning and colleagues pay particular attention to how information and communication technologies can contribute to positive communication processes.

Mirivel’s model of positive communication (Mirivel, 2021) identifies six communicative actions or processes, each of which can (under the right conditions) contribute to specific positive relationship outcomes. Greeting creates human contact, asking discovers the unknown, complimenting affects people’s sense of self, disclosing deepens relationships, encouraging gives support, and listening contributes to transcending difference. Mirivel’s model reflects a dual conception of communication. At a more meso or macro level, the attention to processes and relational outcomes reflects primary grounding in interpersonal communication (Knapp, Daly, 2011). At a more micro level, the attention to actual interactions and the turn by turn, joint creation of meaning, reflects primary grounding in language and social interaction (LSI; Fitch, Sanders, 2005). In an LSI conception, communicative meanings are rooted in actions, themselves rooted in sequences, which both shape and are shaped by interaction types, such as meetings, service encounters, and negotiations. As people jointly create actions, sequences, and interactions, they also jointly constitute their identities and relationships.

For example, a key practice in active listening, formulating (sometimes called paraphrasing; Glenn, 2022) contributes to particularly rich and often positive moments of joint meaning-making. Formulating occurs when one speaker puts into different words what another speaker has said or implied, thereby claiming and demonstrating understanding. Formulating gives the prior speaker an opportunity to confirm or amend the displayed understanding. In some instances, formulating works affiliatively; in some instances, it encourages more talk on topic, providing additional opportunities for understanding. In these ways – listening, understanding, supporting, and encouraging – formulations may contribute to positive communication processes and outcomes.

### Case Study: A formulation at a delicate moment

One brief sample analysis will illustrate how a formulation contributes to a moment of positive connection, within a delicate and unresolved disagreement. It will also illustrate an LSI analytic approach to studying positive interaction. This instance is drawn from an acclaimed podcast series,

“Conversations with People Who Hate Me” (Marron, 2023). In the recorded interactions, host Dylan Marron converses with people who have written negative things about him online or moderates discussions between people who have sent or received hostile messages. Prior to this episode, a person named Emma had accused a man of sexual assault, in a case that gained extensive public attention in the USA. Another person named Ben had messaged Emma directly, writing “you are a liar.” Both agreed to come on the show to talk. Dylan skillfully guides them through a conversation devoted to mutual understanding, while minimizing criticism, defensiveness, or negative judgment.

In a critical, delicate moment, Ben explains why he doubts Emma’s claim that sexual assault took place. In explaining his position, Ben offers a version of the golden rule: he seeks to give someone else accused of a crime the same benefit of the doubt that he would want applied to himself. He orients to how an accusation of sexual assault can “ruin” the accused person’s reputation. Emma does not answer. After a brief pause and a prompt from Ben, Dylan formulates an unstated premise that was implied in what Ben just said (turn marked with → arrow):

*Excerpt from the podcast, “Conversations with people who hate me”, Episode 17, “You are a liar”, 44:25.  
Participants: Ben, Emma, Dylan.*

- Ben: It’s not that I don’t believe you. And it’s- it’s- just- (0.7) it’s- (1.2) °hhh° (0.7) It’s not that I don’t believe you, (0.5) It’s just so hard to prove just definitively (0.6) and that’s sort of what I need (.) before I ruin a per- person’s reputation. Cause that’s how I’d wanna be treated. (0.3)
- Ben: You know?
- Dyl: S:o it’s interesting (.) because a lot of- a lo:t of (0.2) and again (0.2) Benjamin jump in (.) if I misspeak, ‘hh but it seems like a lot of what you’re saying (0.4) is hinging on (0.8) the fact that you do not want to unfairly vilify (0.3) and villainize (0.5) someone (0.6) who is wrongfully accused of something. That’s fair to say right?
- Ben: That’s- that’s very fair to say. †An- an- not- an’ not only that like I hope that you guys don’t either. You know? Hu huh ‘hh

Dylan’s starts his turn with an impartial assessment: “it’s interesting.” He begins the formulation, then suspends it momentarily to invite Ben to correct him. Continuing, Dylan puts into words an understanding of the intentions and values conveyed in Ben’s preceding turn. Terms like “unfairly vilify,” “villainize,” and “wrongfully accused” suggest harmful and unjust actions. With them and the formulation as a whole, Dylan has given voice to Ben’s position. By doing so in a way that makes it seem reasonable and justifiable, he affiliates with Ben. However – and crucially – Dylan does not express agreement with Ben’s position. He then asks Ben for confirmation. Ben confirms strongly, repeating Dylan’s phrase, “fair to say” with the upgraded “very”. Ben continues, expressing the “hope” that Dylan and Emma would share the same value.

In this moment, Dylan has shown active listening skills to transcend difference (Mirivel, 2014). Even though surrounding talk makes clear that he does not agree with Ben's hostile message to Emma or Ben's continued unwillingness to grant Emma credibility, he still works to present Ben's position as understandable, reasonable, and morally just. His communication exemplifies constructive interaction, highlighting collaboration (Browning, Morris, Kee, 2012). Ben's confirming response shows appreciation that he has been heard and understood. Their differences have not dissolved, but they have co-created positive identities (LeBaron, Glenn, and Thompson, 2009) and a moment of dialogue.

## Summary

The turn toward the positive evident in psychology, management and organizational studies, and communication studies complements but does not replace attention to problems, conflict, pathology, and the like. Rather, it begins with different questions, concerning the nature of, and how to nurture, individual and collective well-being. Scholars and practitioners across these fields have focused on relationships as central to enriching human capacities for flourishing and resiliency. Interaction is a primary, perhaps the primary, context in which relationships are created and maintained.

Among positive interactional practices, formulating (paraphrasing) makes key contributions to active listening. While each turn at talk demonstrates an understanding of what is going on and what has gone before, formulating what a prior speaker has said highlights joint meaning making and focuses attention on aligned understandings between participants. More than merely backward-looking, formulating also involves transforming the meaning of what has been said, subtly or radically.

What is positive – or not – is jointly constituted in interaction. Although individual actions shape interaction, activities and meanings emerge that are more than the sum of individual actions. A recipient may reject or challenge even the best-constructed, best-timed formulation; it may be heard and responded to as inauthentic or manipulative. The local, sequential context shapes meaning. A formulation offered early in an interaction may be treated differently than one that follows repeated attempts to bridge differences. Power dynamics inevitably shape (and are shaped by) interpersonal relationships. Context shapes participants' sense of "what we are doing" and influences how they talk. The instance examined here takes place in a discussion ultimately made into a podcast; participants may have oriented to the possibility of future overhearers. For these and related reasons, LSI research that seeks to explicate participants' perspectives, examines naturalistic data, and examines the fine-grained details of interaction has much to teach us about positive communication.

Such work invites further questions and avenues for research. While single case studies can yield rich insights, analyzing collections of cases provides a better grasp of typical patterns and unusual cases. Data drawn from diverse sources will strengthen confidence that phenomena identified will generalize. To what extent are formulations, and the sequences in which they arise, common across talk in different languages? To what extent might they reflect particular cultural practices or interpretive norms? How might participants' identities shape and be shaped by such talk? How do we trace the mutually-constituting nature of relationships creating talk and talk creating relationships (Arundale, 2020)? If positive communication is linked to meeting needs, to what extent do we understand basic human needs as universal, even if understood in linguistically, culturally varied ways?

For managers, these issues invite close attention to their interpersonal communication. The humanistic psychologist Carl Rogers (1995) hypothesized that individual communication characterized by authenticity, acceptance, and empathy would help create positive relationships (workplace and family as well as therapeutic) that contribute to positive individual growth and development. Managers' interactional practices can transform workplace relationships to promote learning, mutuality, and positive regard. As Kegan and Lahey's (2001) book title proposes, changing the way we talk can change the way we work.



## Literature

1. Arundale, R. B. (2020), *Communicating and relating; Constituting face in everyday interacting*. Oxford University Press, Oxford.
2. Biganeh, M., Young, S. L. (2021), *Followers' perceptions of positive communication practices in leadership: what matters and surprisingly what does not*, "International Journal of Business Communication", 0(0).
3. Browning, L., Morris, G. H., Kee, K. F. (2012), *The role of communication in positive organizational scholarship*, in Cameron, K. S., Spreitzer, G. M. (eds.), *The Oxford handbook of positive organizational scholarship*, pp. 566-578, Oxford University Press, Oxford.
4. Cameron, K. S., Spreitzer, G. M. (eds.) (2012), *The Oxford handbook of positive organizational scholarship*, Oxford University Press, Oxford.
5. <https://positiveorgs.bus.umich.edu/> (access: 25.04.2023).
6. Dutton, J. E., Workman, K. M., Hardin, A. E. (2014), *Compassion at work*, "Annual Review of Organizational Psychology and Organizational Behavior", 1:1, pp. 277-304.
7. Dutton, J. E., Roberts, M. L. (eds.), *Exploring positive identities and organizations: Building a theoretical and research foundation*, Routledge, New York.
8. Fitch, K. L., Sanders, R. E. (2005), *Handbook of language and social interaction*, Lawrence Erlbaum Associates, Mahwah NJ.
9. Glenn, P. (2022), "So you're telling me ": Paraphrasing (formulating), affective stance, and active listening, "International Journal of Listening".
10. Hefferon, K., Boniwell, I. (2011), *Positive Psychology: Theory, Research and Applications*, McGraw-Hill., New York.
11. Hinz, J., Stephens, J. P., Oosten, E. B. v. (2022), *Toward a pedagogy of connection: A critical view of being relational in listening*. "Management Learning", 53(1), pp. 76-97.
12. Kegan, R., Lahey, L. L. (2001), *How the way we talk can change the way we work; Seven languages for transformation*, Jossey-Bass, San Francisco.
13. Kern, M. L., Wehmeyer, M. L. (eds.) (2021), *The Palgrave handbook of positive education*. Palgrave Macmillan, London.
14. Knapp, M. L., Daly, J. A. (eds.) (2011), *The SAGE handbook of interpersonal communication*. Sage, Thousand Oaks, CA.
15. LeBaron, C. D., Glenn, P., Thompson, M. P. (2009), *Identity work during boundary moments: Managing positive identities through talk and embodied interaction*. In Dutton, J. E., Roberts, L. M. (eds.), *Exploring positive identities and organizations: Building a theoretical and research foundation*, pp. 191-215, Routledge, New York.
16. Marron, D., 2023, *Conversations with people who hate me*, <https://www.dylanmarron.com/podcast> (access: 25.04.2023).
17. Mirivel, J. C. (2014), *The art of positive communication: Theory and practice*. Peter Lang, New York.
18. Mirivel, J. C. (2021), *The six keys to positive communication*. <https://positiveorgs.bus.umich.edu/news/the-six-keys-to-positive-communication/> (access: 25.04.2023).
19. Muñiz-Velázquez, J. A., Pulido, C. M. (eds.) (2019), *The Routledge handbook of positive communication; Contributions of an emerging community of research on communication for happiness and social change*, Routledge, New York.
20. Pitts, M. J., Socha, T. J. (eds.) (2013), *Positive communication in health and wellness*, Peter Lang Publishing, New York.
21. Positive Communication Conference, <https://www.eventbrite.com/e/the-2023-positive-communication-network-conference-tickets-514433383097> (access: 25.04.2023).
22. Positivepsychology.com, <https://positivepsychology.com/> (access: 25.04.2023).
23. Rogers, C. (1995), *On becoming a person: A therapist's view of psychotherapy*, Houghton Mifflin, Boston.
24. Seppälä, E., Cameron, K. (2022), *The best leaders have a contagious positive energy*. "Harvard Business Review", <https://hbr.org/2022/04/the-best-leaders-have-a-contagious-positive-energy> (access: 25.04.2023).
25. Socha, T. J., Beck, G. A. (eds.) (2015), *Positive communication and human needs: A review and proposed organizing conceptual framework*, "Review of Communication", 15:3, pp. 173-199.
26. Socha, T. J., Pitts, M. J. (eds.) (2012) *The positive side of interpersonal communication*, Peter Lang, New York.
27. Velázquez, M. (2021), *Second wave of positive psychology*, Positive Psychology News, <https://positivepsychologynews.com/news/marta-velazquez/2021080943821> (access: 25.04.2023).
28. Wissing, M. P. (2022), *Beyond the "Third wave of positive psychology": Challenges and opportunities for future research*, "Frontiers in Psychology", 12. <https://doi.org/10.3389/fpsyg.2021.795067> (access: 25.04.2023).
29. World Happiness Report, <https://worldhappiness.report/> (access: 25.04.2023).



## NAVIGATING THE METAVERSE: STRATEGIES FOR BRANDS TO THRIVE IN THE VIRTUAL WORLD

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**Abstract:** The metaverse is a virtual world that is being developed and used by millions of people around the world. As the use of the metaverse grows, brands are presented with both opportunities and challenges. This article provides a brief overview of the concept of the metaverse, its potential impact on society and the economy, and how it is currently being developed and used. It then analyses the opportunities and challenges that the metaverse presents for brands, including how it can enhance customer engagement, build brand loyalty, and increase sales, as well as the potential risks and ethical concerns. To successfully navigate the metaverse, brands need to consider key success factors such as creating immersive experiences, leveraging user-generated content, and building communities. Additionally, this article explores different marketing strategies that brands can use to thrive in the virtual world, such as creating branded virtual spaces, sponsoring events and activities, and partnering with influencers and content creators. Real-life case studies of brands that have successfully navigated the metaverse are also provided, along with their strategies, tactics, and outcomes. Finally, this article takes a look into the future of the metaverse and how it is likely to evolve, as well as the implications for brands and marketers. In conclusion, this article provides valuable insights and recommendations for brands to successfully navigate the metaverse and thrive in the virtual world.

**Key words:** usually three to seven words, in alphabetical order, coma separated.

### Introduction to the Metaverse: A Brief Overview

The concept of the metaverse has been explored in science fiction literature and media for decades, but has gained renewed attention in recent years due to advances in virtual reality, augmented reality, and other technologies. The term "metaverse" was first coined by Neal Stephenson in his 1992 novel *Snow Crash*, which depicts a virtual reality-based metaverse where people can interact with each other and with digital objects in a highly immersive and interactive way (Stephenson, 1992).

The metaverse is not a single platform or technology, but rather a vision of a future where virtual worlds and physical reality are seamlessly integrated, creating new opportunities for social interaction, entertainment, education, and commerce. It is a collective virtual shared space, typically created and maintained by a community of users, where people can interact with each other and with digital objects in real time (Kwok, 2021).

In recent years, the concept of the metaverse has gained traction in the technology industry, with companies such as Facebook, Google, and Microsoft investing heavily in the development of virtual and augmented reality platforms. These platforms aim to create immersive and interactive virtual worlds where users can engage with each other and with digital objects in real time, with the potential to transform the way we live, work, and play (Lee & Lee, 2021).

The potential impact of the metaverse on society and the economy is vast. It could revolutionize the way we work, learn, and play, enabling new forms of remote collaboration, education, and entertainment. It could also create new economic opportunities, such as virtual real estate, digital goods, and online services, and transform the way we buy and sell products and services (Hasegawa, 2021).

However, the development of the metaverse also raises important ethical and social questions, such as privacy, security, and the potential for addiction and isolation. It is essential to consider these issues and to develop responsible and sustainable approaches to the development and use of the metaverse (Hu et al., 2021).

## **Opportunities and Challenges for Brands in the Metaverse**

The metaverse presents a range of opportunities and challenges for brands looking to engage with consumers in new and innovative ways. On one hand, the metaverse offers a highly immersive and interactive environment where brands can create engaging experiences that build brand loyalty and increase sales. On the other hand, the metaverse also poses potential risks and ethical concerns that brands must navigate carefully.

### **Opportunities for Brands**

One of the key opportunities for brands in the metaverse is the ability to create highly engaging and interactive experiences for customers. Brands can use virtual reality, augmented reality, and other technologies to create immersive brand experiences that allow customers to interact with products and services in a way that is not possible in the physical world (Duff, 2021). This can lead to increased customer engagement and brand loyalty, as customers feel more connected to the brand and its offerings.

Another opportunity for brands in the metaverse is the ability to reach new audiences and markets. The metaverse is a global platform that allows brands to reach customers from around the world, regardless of their physical location. This can help brands to expand their customer base and increase sales in new markets (Bishop, 2021).

The metaverse also presents opportunities for brands to create new revenue streams, such as by selling virtual products and services. Brands can create and sell virtual goods such as clothing, accessories, and even virtual real estate. This can open up new revenue streams for brands and create additional value for customers (Bishop, 2021).

### **Challenges for Brands**

While the metaverse presents many opportunities for brands, it also poses several challenges that must be navigated carefully. One of the key challenges is the potential for brand fatigue. As more brands enter the metaverse, customers may become overwhelmed by the number of brand experiences and advertisements they encounter. Brands will need to ensure that their experiences are relevant, engaging, and add value to the customer experience to avoid being seen as intrusive or irrelevant (Duff, 2021).

Another challenge for brands in the metaverse is the potential for privacy and security concerns. Brands will need to ensure that they are collecting and using customer data in a responsible and ethical manner, and that they are protecting customer privacy and data security in the metaverse (Bishop, 2021).

Finally, the metaverse also poses ethical concerns around the use of virtual influencers and the potential for addiction and isolation. Brands will need to consider the ethical implications of using virtual influencers, and how they can create experiences that foster social connection and community rather than promoting isolation (Bishop, 2021).

## **Key Success Factors for Brands in the Metaverse**

As brands navigate the metaverse, there are several key success factors that they need to consider. These factors are crucial for creating engaging experiences, building brand loyalty, and increasing sales in the metaverse. Some of the key success factors include creating immersive experiences, leveraging user-generated content, and building communities.

## Creating Immersive Experiences

One of the key success factors for brands in the metaverse is creating highly immersive experiences for customers. This means using virtual reality, augmented reality, and other technologies to create experiences that allow customers to interact with products and services in a way that is not possible in the physical world (Duff, 2021). Immersive experiences can help to increase customer engagement, build brand loyalty, and drive sales.

For example, Nike created an immersive experience in the metaverse where customers can design and purchase their own virtual sneakers. This experience allows customers to personalize their sneakers in ways that are not possible in the physical world, creating a highly engaging and unique experience (Bishop, 2021).

## Leveraging User-Generated Content

Another key success factor for brands in the metaverse is leveraging user-generated content. User-generated content, such as virtual photos and videos, can help to create a sense of community and engagement around a brand. Brands can encourage customers to create and share content related to their products and services, and then showcase this content in the metaverse (Bishop, 2021).

For example, Coca-Cola created a virtual island in the metaverse where customers can take virtual selfies and share them on social media. This campaign generated a lot of user-generated content and helped to create a sense of community around the brand (Duff, 2021).

## Building Communities

Finally, building communities is another key success factor for brands in the metaverse. The metaverse is a social platform, and brands that can create communities around their products and services are more likely to succeed. Brands can create virtual events, forums, and other social experiences that allow customers to connect with each other and with the brand (Bishop, 2021).

For example, fashion brand Burberry created a virtual fashion show in the metaverse, where customers could interact with the models and clothing in real time. This experience created a sense of community and excitement around the brand, and helped to drive sales (Duff, 2021).

## Metaverse Marketing Strategies for Brands

As the metaverse grows in popularity and importance, brands need to explore different marketing strategies to reach their target audience in this new virtual world. Here are some of the key marketing strategies that brands can use to thrive in the metaverse.

### Creating Branded Virtual Spaces

One of the most effective metaverse marketing strategies is creating branded virtual spaces that allow customers to engage with a brand in a unique way. These spaces can take the form of virtual storefronts, showrooms, or other immersive experiences that allow customers to interact with a brand's products and services in a highly engaging way (Levy, 2021).

For example, IKEA created a virtual kitchen showroom in the metaverse that allows customers to design and interact with kitchen products in a highly immersive way. This experience helps to build brand loyalty and drives sales by allowing customers to experience the products in a way that is not possible in the physical world (Bishop, 2021).

### Sponsoring Events and Activities

Another effective marketing strategy in the metaverse is sponsoring events and activities. Brands can sponsor virtual events, such as concerts, festivals, and other social experiences, to build brand awareness and engage with their target audience. By sponsoring these events, brands can gain exposure to a wider audience and create positive associations with their brand (Bishop, 2021).

For example, luxury fashion brand Gucci sponsored a virtual fashion show in the metaverse, which helped to build brand awareness and reach a younger, tech-savvy audience (Levy, 2021).

### **Partnering with Influencers and Content Creators**

Partnering with influencers and content creators is another effective metaverse marketing strategy for brands. Influencers and content creators have a large following in the metaverse and can help to promote a brand's products and services to their audience. By partnering with influencers and content creators, brands can reach a highly engaged and targeted audience (Bishop, 2021).

For example, cosmetics brand Sephora partnered with virtual influencer Noonouri to promote their products in the metaverse. This partnership helped to build brand awareness and reach a younger, tech-savvy audience (Levy, 2021).

### **Case Studies: Brands that Have Successfully Navigated the Metaverse**

As the metaverse continues to evolve and grow in popularity, several brands have successfully navigated this new virtual world. Here are some real-life examples of brands that have used effective metaverse marketing strategies to engage with their target audience and drive sales.

#### **Nike**

Nike has been one of the most innovative brands in the metaverse, using a variety of strategies to reach its target audience. One of its most successful campaigns was the creation of a virtual sneaker store in the online game Fortnite. This store allowed players to purchase virtual versions of Nike shoes for their avatars, creating a highly engaging and immersive experience (Bishop, 2021). This strategy helped to build brand loyalty and drive sales, as customers could purchase virtual versions of their favorite sneakers and show them off to their friends in the game.

#### **Gucci**

Luxury fashion brand Gucci has also successfully navigated the metaverse by partnering with content creators and sponsoring virtual events. In 2019, Gucci sponsored a virtual fashion show in the online game Second Life, which allowed players to experience the brand's products in a unique and immersive way (Levy, 2021). This campaign helped to build brand awareness and reach a younger, tech-savvy audience.

#### **Sephora**

Cosmetics brand Sephora has also successfully used metaverse marketing strategies to engage with its target audience. In 2018, Sephora launched a virtual makeup try-on feature in the online game Second Life, which allowed players to try on virtual makeup and purchase products in the game (Bishop, 2021). This strategy helped to build brand loyalty and drive sales, as customers could experience the products in a highly engaging and immersive way.

#### **Mercedes-Benz**

Mercedes-Benz has also successfully navigated the metaverse by creating virtual showrooms that allow customers to interact with the brand's products in a unique and immersive way. The brand launched a virtual showroom in the online game Second Life, which allowed players to experience the brand's cars and even test drive them (Levy, 2021). This strategy helped to build brand loyalty and drive sales, as customers could experience the products in a way that is not possible in the physical world.

The metaverse is still in its early stages, but it is expected to continue evolving and expanding in the coming years. One of the key factors driving the growth of the metaverse is the increasing use of virtual and augmented reality technologies. These technologies are becoming more advanced and accessible, making it easier for people to create and explore virtual worlds.



As the metaverse continues to develop, there will be more opportunities for brands and marketers to engage with consumers in innovative ways. One trend that is likely to continue is the use of branded virtual spaces. Companies can create their own virtual environments, such as stores or product showcases, that consumers can visit and interact with. This can help brands build stronger relationships with their customers and create more immersive and memorable experiences.

Another potential trend in the future of the metaverse is the rise of social commerce. As more people spend time in virtual worlds, there will be more opportunities to buy and sell goods and services within those worlds. Brands that are able to create seamless and engaging shopping experiences within the metaverse could gain a competitive advantage.

However, the future of the metaverse also presents several challenges and ethical concerns that brands and marketers will need to navigate. For example, there are concerns about data privacy and security in virtual worlds, as well as the potential for the metaverse to exacerbate social inequalities.

Despite these challenges, the metaverse is likely to play an increasingly important role in the future of marketing and brand engagement. Brands that are able to adapt to this new virtual landscape and create compelling and authentic experiences for consumers are likely to thrive in the years to come.

## Conclusion

In conclusion, the metaverse presents both exciting opportunities and significant challenges for brands. By developing immersive experiences, leveraging user-generated content, building communities, and implementing effective marketing strategies, brands can thrive in the virtual world and engage with customers in new and innovative ways. However, brands must also be mindful of the potential risks and ethical concerns associated with the metaverse, such as data privacy and the potential for addiction. As the metaverse continues to evolve, brands that adapt to changing trends and engage with customers in meaningful ways will be best positioned for success in this emerging digital landscape.

## Literature

1. Bishop, J. (2021). *The Metaverse Is Coming. What Are the Brand Opportunities and Challenges?* Adweek. Retrieved from <https://www.adweek.com/performance-marketing/the-metaverse-is-coming-what-are-the-brand-opportunities-and-challenges/>
2. Duff, J. (2021). *Metaverse Marketing: Opportunities and Challenges for Brands*. MarTech Series. Retrieved from <https://martechseries.com/mts-insights/guest-authors/metaverse-marketing-opportunities-challenges-brands/>
3. Hasegawa, K. (2021). *Metaverse: A New Frontier for Business and Innovation*. Journal of the Japanese Institute of Landscape Architecture, 84(5), 423-426.
4. Hosanagar, K. (2021). *The Metaverse: What It Is, Where to Find it, Who Will Build It, and Fortnite*. Journal of Management Information Systems, 38(1), 1-10.
5. Hu, X., Xiong, L., Li, H., & Fang, L. (2021). *The Dark Side of Metaverse: Ethical and Social Issues*. Journal of Business Research, 136, 492-498.
6. Kwok, K. L. (2021). *Metaverse: A Virtual World and Beyond*. Journal of Virtual World Research, 14(1), 1-16.
7. Lee, Y., & Lee, D. (2021). *The Metaverse: From Virtual Reality to Augmented Reality*. Journal of the Korean Society for Industrial Information Systems, 26(3), 53-60.
8. Levy, A. (2021). *Brands and the Metaverse: Opportunities and Risks*. Forbes. Retrieved from <https://www.forbes.com/sites/amyfeldman/2021/05/13/brands-and-the-metaverse-opportunities-and-risks/?sh=57e0f17a5024>
9. Reardon, S., & Burke, R. (2020). *Brands in the Metaverse: Opportunities and challenges for marketers*. Journal of Interactive Advertising, 20(2), 165-175.
10. Stephenson, N. (1992). *Snow Crash*. Bantam Books.
11. Tussyadiah, I. P., & Park, S. (2021). *Consumer attitudes toward virtual reality and the metaverse*. Journal of Destination Marketing & Management, 19, 100541.



## CHANGE TO IFRS WITH A HIGH LEVEL OF DIGITAL ACCOUNTING

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**Abstract:** IFRS (International Financial Reporting Standards) began in 1973. The primary purpose of the IFRS creation was to unify the principles, methods, and procedures of entities' financial statement preparation and clarify all kinds of related concepts. The standard-setters created a serious of accounting standards, which are understandable, high-quality, and easy to use. Basically, it is obligatory to make an annual report in accordance with the IFRS principles for all business unit and listed on the stock exchange market. Furthermore, other kinds of company can decide, that they prepare all annual reports based on the IFRS. <sup>1</sup>In Hungary the IFRS using is becoming more widespread. The IFRS is compulsory for the financial institutions, and that companies who are on the Budapest stock exchange market. Some companies can choose like the joint venture companies. I search the difficulties, regarding those company, whose come over to IFRS at the first time, so the first-time users of the IFRS. I would like to know that those company where the digital accounting is developed, the changing will be a bit easier, and faster or not (Lakatos et.al 2018).

I had an opportunity to make an interview with the financial manager of a company, where they use digital accounting at a higher level and they would like to switch to IFRS in the coming years. I would like to examine such questions as, for example, how digitalization affects/helps the accounting field. What difficulties can be eliminated much easier and faster with it. In my article I present, summarize and analyze, the main conclusion of the interview based on my opinion a SWOT analysis presents very well what was said.

**Key words:** digital accounting, International Financial Reporting Standards

### Fist time adaptation of IFRS

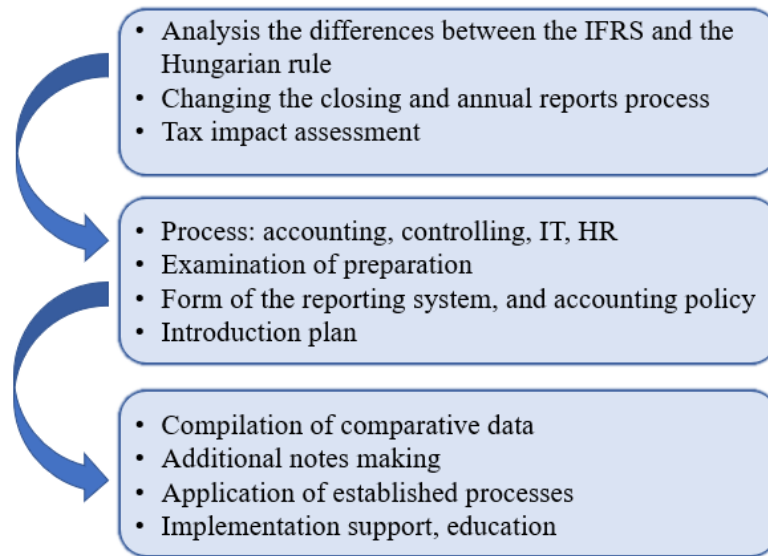
For the IFRS first time users need to count some difficulties. This kind of difficulties could be to choose the appropriate specialist. The company has to use a trained bookkeeper, whose IFRS qualified. Furthermore, the auditor and tax specialist can be also a difficulty factor, because every company, whose prepare the annual and financial statement based on the IFRS the auditing is obligatory. For example, according to the data from the Ministry of finance the certificated IFRS experts is less than 2.500 person in Hungary, which is very little.<sup>2</sup>

I prepared the Figure 1 based on Lakatos –et. al. (2018), which illustrates better the steps, and the preparation process, the first adaption of IFRS.

Based on the Figure, the first part will be the analysis of the deviation. The company has to investigate the differences between the IFRS and Hungarian regulation. What kind of effects will be for the property and financial statement. The next one is the second step. For the changing the company has to have enough sources to invest and improve the accounting, controlling, IT and HR system. The company reconsider their own feasibility and formability. The last step will be the application and operation part. Here the company has to prepare comparative data. Regarding to the IFRS, two previous years data has to be shown in the financial statements, and later on if it is necessary than improve the stabled system. Furthermore, the education of the users is one of the key elements of the IFRS adaption.

Another question to be answered is the chosen currency of the company, and the exact date of the conversion. This may not seem like such an important point, but it is. When they start preparing the data collection for the conversion, it is very important which period they are investigating, and in which currency. The IFRS does not specify this precisely.

If a company would like to use the IFRS, they must examine the used valuation procedures, the exact classification of assets and liabilities, and the applied accounting policy. They must be amended to comply to the IFRS rules. The IFRS does not provide a precise scheme for the transition, neither for the balance sheet, and nor for the profit and loss statement. It only formulates framework principles and procedural processes.



**Figure 1: First steps to adopt the IFRS**

Source: Lakatos et. al, 2018

The first adaptation of IFRS depends on the companies' activity as well. There are some investigations what focuses on the sector specialties where the entity exists (Pataki, Tangl 2017).

## Features of digital accounting

First of all, what means digital accounting?

“Digital accounting refers to creating, transferring, managing, and storing financial information in an electronic format. It involves the use of software solutions to digitize and automate many of the manual processes accountants deal with on a regular basis.”<sup>4</sup>

All accounting transactions will be working in an electronic system, instead of the papers using in a huge measure. There so many fields of accounting, where should have more innovations and process, which can speed up the financial system at a company. On the other hand, nowadays the environment protection get more and more focus. For example, the digitalization escalates for the accounts payable, and receivable, procurements, audit documentation, expense management, monthly/quarterly and yearly close process, and also for the client's contracts and agreements.

The digital accounting has a lot of benefits such as decontaminate from many manual working, which means it will save times, in a same time improve the productivity (Vajna, Tangl 2017) Easy and fast invoicing and payment, costs effective, it can fill in the Enterprise Resource Planning (ERP) system.<sup>6</sup> The ERP system has been a huge improving in the last few years, because of the digitalization it was also necessary. This is a software program, which collect all data from the different departments (activities) inside of a company, and it works up. This program makes a possibility to represent a different report for all business level.<sup>4</sup>

Regarding the digital accounting one side of problems can be, that to measure the benefits and cost. Basically, to list the costs and benefits is not so hard, but to qualify there, it can be more difficult. Usually the costs are immediately visible, understandable, and exact, in front of this, measuring the benefits are more undefinable. Those company whose adopt to IFRS has to consider the ratio of costs and benefits (Deshmukh 2006).

**Table 2: Costs and benefits**

Benefits	Costs
The time period will be faster. This involves all kind of payments, all transactions and collections, monthly/quarterly/yearly closings of the books, and reports. More time will be available to make more analysis, which can be on a higher level, or widely.	Expensive investments should have the company, regarding hardware, and software.
Much less the opportunity to make a mistake.	For this investment needs to talk with a specialist, which can be also expensive.
Improve the efficiency.	If the based program is invested, that they have to continuously improve, which can be expensive.
All this digitalization, the cash management can develop also.	Not just the system should be improved, but the specialized person/teams too. They should be retrained too.
Cost savings, for example on papers.	
Faster, effective monitoring.	
More safety.	

Source: based on Dechmukh (2006)

### The sum of the results in a SWOT analysis

The SWOT analysis is one of the most best-known business analysis tools. In light if this I prepared an analysis for the digital accounting using, which will provide a bigger picture for us (deep interview 2023).

#### Strength of the digital accounting are the follows:

- The workflows are much faster and more efficient.
- Large amounts of information are available for the users in a short time.
- The verification process is also more efficient and it can be more precise.
- When the system is established, the application of processes will be more regulated.
- As a result of the development of digital accounting/processes the system is much more environmentally friendly.
- Furthermore, the contact with the economic participants is faster, even at the international level.

#### Weaknesses of the digital accounting are the follows:

- It is very difficult to create the activation system, and later on the regulation can also cause problems.
- It is very difficult to create the compliance of GDPR principles, moreover, it is also hard to monitor and manage this, and without proper shaping, data can be in danger.
- That fact cannot be neglected, that there are fewer and fewer competent professionals, unfortunately in general the digital skills are low.
- It is very difficult to create and implement the full completeness within a business, included all departments.
- The form of the entire system takes a very long time, even years.

**Opportunities of the digital accounting are the follows:**

- Accounting and bookkeeping data can be more transparent.
- Automation processes can develop faster and faster.
- The home office opportunity is gaining more and more space.
- The discovery of risks within the company becomes much easier. This can be any type of risk, for example investment risk, or environmental risk.
- Due to the digital accounting the international data can also abut, for example the parent company invoicing, customs relations, tax authority relations. Various economic transactions become visible, even for foreign investors too, or another example the B2B, business to business transactions.

**Threats of the digital accounting are the follows:**

- It is much more difficult to filter out a small but serious error in a too large data set.
- In a too large data set, the transparency of the system becomes more difficult, and it is also difficult to understand the relationships.
- There is also the risk, that the tool is used by an incompetent person.
- The initial investments can be very expensive and not all companies can afford it.
- Furthermore, usually the managers of the small and medium enterprises are not receptive to this kind of development. For this development, they should use specialist advice, which can be also expensive for them.

Based on this a SWOT analysis clearly shows that a company needs to take into accounting many factors in order to continuously develop.

**Conclusion of the research**

Overall, it can be said that transition to IFRS should be considered in all circumstances and preparations should be started in time. Those company, whose adopt the IFRS need to collect all the information in order to be able to present an accurate and reliable picture in their various financial statements and annual reports. Furthermore, it become clear to me what advantages and disadvantages digitalization has. Those company, whose has a high level of digital accounting, it is an easier to get more information for the IFRS changing. It is not a short-term investment. For all companies that switch to the application of IFRS they can attribute a more significant role for themselves at the international level for different market participants, including even wider investors, suppliers or customers.

**Literature**

1. Lakatos L.P., Kovács D.M Madarasiné S.A., Rózsa G.M-I (2018): *International Financial Reporting Standards I.* volume Budapest Hungarian Chamber of Auditors.
2. Pataki-L., Tangl A. (2017): *The consequences of the introduction of IFRS on the accounting registration obligations of enterprises, regarding to agricultural enterprises.* In: Czeglédy, Tamás (szerk.) *Managementhajó nemzetközi vizeken: Managementship on International Waters*, Sopron, Magyarország : Soproni Egyetemi Kiadó 200 p. pp. 59-73.
3. <https://penneo.com/blog/audit-accounting-digitization/> (access date: 28.04.2023)
4. Vajna I., Tangl A. (2017): *The lean effect of the 5S and standard work development in different automated machine process standardization*, In: Illés, B. Cs.; Nowicka-Skowron, M.; Horská, E.; Dunay, A. *Management and Organization: Concepts, Tools and Applications*, Harlow, Egyesült Királyság / Anglia: Pearson Education Limited 242 p. pp. 67-74.
5. <https://fullyaccountable.com/what-is-digital-accounting/> (access date: 27.04.2023)
6. Deshmukh A. (2006): *Digital Accounting: The Effects of the Internet and ERP on Accounting* Chapter I.



## **MANAGING REMOTE AND HYBRID WORKFORCE: BENEFITS, CHALLENGES, AND WAY FORWARD IN AFRICA**

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**Abstract:** Managing remote and hybrid workforce has become expedient now more than ever because most organizations have begun to accept it as the ‘new normal’ after a compelling migration from face-to-face work to work-from-home (WFH), due to the COVID-19 pandemic. The purpose of this paper is to investigate how remote and hybrid workforce has been managed, its benefits, challenges, and the way forward in Africa using reviewed literature. It was observed that there is more literature on remote and hybrid work in advanced countries than in Africa. This study, therefore, highlights the African perspective. It was revealed that although many organizations and HRM departments embraced this initiative and are willing to continue with it, sustainable policies such as flexible work schedules, cost reduction, work-life balance, etc., must be implemented to ensure its smooth running. Certain challenges with the initiative must also be addressed to ensure its success. Further, African governments’ (including Ghana) policies must address certain peculiar challenges that are beyond organizations such as continuous electricity supply and provision of strong information communication technology. Industries that can venture into hybrid and remote work are education, manufacturing, and the hotel industry. However, a uniform approach should not be used during implementation since organizations vary.

**Keywords:** Remote and Hybrid, Work, Benefits, Challenges, Way forward, Africa and Ghana

### **Introduction**

It has been more than two years since the world was hit with the deadliest virus that has claimed millions of lives across the globe. Prior to the COVID-19 pandemic, remote working was the prerogative of managers in certain organizations. The World Health Organization’s (WHO) declaration of COVID-19 as a pandemic on March 11, 2020, transitioned routine face-to-face work to remote and hybrid. The shift to working remotely is not expected to change even after the pandemic. Most of the measures implemented during the peak season of the pandemic are likely to remain in the workplace for a long time. This is because the ongoing COVID-19 pandemic has taught organizations that at certain times, a significant amount of work performed at the workplace could be remotely carried out at home (Chan et al., 2020; Caringal-Go et al., 2022; Carroll and Conboy, 2020). The severity of the pandemic culminated with WHO and government measures to control the spread of coronavirus forced organizations and human resource management (HRM) departments to migrate their workforce into remote and hybrid working. As the years progress, more and more organizations are beginning to accept the switch from working in the office to hybrid and remote work. Balbontin, et al. (2021) developed a model to investigate the increase in the frequency of work-from-home (WFH) and its influence on the number of weekly office treks in eight countries namely - Australia, Argentina, Brazil, Chile, Colombia, Ecuador, Peru, and South Africa. The result showed that statistically, employers in all the countries surveyed were in favour of WFH. Additionally, more employees preferred to work from home even after the ease of restrictions due to its benefits. This is affirmed by Cassidy& Rockbrune (2021) who indicated that in Canada, for every three employees, one worked from home during the pandemic. Mărginean (2022) also established that COVID-19 has shown the novelty of working remotely and it calls for review and reorganization of aspects of both professional and personal lives, time management, and discussion of job schedules as well as limitations to remote and hybrid work.

This new paradigm of working has evolved, and employees are now desiring flexible work schedules which have proven to be the acceptable norm after the declaration of COVID-19 as a pandemic (Baskin, 2022). In a study among 200 chief executive officers (CEO) and 10,750 employees, Accenture (2022) revealed that 9,326 (83%) of the employees preferred a hybrid style of work. In another study involving 127 business leaders conducted on June 5<sup>th</sup>, 2020 (during the lockdowns, and closure of borders and airports as a result of the COVID-19 pandemic), Gartner (2020) found that 82 percent of company leaders in Virginia, US, permitted their employees to work remotely to a large extent even after the restrictions and work returned to normalcy. This is asserted by the study of Global Workplace Analytics which revealed that 77% of employees working in an office environment worked remotely full-time during the peak period of the COVID-19 pandemic. Saad & Wigert (2021) also mentioned that hybrid and remote working are likely to become increasingly popular over the decades of 2020 to 2030s because they offer flexibility to workers and are cost-effective for organizations. Hylton & Krutsch (2022) further established that the rise in remote and hybrid work during the inception of the pandemic was significant and one of the most remarkable changes that took place during that time, and it is anticipated to remain for many years.

Hybrid work has benefitted employers and employees equally (Hylton & Krutsch, 2022). According to Chan et al., (2022), it has broken the limits between home and work, requiring an assessment of the effects of the changes that accompany it in order to alleviate any adverse impact it may have on work-life balance. Global Workplace Analytics reported that in the US, many organizations changed their operations extensively by introducing massive telework policies which have brought about economic, fairness, and environmental gains to the organizations, their employees, and the local government at large. Arora & Kumari (2022) also confirmed that the benefits that come with remote working include manageability, access to international prospects, flexibility in work schedules, and significant influence on multiplicity hiring. One of the things that ensured continuity in business and organization operations by enabling hybrid and remote working is information and communication tools (Kulshrestha, 2022). Hylton & Krutsch (2022) asserted this in their study when they projected that computer jobs would increase by 13.4% within the next decade; a 5.7% increase compared to the 7.7% average on other jobs in the US.

A study was conducted in South Africa (in a state-owned organization) to ascertain the extent to which employees had adjusted to organizational practices and experiences during the COVID-19 pandemic, it was revealed that ICT has assisted in increasing employee productivity since it makes working facile, helps in effective communication and enhanced collaboration among employees and colleagues. Another recorded benefit was employees having ample time with their families, enhancing work-life balance (Dhanpat et al., 2023). The story was not different in Ghana, this new paradigm helped employees to sharpen their IT knowledge because most human resource departments of organizations had to apply hybrid and remote work strategies to ensure consistency and work delivery. Another remarkable advantage of implementing hybrid and remote work is giving career women and nursing mothers the opportunity to work while taking care of their children or at home.

In spite of the benefits, there were some difficulties associated with hybrid work not only in Africa but the world at large. Some of these challenges include an increase in workload, the conflict between family and office tasks, efficiency and effectiveness of task delivery just to mention but a few.

Some challenges that could be peculiar to Africa include poor or inadequate IT infrastructures, getting a permanent office space at home, reliable power supply, employees' expertise in implementing remote work models, and so on. The objective of this paper is to investigate how hybrid and remote work is managed, its benefits, difficulties, and the way forward in Africa using Ghana as a case.

The paper is structured into four sections; the introduction, materials and methods used, reviewed literature on the study, and a discussion and conclusion.

## Materials and Methods

Understanding current knowledge of a particular discipline or research area and building a study around it by evaluating existing gaps, and providing recommendations and solutions is very essential in academia. Snyder (2019) describes a literature review as methodically gathering and integrating earlier studies. He stated that using well-researched literature as a method for further studies provides a solid basis for theory development and knowledge advancement. Danson & Arshad (2014) see literature as retrieving key issues, methods, materials, findings, and salient points from existing knowledge and integrating them into a relevant study.

Snyder (2019) argued that the art of putting together scientific evidence and perspectives makes literature review an effective solution to addressing research problems compared to one study. This research relies on literature to discuss the need for organizations to reconsider where their employees work and still maintain their productivity level as well as solve associated challenges in a sustainable manner, particularly in Africa. A systematic pursuit of information on hybrid and remote work was done using related websites, published papers, and reports as sources of literature to achieve the purpose of this study.

For data collection and relevant analysis, related secondary information was retrieved from online databases such as Google Scholar and Web of Science using related keywords such as “Hybrid and Remote work”, “Remote Working”, “Personnel”, “COVID-19”, “Hybrid Working”, Remote and Hybrid workforce in Africa and Ghana, etc. Information was also gathered from international sites such as Accenture reports, the local government commission (USA), and previous studies on the topic to achieve the aim of this study. Empirical studies may be conducted as a further stage of this study since it was discovered that there are not enough studies or literature in this area concerning Africa, particularly Sub-Saharan Africa including Ghana.

## Reviewed Literature

Working remotely has not been a new initiative, however, the inception of the COVID-19 pandemic has necessitated the shift toward hybrid work, which calls for relevant policies, strategies, and models to ensure productivity and sustainability at the workplace. Gupta (2022) established that software and information technology companies had been practicing remote working before the inception of the COVID-19 pandemic. Brooks et al. (2022) also indicate that this initiative has both benefits and challenges.

The COVID-19 pandemic has left many economies across the globe struggling with high inflation and economic recessions, causing security and logistics risks for organizations as well as shifting customers’ demands and a tough labor marketplace. These necessitated faster changes in the usual mode of work (Accenture, 2022). In addition, it became expedient for individuals, organizations, and societies to maintain social distance to prevent the spread of the coronavirus. This assertion was confirmed by Wontorczyk & Rożnowski (2022) when they mentioned that the COVID-19 pandemic brought not only complications to the workplace but its environment as well. Remote and hybrid work became the solution to prevent and protect employees from being infected. Grelle & Popp (2021) also emphasized that although hybrid work has been in existence for a long time, the high level of catastrophe and measures to curb the spread during the COVID-19 pandemic compelled many organizations to switch from face-to-face to remote working. Even employees who would under normal circumstances have not done that were obliged due to the prevailing situation. Managers and HRM departments had to work with IT departments and companies to deduce strategies and communication software to manage remote working employees.

Leonardelli (2022) describes a remote workforce as an “outgroup, a group of employees differentiated from leaders who will benefit from more autonomous work, whether by defining the work more asynchronously, empowering the workforce by assisting them to make their work remote-capable, or by selectively enacting team meetings”. Zachariah et al. (2022) also depict hybrid work as “relates to a flexible system whereby the employees are given the liberty categorize their workdays between work from home

and work from office”. And defined work from home or remote work as “a type of flexible working arrangement that permits an employee to work from a remote location, away from office premises”. Remote work enables workers to be in a location outside the workplace and the workers had no physical contact with other colleagues but can communicate virtually via technology (Wang et al., 2021).

Manko (2022) argued that all stakeholders involved in the implementation of remote work enjoy some quantifiable benefits and it serves as one of the main motivations. While employees save money and time commuting, as well as work-life balance, employers also save money on the provision of office facilities. It may enhance productivity too.

Wang et al. (2021) again mentioned four main characteristics of remote and hybrid working. These are job autonomy, monitoring, workload, and social support. These key elements impact remote workers’ effectiveness while working at home and their well-being. Table 1 indicates the various research on hybrid and remote work from different countries, the methods adopted and the outcomes to buttress the fact that it is an area that many authors are exploring to make its implementation more effective.

*Table 1. shows some studies on remote and hybrid work, methods, and main findings*

Author (s)	Method	Country (ies)	Findings
Matli, W. (2020)	To determine the perceptions of employees’ remote work experiences and the migration from the usual work environment to working from home, the study used an online survey, judgmental sampling techniques, and structuration theory to achieve their aim.	South Africa	The results show that in spite of the benefits derived from hybrid and remote work such as using developed technology, there were challenges associated with it. These include work stressors and excessive workload.
Pillai & Prasad (2023)	The study interviewed business executives and HR managers of IT companies to retrieve crucial challenges and success variables during an initial study conducted to further investigate perspectives on working in a workplace environment and remote and hybrid working.	India	Some of the benefits of working remotely the study identified include flexibility, particularly for women, work-life balance, de-stressors, and an increase in productivity. However, in the long run, it may lead to fatigue, employment turnover, risks to the health of IT staff, and lack of effective communication.
Adekoya et al. (2022)	The study used semi-structured interview questions with a sample size of 31 respondents focusing on the perceptions of employers and employees to identify elements that would effectively accelerate remote working during the post-COVID-19 period.	United Kingdom	They identified “self-discipline, smart working practices, leadership roles, flexible working preferences and expectations as facilitators of remote working”.
Khor & Tan (2022)	Using a qualitative approach to determine the main factors used for managing the workforce during the post-COVID era, potentials, and obstacles of Malaysian international organizations.	Malaysia	Technology remains the key enabler for operations and workforce management in the post-COVID era for organizations. Hybrid and remote working could have both positive and negative effects in the long run so organizations should provide the needed support to their employees and pay attention to their well-being.
Aleem et al. (2022)	A systematic literature review was conducted by using artificial intelligence-based educational devices to examine the details, multiplicity, and major topics on remote work during the COVID-19 pandemic.		They revealed eight study themes, and these are: “(1) Effect on employees at a personal level, (2) Effect on employees’ careers, (3) Family life and gender roles, (4) Health, well-being, and safety, (5) Labor market dynamics, (6) Economic implications, (7) Remote work management, (8) Organizational remote work strategies”. And further divided these into three main proposals for further studies

Brusaca et al. (2021)	Data were collected from 11 Brazilian employees by using Compositional Data Analysis and observation of behaviors, before and during the COVID-19 pandemic for 5 days including a weekend. The period was measured by using repeated-measures MANOVA.	Brazil	The findings showed that comparatively, Brazilian workers spent more time in bed at home during the COVID-19 pandemic than before.
Tracking Happiness (2023)	The study used a survey method to collect data from 12, 455 employees across the world to determine their employment conditions.	North and South America, Europe, and Asia	It was disclosed that remote working increased the happiness of employees who had that opportunity by 20 percent. Further, going back to the workplace after the pandemic and the increase in commuting time reduced employees' bliss.
Bloom et al. (2015)	Carried out a Work from Home Experiment on 16,000 employees of Ctrip, a NASDAQ-listed Chinese travel agency (9 months study duration).	China	The performance of employees who worked from home increased by 13 percent. They also had job satisfaction and reduced the turnover rate by 50 percent. However, the rate of promotion which was based on performance dropped.
Bloom (2022)	2 national surveys and interactions with hundreds of managers	USA	Companies are shifting towards a three-layered labor force. About 50 percent of all workers would work full-time in the workplace environment. This may include frontline workers such as health workers, retail and manufacturing workers. 40 percent would go hybrid (3 days in the workplace and 2 days at home on average), and they include chief executive officers, tertiary certificate holders, and professionals. The 10 percent remainder would continue to work remotely on a full-time basis. They are skilled employees such as finance, payroll, editing, and IT assistants.
Iwu et al. (2022)	The study used a qualitative approach and Atlas.ti for analyzing data collected from academics who have been cross selected from South African universities.	South Africa	Working remotely in academia is tedious because it demands personal, social, and organizational changes. It was discovered that organizations such as academics would need a customized strategy or model for remote and hybrid work that would suit their purpose.

## Benefits

Studies have shown that hybrid and remote work could be as productive as in the office environment. (Cassidy& Rockbrune, 2021; Mehdi & Morissette, 2021; Allen et al., 2015). Telecommuting allows for a flexible working schedule, gives employees greater freedom to control their work environment, saves shuttling time, cost-effective in terms of professional clothing, dining out, and travel (Cassidy& Rockbrune, 2021; Allen et al., 2015). This was affirmed in one of the findings of Stasiła-Sieradzka et al. (2023) which compared the conventional style of work and WFH. The remote workers state that the hybrid and remote work model promoted flexibility and more freedom when it comes to task performance without compromising efficiency. Similarly, over 70% of 278 respondents who participated in a study to investigate the level of productivity of persons who changed from the workplace environment to working from home, confirmed that WFH made them creative in performing their assigned responsibilities, and nearly 50% thought the use of online platforms had increased their job satisfaction (George et al., 2022).



Gupta (2022) enumerated some of the benefits that employees, employers, and societies stand to gain when implementing remote and hybrid work:

Employers have a wider spectrum of talents to choose from during recruitment since they may not be limited by geographical locations, and this may promote efficiency and reduce the rate of turnover. In the event of ecological catastrophes such as the COVID-19 pandemic, because the labor force is geographically spread, work activities could continue, and risks would be drastically reduced.

On the side of employees, savings on transportation costs and additional expenditure, less commuting time, work-life balance, more time for recreation and family, flexible working time, and minimal interruption from work colleagues.

With regard to societal benefits, Gupta (2022) states that remote and hybrid work when managed well could reduce pollution from vehicles and traffic congestion. Particularly, in a metropolis where there could be lots of human and vehicular traffic congestion. He further stated that it would decrease the pressure on socially scarce resources, ease the pressure on governments, and would produce opportunities.

Gupta's assertions were in line with the studies of Żarczyńska-Dobiesz & Gaura (2021) who found in their studies in Poland that the main benefit of remote work is “savings in commuting time (87%). Followed by the option of working anywhere (72%), the privilege of having more time to spend at home (67%), improvement in IT skills (63%), and the opportunity to decide on working hours (60%).”

Employees who work remotely prefer part-time jobs because of family responsibilities and other commitments that demand their attention at home. Employment owners, therefore, save costs on telecommuters. Jaqua (2022) reiterated that money saved from operating costs linked to employing remote personnel could be channeled into recruiting more workers. Furthermore, hybrid and remote working has become very attractive so organizations grappling with high turnover and retaining their employees could adopt this as a strategy to attract high talent. It has also been observed that comparatively, hybrid and remote employees were stress-free and much happier compared to their colleagues working in the office environment (Tracking happiness, 2023). Workers who had digital aids working from home were more engaged, productive, and satisfied with their responsibilities.

## Challenges

In a bid to decipher employees' remote work experiences and the perception of the shift from the usual work environment to remote working in South Africa, Matli (2020) found that irrespective of the benefits derived from hybrid and remote work, there were challenges connected with it, which include work stressors (e.g., tight deadlines, long hours of work, etc.), excessive workload, and social alienation. These could jeopardize employees' work-life balance, as well as their wellness and welfare. This was established in the results of George et al. (2022) who showed that in practice hybrid work models also have their own challenges, which is evident in the drop in social, physical, and mental health. Brooks et al. (2022) also acknowledged that some of the disadvantages of remote and hybrid work comprise “inappropriate home ergonomics, absences of work-life balance and issues relating to technology.”

A study investigating hybrid work models and the future of the workplace environment with a total respondent of 200 chief executive officers and 10,750 employees, it was revealed that although many organizations promised some level of hybrid work after the pandemic, the majority had not empowered their employees with the needed technological tools, policies, and processes that could foster employees' well-being and productivity in their respective work locations (Accenture, 2022).

Challenges found with remote work in a study of universities in South Africa were long hours of work without breaks which may lead to burnout and background disruptions from televisions, as well as lack of communication with work colleagues (Iwu et al., 2022). A study conducted in the Netherlands involving 33,325 workers to determine how remote and hybrid work impacted their daily lives and their physical activity behavior from the period March 2020 to January 2021. The results showed that remote workers were engaged in fewer physical activities which may gradually affect their health (Loef et al., 2022).

Like previous studies, Wang et al. (2021) emphasized these four obstacles in remote and hybrid working – delay, poor communication, work-home intrusion, and isolation. And mentioned that they have harmful influences on people’s work effectiveness and well-being. Sometimes, it becomes difficult for remote workers to differentiate between their domestic chores and official work which may lead to delays in their deliverables. Employees who work remotely miss regular interactions with colleagues. This system depends greatly on technology, and any interruptions in ICT may cause a huge negative impact. Loneliness and interference from working at home are also significant challenges that must be addressed.

Arora & Kumari (2022) stated that their study found that the respondents were keen on surmounting the difficulties connected to remote work which is maintaining productivity, access to technology, and virtual distance due to its merits.

## The African Context

It must be noted that the literature on remote and hybrid work in Africa is very inadequate compared to advanced countries. More studies have been conducted in South Africa than in other African countries. Africa had its fair share of the impact of the COVID-19 pandemic. It is worth noting that some of the benefits and challenges cut across all continents.

In the initial stages of the pandemic when countries shut down their land and sea borders, airports, and other activities, some organizations in Africa especially large companies like the banks had HR and IT departments coordinated as fast as possible to apply remote and hybrid work models. The majority of small companies had no option but to shut down their operations. In Ghana, as a typical example, most organizations maintain a lean staff at the workplace particularly, functions and roles that could not be performed remotely. Most employees teleworked while others were laid off. After the lockdown, the decision to return to the work environment was gradual. Two years after the peak period of the pandemic, most organizations have had their employees returned on-site with the exception of some units and departments who were running hybrid working – two days at home and three days in the office. In some rare instances, employees with health or personal problems were permitted to work remotely.

Adopting hybrid and remote working in Africa has its own peculiar challenges. Africa lags behind with respect to development. The continent is beset with challenges that may negatively impact the effective implementation of hybrid and remote work. Africa’s electricity supply has been erratic, which affects solid and constant internet connectivity. Alternatives to electricity such as generators, inverters, and power banks were considered as additional costs for the already grappling businesses (Kokt & Chipunza, 2022). Further, Africa depends on advanced countries for technology. Hence, the financial resources required to create and implement technological innovation necessary for hybrid and remote work were virtually not available (Kokt & Chipunza, 2022). In Ghana, for instance, organizations that could afford virtual private networks (VPN) that establish convenient access to the organization platforms, had their human resource management departments collaborate with IT departments and provide this digitized service to hybrid and remote workers to enable them to have access to the organization platforms. Those who could afford, bought remote meeting software and online learning and working solutions from private IT companies. Most small and medium enterprises laid off their workers and shut down their businesses due to financial constraints. Apart from the fact that many workers did not have laptops, smartphones, or other necessary devices that could ensure effective remote and hybrid work, most of them lacked the requisite technical skills needed for it (Kokt & Chipunza, 2022).

Mostafa (2021) reiterated that sometimes it is difficult for hybrid and remote workers to detach themselves from their official work at the close of business and mentioned that the decision for organizations to opt for remote working brought only a thin line between work and private life. Another challenge unique to Africa is the fact that women are regarded as caretakers of the home and therefore spending more time on official work could bring problems to the home. Long hours of work could also lead to late eating which could give rise to a high rate of obesity. The cost of electricity is very high in Africa, hence, working remotely means an increase in utility bills

A study of some South African universities that turned to remote work during the pandemic identified four main problems associated with the model. (1) inability to adjust, (2) unavailability of office space at home (3) solitude and seclusion (4) lack of work-life balance. Most employees were used to the face-to-face type of work and were reluctant to adapt to the “new normal”. The lack of technological infrastructure to support the migration from the workplace environment to remote work is also peculiar to Africa. This point was also affirmed by Kock & Chipunza, (2022) when they mentioned that organizations were taken aback because they lacked the financial power to assist in procuring the required technology for remote and hybrid work. Remote and hybrid work means separation from social ties in the office. Most meetings and interactions are held virtually creating loneliness and isolation for employees. Being unable to balance home and work disruption could be stressful and may lead to mental health issues in the long run if not well tackled (Iwu et al., 2022).

African homes are in a communal setting, which is not too convenient for remote work. OSoba (2021) confirmed this when he argued that although some workers were privileged to have a home office or study, others had to create one by turning their dining area or living room into office space, some even live with extended family which obviously increases disturbances from the environment. The cost of energy and the internet is also another factor that can hamper remote and hybrid work. Some line managers, HRM practitioners, other officers, and general employees lack the technical know-how to manage and work from home.

## Way forward

Grelle & Popp (2021) state that in spite of the successes enumerated in literature, employees with years of remote work experience may have had an extra burden of caring for children and may be sharing restricted office space at home during the COVID-19 pandemic restrictions, which may interfere work. They called for Industrial and organizational psychologists to do further studies in this area using other dependent variables and new specific differences that are yet to be examined.

Cassidy & Rockbrune (2021) in their policy brief report also listed seven key elements that organizations and leaders should consider when planning and developing policies for remote and hybrid work:

1. The first key factor to consider when planning and strategizing toward hybrid and remote working is the **personality traits, skills, and priorities of the employees**. While some employees may prefer working remotely because it brings about flexibility in the work schedule and makes one autonomous because working remotely means self-management. Other employees may prefer working in the office environment because they feel working at home intrudes on their private lives.
2. **The job to be performed should also be considered**. While some functions could be performed remotely, others may have to be carried out in the workplace because they demand specialized equipment that could not be assembled in the home environment. Further, shared jobs that require experiential or implicit knowledge could not be performed at home.
3. **Another main item to be concerned about is communication**: Remote and hybrid work reduce interactions among colleagues and therefore it is necessary to apprise employees across all spectrums about happenings in the organization, which helps employees to be consistent and abreast with the information required to successfully accomplish their individual objectives. Previous studies have shown that effective teams need clear and detailed instructions or codes of conduct.
4. **Organizational Culture** is also very important when drafting policies for remote and hybrid work. Cassidy & Rockbrune (2021) posited that organizational culture is developed through organizational stories, values, practices, and beliefs of the organization, which are communicated through behaviors and visual items like how individuals dress, office decoration, etc. This is obvious when working together. It is important for management to be explicit on the culture of the organization and document the mission, vision, and values of the organization for all employees to have copies since it may be difficult to notice such values or principles in remote work.

5. It is important for organizations to select the correct technological tools that would aid employees working remotely. There are several apps, platforms, and software applicable to remote work such as Zoom, Google Drive, VPN, Trello, Asana, etc.
6. The leadership principles and policies needed to support remote and hybrid working are the same as those of the workplace environment. However, there are additional responsibilities for managers who supervise remote workers. They need to act as mentors, coaches, and facilitators, with a focus more on outcomes. Remote workers are also expected to be clear about their goals and expected results and how they are linked with the overall organizational objectives.
7. **Relation:** Efforts should be made to build relationships since employees do not see each other on a daily basis and most conversations are online or on the phone, which turns out to be more job-oriented (e.g., group seminars, outings, extracurricular activities).

Leonardelli (2022) similarly recommended three main strategies that managers of the remote and hybrid workforce could adopt.

- Managers should set specific, measurable, accurate, realistic, and time-bound (SMART) work goals for hybrid and remote workers. Additionally, employees should be more autonomous, and independent in performing their assigned tasks to encourage the best performance.
- Employees assigned to hybrid and remote work should have and be empowered with the requisite technology skills to enhance their work. First of all, there should be an assessment of the job to ensure that it can be performed remotely. Leonardelli (2022) suggested that communication equipment should be made available to allow for communication with colleagues. Employees should be trained to use such technologies with ease.
- Most jobs performed in organizations demand some level of interconnectivity, brainstorming, or incorporation, hence, employees work in teams. The suggestion is that when it comes to hybrid or remote working, team or group meetings should be held selectively. Such meetings are held via technological communicative tools such as video or audio conferencing. Three measures can be used to identify when to selectively call for a team meeting. These are:
  - (1) When a new assignment is going to be performed, a team meeting could be held to explain the task and assigned roles, with random team inspection.
  - (2) Team meetings should be dependent on the intricacy of the work. The more complicated the job, it would be advisable to have input from colleagues.
  - (3) It is also important to consider the elasticity of team members. Organizations should define their teams with some flexibility so that as and when an expert or expertise is needed, it can be added since it is a virtual meeting.

In addition, African leaders must enact policies to improve electricity supply in both cities and rural areas as well as strong internet connectivity. Measures should also be taken to reduce the costs of bandwidth, electricity, and energy so that an average individual and SMEs can afford to connect to the internet wherever they are located.

HR managers and organizational leaders are coming to terms with the fact that remote and hybrid working has come to stay and therefore they should draft policies, strategies, and models that could assist in the implementation of successful remote and hybrid work. Managers and employees should be trained in ICT skills and digitally empowered to be able to work and manage virtual employees, particularly organizations that would want to implement remote and hybrid work. Employees should be given the needed support to make their work at home comfortable and convenient. Work-life balance and employee well-being should be paramount to organizations and HR departments. In the same vein, Sulaiman et al. (2023) suggested that there should be collaboration and communication among the hybrid and remote work teams. As well as the use of social media platforms to promote interactions and teamwork.



## Conclusion

Remote and hybrid working has come to stay. Although it was this strategy that kept organizations, businesses, and economies running during the COVID-19 pandemic, more organizations and employees are embracing and migrating to remote and hybrid working, especially since the end of the COVID-19 pandemic is not in sight.

Literature has shown that there are several benefits to this practice as well as challenges. Some of the benefits are flexibility in work schedule, accommodating to career women, high productivity, and work-life balance just to mention but a few. The challenges include the cost of electricity, bandwidth, and energy. Also, in Africa, erratic power supply, poor technological infrastructure, a lack of technological skills, and so on.

It is imperative for more studies to be conducted in Africa to appreciate the African context and contribute practical solutions that would help in the development, advancement, and management of remote and hybrid work. It is also important for organizations to be careful and thorough in their approach, design, implement, and modify remote and hybrid work programs. HRM departments, managers, and supervisors should also make a cautious effort to build cultural support and recognition for remote working innovations as well as improve the conditions and well-being of remote and hybrid employees (Popovici & Popovici, 2020).

African governments and leaders should play their part by enacting policies that would enhance technological development and reduce the cost of power and energy. SMEs should also be supported in their bid to migrate into remote and hybrid working. Related IT training should be organized for all involved to ensure success.

In the researchers' opinion, industries where hybrid and remote work is likely to thrive in Ghana include, the hotel industry, manufacturing, and education. However, this can be feasible with appropriate technological tools, reliable connectivity, and power supply. It is worth noting that in implementing hybrid and remote work, a uniform approach should not be adopted since organizations vary and not all jobs can run such models,

## Reference

1. Accenture (2022), *Work in Progress: How the Future Work Depends on Us*, Retrieved from [<https://www.accenture.com/us-en/insights/consulting/future-work>]. Accessed on 10/02/2023.
2. Adekoya, O. D., Adisa, T. A. and Aiyenitaju, O. (2022), "Going forward: remote working in the post-COVID-19 era", *Employee Relations*, Vol. 44 No. 6, pp. 1410-1427, DOI: <https://doi.org/10.1108/ER-04-2021-0161>.
3. Aleem, M., Sufyan, M., Ameer, I. and Mustak, M. (2022), *Remote work and the COVID-19 pandemic: An artificial intelligence-based topic modeling and a future agenda*, *Journal of Business Research*, p.113303.
4. Allen, T. D., Golden, T. D., & Shockley, K. M. (2015), *How Effective Is Telecommuting? Assessing the Status of Our Scientific Findings*, *Psychological Science in the Public Interest*, 16(2), 40-68. DOI: <https://doi.org/10.1177/1529100615593273>.
5. Arora, S. and Kumari, N. (2022), *Imagining benefits and challenges for future hybrid workplace to enable reentry for women on career break*, *International Journal of Networking and Virtual Organisations*, 26(3), p.231-248. DOI: <https://doi.org/10.1504/IJNVO.2022.122857>.
6. Balbontin, C., Hensher, D.A., Beck, M.J., Giesen, R., Basnak, P., Vallejo-Borda, J.A. and Venter, C. (2021), *Impact of COVID-19 on the number of days working from home and commuting travel: A cross-cultural comparison between Australia, South America and South Africa*, *Journal of Transport Geography*, 96, p.103188.
7. Baskin, K. (2022), *4 things to consider when managing a hybrid workforce*. Retrieved from [<https://mitsloan.mit.edu/ideas-made-to-matter/4-things-to-consider-when-managing-a-hybrid-workforce>], Accessed on 10/02/2023.
8. Bloom, N., Liang, J., Roberts, J., & Ying, Z. J. (2015), *Does working from homework? Evidence from a Chinese experiment*, *The Quarterly Journal of Economics*, 130(1), 165-218. DOI: <https://doi.org/10.1093/qje/qju032>.
9. Bloom, N. (2022), *I've been studying work-from-home for years, Here's what's coming. Barron's (online)*, Retrieved from [<https://www.proquest.com/docview/2616519588>]. Accessed on 23/02/2023.



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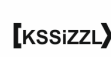
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of Management



Department of Applied Sociology  
and Human Resource Management



10. Brooks, S. K., Hall, C. E., Patel, D., & Greenberg, N. (2022), " *In the office nine to five, five days a week horizontal ellipsis those days are gone*": qualitative exploration of diplomatic personnel's experiences of remote working during the COVID-19 pandemic. BMC PSYCHOLOGY, 10(1), DOI: <https://doi.org/10.1186/s40359-022-00970-x>.
11. Brusaca, L. A., Barbieri, D. F., Mathiassen, S. E., Holtermann, A. and Oliveira, A. B. (2021), *Physical behaviours in Brazilian office workers working from home during the COVID-19 pandemic, compared to before the pandemic: a compositional data analysis*, International Journal of Environmental Research and Public Health, 18(12), p.6278.
12. Caringal-Go, J. F., Teng-Calleja, M., Bertulfo, D. J. and Manaois, J. O. (2022), *Work-life balance crafting during COVID-19: Exploring strategies of telecommuting employees in the Philippines*, Community, Work & Family, 25(1), p.112-131.
13. Carroll, N. and Conboy, K. (2020), *Normalising the "new normal": Changing tech-driven work practices under pandemic time pressure*, International Journal of Information Management, 55, p.102186.
14. Cassidy, K. and Rockbrune, M. (2021), *TO BE, OR NOT TO BE, REMOTE?*, Retrieved from [[https://gncc.ca/wp-content/uploads/2021/10/Brock-NCO-Brief52\\_DRAFT-Oct-2021.pdf](https://gncc.ca/wp-content/uploads/2021/10/Brock-NCO-Brief52_DRAFT-Oct-2021.pdf)] Accessed on 20/02/ 2023.
15. Chan, X.W., Shang, S., Brough, P., Wilkinson, A. and Lu, C. Q. (2022), *Work, life and COVID-19: a rapid review and practical recommendations for the post-pandemic workplace*, Asia Pacific Journal of Human Resources. DOI: <https://doi.org/10.1111/1744-7941.12355>.
16. Danson, M. and Arshad, N. (2014), *The literature review, Research methods for business and management: A guide to writing your dissertation*, pp.37-57.
17. Dhanpat, N., Makgamatha, K., Monageng, R., & Sigawuki, K. (2022), *COVID-19: Employee Experience and Adjustment at a State Owned Company in South Africa*, SAGE Open, 12(2). DOI: <https://doi.org/10.1177/21582440221102435>.
18. Gartner Inc. (2020), *Gartner survey reveals 82% of company leaders plan to allow employees to work remotely some of the time*. Newsroom – Press Releases, Retrieved from [<https://www.gartner.com/en/newsroom/press-releases/2020-07-14-gartner-survey-reveals-82-percent-of-company-leaders-plan-to-allow-employees-to-work-remotely-some-of-the-time>], Accessed on 20/02/ 2023.
19. George, T. J., Atwater, L. E., Maneethai, D., & Madera, J. M. (2022), *Supporting the productivity and wellbeing of remote workers: Lessons from COVID-19*, Organizational Dynamics, 51(2), 100869, DOI: <https://doi.org/10.1016/j.orgdyn.2021.100869>.
20. Global Workplace Analytics (2021), *Telework and the Future of Economic and Social Prosperity*, Retrieved from [<https://civicwell.org/wp-content/uploads/2022/01/Telework-factsheet.pdf>], Accessed on 11/02/ 2023.
21. Gorlick, A. (2020), *The productivity pitfalls of working from home in the age of COVID-19*, Stanford News, [<https://news.stanford.edu/2020/03/30/productivity-pitfalls-working-home-age-covid-19/>], Accessed on 23/02/ 2023.
22. Grelle, D. and Popp, E. (2021), *Considering the interaction of individual differences and remote work contexts*, Industrial and Organizational Psychology, 14(1-2), 244-247. DOI: <https://doi.org/10.1017/IOP.2021.51>.
23. Gupta, S. (2022), *Work from Home: The Way Forward*, Global Journal of Business Management, p.67.
24. Hylton, S., Ice, L. and Krutsch, E. (2022), *What the long-term impacts of the COVID-19 pandemic could mean for the future of IT jobs*, Computer, 4(5,652,9), p.667-6.
25. Iwu, C. G., Okeke-Uzodike, O. E., Anwana, E., Iwu, C. H. and Esambe, E. E. (2022), *Experiences of Academics Working from Home during COVID-19: A Qualitative View from Selected South African Universities*, Challenges, 13(1), p.16. DOI: <https://doi.org/10.3390/challe13010016>.
26. Jaqua, T. (2022), *A Case for a Remote Workforce: Why the Return to the Office is not Working*, International Journal of Academic Research in Accounting Finance and Management Sciences, 12(3), 280–284. DOI: <http://dx.doi.org/10.6007/IJARAFMS/v12-i3/14409>.
27. Khor, L. K. and Tan, C. L. (2022), *Workforce management in the post-pandemic era: Evidence from multinational companies using grounded theory*, Global Business and Organizational Excellence, DOI: <https://doi.org/10.1002/joe.22174>
28. Koko, D. and Chipunza, C. (2022), *Remote and Hybrid Working during Crisis: Challenges and Implications for Employee Development in Africa*, In People Management-Highlighting Futures, IntechOpen.
29. Kulshrestha, S. (2022), *The Role of Technology Enabled HRM Systems in Developing Hybrid Workplaces: A Case Study of the Information Technology Sector in India*, In Business Advancement through Technology Volume II: The Changing Landscape of Industry and Employment (pp. 47-64). Cham: Springer International Publishing.
30. Leonardelli, G. J. (2022), *Lessons from a Crisis: Identity as a Means of Leading Remote Workforces Effectively*, Organizational Dynamics, 51(2), p.100886. DOI: <https://doi.org/10.1016/j.orgdyn.2021.100886>.
31. Loef, B., van Oostrom, S. H., van der Noordt, M. and Proper, K. I. (2022), *Working from home during the COVID-19 pandemic and its longitudinal association with physical activity and sedentary behavior*, Scandinavian Journal of Work, Environment & Health, 48(5), p.380-390. DOI: <https://doi.org/10.5271/sjweh.402>.



32. Mărginean, A. (2022), *Blending Remote/Hybrid Work And Hybrid Academic Education*, Journal of Information Systems & Operations Management, 16(2), p.144-156.
33. Matli, W. (2020), *The changing work landscape as a result of the Covid-19 pandemic: insights from remote workers life situations in South Africa*, International Journal of Sociology and Social Policy, 40(9/10), pp.1237-1256.
34. Mehdi, T., & Morissette, R. (2021), *Working from home: Productivity and preferences*. Statistics Canada, Retrieved from [ <https://www150.statcan.gc.ca/n1/pub/45-28-0001/2021001/article/00012-eng.htm>]. Accessed on 20/02/ 2023.
35. Manko, B. A. (2021), *Considerations in the use of work-from-home (WFH) for post-pandemic planning and management*, Management, 25(1), pp.118-140, DOI: <https://doi.org/10.2478/manment-2019-0062>.
36. Mostafa, B. A. (2021), *The effect of remote working on employees wellbeing and work life integration during pandemic in Egypt*, International Business Research, 14(3), 41–52. DOI: <https://doi.org/10.5539/ibr.v14n3p41>.
37. Osoba, A. (2021), *Challenges of working remotely in Africa*, Retrieved from [ <https://www.infoq.com/articles/working-remotely-Africa/> ], Accessed on 24/02/ 2023.
38. Pillai, S. V. and Prasad, J. (2023), *"Investigating the key success metrics for WFH/remote work models"*, Industrial and Commercial Training, Vol. 55 No. 1, pp. 19-33. DOI: <https://doi.org/10.1108/ICT-07-2021-0053>.
39. Popovici, V. and Popovici, A. L. (2020), *Remote work revolution: Current opportunities and challenges for organizations*, Ovidius Univ. Ann. Econ. Sci. Ser, 20, pp.468-472.
40. Saad, L. and Wigert, B. (2021), *Remote Work Persisting and Trending Permanent*, Retrieved from [ <https://news.gallup.com/poll/355907/remote-work-persisting-trending-permanent.aspx> ], Accessed on 11/02/ 2023.
41. Snyder, H. (2019), *Literature review as a research methodology: An overview and guidelines*, Journal of Business Research, 104, pp.333-339.
42. Stasiła-Sieradzka, M., Sanecka, E., & Turska, E. (2023), *Not so good hybrid work model? Resource losses and gains since the outbreak of the COVID-19 pandemic and job burnout among non-remote, hybrid, and remote employees*, International Journal of Occupational Medicine and Environmental Health, 36(1), 229-249.
43. Sulaiman, F., Eldy, E. F., Sulaiman, Y., Bakri, S. N. S. and Butai, S. N., 2023. *Hybrid Learning During Post-Pandemic Era: Challenges and Way forward Nurturing Students' Creativity*.
44. Tracking Happiness. (2023), *Remote work is linked to happiness: Study of 12,455 respondents*, Tracking Happiness, [ <https://www.trackinghappiness.com/remote-work-leads-tohappiness-study/> ]. Accessed on 22/02/ 2023.
45. Wang, B., Liu, Y., Qian, J., & Parker, S. K. (2021), *Achieving effective remote working during the COVID-19 pandemic: A work design perspective*, Applied Psychology, 70(1), 16–59. DOI: <https://doi.org/10.1111/apps.12290>.
46. Wontorczyk, A., & Roźnowski, B. (2022), *Remote, hybrid, and on-site work during the SARS-CoV-2 pandemic and the consequences for stress and work engagement*, International journal of environmental research and public health, 19(4), 2400, DOI: <https://doi.org/10.3390/ijerph19042400>.
47. Zachariah, M., Avanes, N. M. and Arjunan, S. N. (2022), *Future of Workplaces: A Hybrid Approach*, In Handbook of Research on Challenges for Human Resource Management in the COVID-19 Era (p. 1-22). IGI Global, DOI: <https://doi.org/10.4018/978-1-7998-9840-5.ch001>
48. Żarczyńska-Dobiesz, A., & Gaura, K. (2021), *The Effect of SARS-CoV-1 Pandemic on Remote Work: Research Results*, European Research Studies Journal, 24(Special Issue 3), DOI: <https://doi.org/10.35808/ersj/2535>.



# EXPLORING, CATEGORISATION AND USAGE OF ARTIFICIAL INTELLIGENCE ALGORITHMS FOR SUPPLY CHAIN MANAGEMENT

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**Abstract:** This paper explores the categorisation and usage of Artificial intelligence Algorithms (AIA) in Supply Chain Management (SCM) and discusses the potential benefits and challenges of implementing AI in SCM. The study reviews the literature on the application of AI in SCM. It provides a comprehensive list of commonly used algorithms in different SCM applications, such as vendor selection, production planning, resource allocation, quality control, predictive maintenance, visibility, demand forecasting, inventory optimisation, transportation optimisation, and customer segmentation. The paper highlights the versatility and potential for the cross-functional use of many AI algorithms. It identifies challenges and limitations, including data quality and availability, privacy and security concerns, and a lack of understanding and trust in AI systems. The study concludes that AI has the potential to significantly impact SCM by increasing efficiency, accuracy, and flexibility while reducing costs. However, further research is needed to develop best practices for adopting and implementing AI in SCM and to address ethical implications related to AI in SCM.

**Keywords:** Artificial Intelligence, SCM, algorithms

## Introduction

In the wake of globalisation, companies worldwide have expanded their supply chains, delving into new markets, sourcing raw materials globally, and leveraging cost-effective labour. This interconnectedness, however, presents its own fragilities, as seen from disruptions caused by the COVID-19 pandemic and geopolitical events like the Russia-Ukraine conflict. Such challenges necessitate innovative solutions to ensure the resilience and efficiency of supply chain management (SCM) 1.

Artificial Intelligence (AI) stands at the forefront of these innovative solutions. As the world strides into the Fourth Industrial Revolution, AI has proven its mettle in transforming supply chains, from enhancing demand forecasting accuracy to streamlining inventory management and fostering informed decision-making. This research paper endeavours to categorise and elucidate the application of AI algorithms in SCM. By examining the historical and current global supply chain scenarios and delving deep into literature reviews on AI's role in SCM, this study aims to offer an invaluable guide for scholars and professionals eager to harness AI's potential in SCM (2), (3).

This paper will also shed light on the common AI algorithms used in the SCM sector, derived from extensive research, academic papers, and publications to offer a holistic understanding. This comprehensive approach aims to give readers a coherent understanding of AI's transformative role in SCM.

## Literature Review

Several studies have examined the impact of AI algorithms on supply chain management, highlighting potential benefits and challenges. Some studies have found that AI algorithms can significantly improve SC efficiency, reduce costs, and improve overall performance. For example, AI algorithms can help companies predict demand more accurately, enabling them to optimise inventory levels and reduce the risk of out-of-stocks. AI algorithms can also help companies optimise their logistics and transport operations, which helps to reduce delivery times and costs. In almost all areas of SCM, AI algorithms can be found today (4, 5).

The articles by Tirkolae and Hosseinnia et al. provide a comprehensive overview of the areas where AI can be applied in SCM, such as demand forecasting, inventory management, logistics, and supplier selection. The authors discussed various AI techniques that can be used in SCM, including decision trees, artificial neural networks (ANN), and support vector machines (SVM), and they provide examples of how these techniques have been applied, such as using ANN to forecast demand for fashion products and decision trees to select suppliers (6, 7).

The use of deep learning algorithms in SCM, particularly in demand forecasting and inventory optimisation, was the focus of a study by Feizabadi, Allam and Bui Tong et al. The studies found that demand forecasting and inventory management accuracy can be improved using deep learning algorithms such as convolutional neural networks (CNNs) and long short-term memory networks (LSTMNs) (8, 1, 2).

The study by Rolf et al. examined the use of reinforcement learning (RL) algorithms in SCM, particularly in inventory management and production planning. The study found that RL algorithms can optimise decision-making and improve efficiency in these areas (9).

In their systematic literature review, Hangl et al. analysed 44 articles on the barriers, drivers and societal considerations for AI adoption in SCM. The authors identify seven research areas, the most important of which are algorithms. Change management, existing technical limitations, human acceptance of these techniques, understanding and usability of these techniques, existing human knowledge, and high cost are the main barriers to AI adoption in SCM. The main drivers for AI in SCM are cost reduction, efficiency and error reduction. Human-robot collaboration is an essential social driver. The authors make 137 recommendations for future research (10).

## Methodology of the research

The research presented in this paper involves a comprehensive review of the literature on AI algorithms in SCM.

The research involves a systematic literature review, focusing on published articles, reports, and case studies examining AI algorithms usage on SCM. In addition, the review includes a critical literature analysis, identifying key themes and issues related to adopting and implementing these algorithms in SCM. To ensure the validity and reliability of the research findings, the paper employs a rigorous methodology, including a comprehensive search of multiple databases, a rigorous screening process to select relevant articles, and a systematic literature analysis to identify key themes and issues. Finally, by examining the practical applications of these technologies in SCM, the paper aims to provide insights and guidance for businesses and the scientific community (11, 12).

The literature search used several electronic databases, including Scopus, Google Scholar and Web of Science. The search terms were identified based on the research questions. The search was conducted in January 2023 and included articles published between January 2000 and May 2022. The following search strings were used:

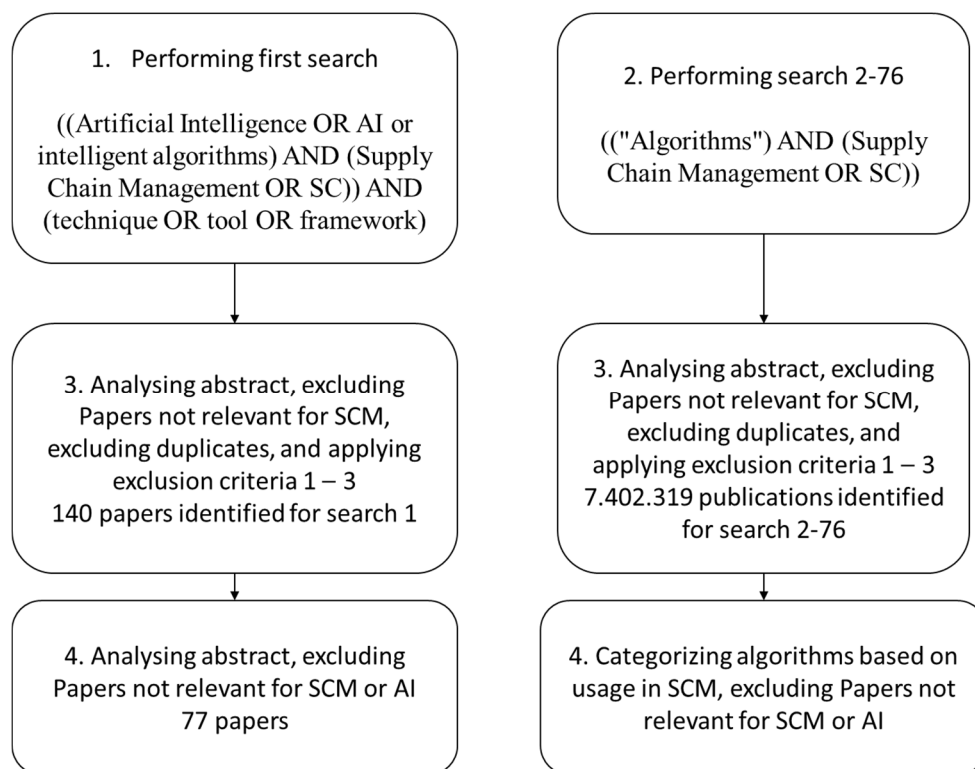
((Artificial Intelligence OR AI or intelligent algorithms) AND (Supply Chain Management OR SC)) AND (technique OR tool OR framework)

In addition, To evaluate which algorithms are mainly used in publications, a Google Scholar search for each algorithm was executed to understand the number of publications per algorithm. Each extracted algorithm out of the literature research where individually explored with the following search string:

("Algorithm") AND (Supply Chain Management OR SC))

The inclusion and exclusion criteria were established to select relevant studies for the review. Studies were included if they met the following criteria: (1) reported original research findings, (2) focused on SCM or AI, and (3) were published in English between 2000 and 2022. Studies were excluded if they were (1) not original research (e.g., editorial, letter, review article), (2) not related to SCM or AI, and (3) published before 2000.





**Figure . Search Strategy**

Source: Own study

Three independent reviewers screened the titles and abstracts of the search results to determine their relevance to the research questions and eligibility for full-text review. Two independent reviewers reviewed full-text articles using MaxQDA to tag the text and summarise the results.

To categorise the algorithms in the area of SCM. The papers were analysed based on the specific keywords which are used. MaxQDA has been used to tag the papers and summarise them in categories.

Various papers used the following terms: vendor selection, production planning, resource allocation, quality control, predictive maintenance, visibility, demand forecasting, inventory optimisation, transportation optimisation, and customer segmentation.

These terms were put forward and analysed if they use specific algorithms.

The studies' quality in the review was assessed using a standardised quality assessment tool. The tool was developed based on the guidelines outlined in the by Kitchenham. Three reviewers assessed each study independently, and disagreements were resolved through discussion and consensus (11, 12).

The data extracted from the studies were synthesised using a narrative approach. Then, the results were organised according to the research questions and presented in a tabular format. Finally, the findings were summarised, and conclusions were drawn based on the available evidence.

Several limitations should be considered when interpreting the results of this paper. First, the search strategy was limited to three electronic databases and may have missed relevant studies. Second, the inclusion criteria were restricted to studies published in English, which may have introduced language bias. Third, not every algorithm used will be published as a paper; therefore, the latest development cannot be shown. Finally, the quality assessment tool used in this review was developed based on the PRISMA guidelines and may not capture all aspects of study quality.



## Results

The following section presents the study's results on categorising and using AI algorithms for SCM. The study aimed to explore the different types of AI algorithms and their applications in SCM to help practitioners choose the appropriate algorithm for their specific use case.

### Algorithms in supply chain

To evaluate which algorithms are mainly used in publications, a Google Scholar search for each algorithm was executed to understand the number of publications per algorithm.

The table below shows the number of results that appear in Google Scholar when searching for commonly used algorithms in SCM. Each algorithm is listed along with the number of results that occur when the algorithm is searched in Google Scholar.

The algorithms are ordered by the number of search results in descending order, starting from the algorithm with the highest results.

This table indicates the popularity of these algorithms in supply chain research, as measured by the number of publications that reference these algorithms.

The commonly used algorithms include linear regression, dynamic programming, robust optimisation, decision trees, clustering, and many others. These algorithms effectively solve complex supply chain problems and have been extensively researched and tested. As such, they are essential tools for supply chain professionals to improve operational efficiency and reduce costs. Moreover, the use of these algorithms is likely to continue to increase as supply chains become more complex and demand for efficiency and cost savings continues to grow.

*Table 1. Publications per algorithm (only the Top 15 showed)*

Commonly used Algorithms	Number of results in Google Scholar
Linear regression	747000
Dynamic programming	670000
Robust optimisation	577000
Decision Trees	517000
Rough set theory	427000
Column Generation	409000
Clustering	394000
Differential Evolution (DE)	336000
Stochastic programming	332000
Random Forest	289000
Fuzzy logic	239000
Logistic Regression	203000
Heuristic	168000
Association Rules	159000
Dynamic pricing algorithm	139000

Source: own study

### Usage of algorithms per supply chain function

The algorithms were categorised based on their type and usage in different supply chain management aspects, such as demand forecasting, vendor selection, and inventory optimisation. The algorithms included ANN, swarm intelligence algorithms, artificial immune systems, rule-based systems, mathematical optimisation algorithms, unsupervised learning algorithms, RL algorithms, evolutionary algorithms, time series analysis algorithms, and support vector machines.

Vendor selection is an essential process in SCM. Decision Trees, Gaussian Processes Classifier, Vendor selection, Generalised Regression neural network (GRNN), Gradient Boosting, RL, and SVM are commonly used algorithms to optimise this process (13–16).

Production planning is another crucial process in SCM, and it can be optimised using Integer Linear Programming (ILP), Linear Programming (LP), Mixed Integer Linear Programming (MILP), Nonlinear Programming (NLP), RL (RL), and Stochastic programming (17–20).

Resource allocation is an essential aspect of SCM, and the optimisation of this process is possible using ILP, LP, MILP, NLP, RL, and Stochastic programming (21–25).

Quality control is critical to ensure that the products and services meet the required standards. The commonly used algorithms in SCM for quality control include Decision Trees, Gaussian Processes Classifier, Generalized Regression neural network (GRNN), Gradient Boosting, RL, and SVM (16) (13, 26).

Predictive maintenance is another crucial process in SCM, and it can be optimised using Long Short Term Memory (LSTM), RL, ANN, Convolution Neural Network (CNN), and Feedforward neural network (27–29).

Visibility is an essential aspect of SCM, and it can be optimised using ANN, Convolution Neural Networks (CNN), Hidden Markov Models (HMM), Long Short Term Memory (LSTM), RL (RL), SVM, Decision Trees, and Naive Bayes (30–33).

Demand forecasting is a crucial process in SCM, and it can be optimised using Gaussian Processes Classifier, Gradient Boosting, Generalized Regression neural network (GRNN), LSTM, RL, Seasonal auto-regressive integrated moving average (SARIMA), Singular spectrum analysis (SSA), and SVM (34–38).

Inventory optimisation is essential in SCM, and it can be optimised using ILP, LP, MILP, NLP, RL, and Stochastic programming (39–42).

Transportation optimisation is another critical process in SCM, and it can be optimised using ILP, LP, MILP, NLP, RL, Stochastic programming, Ant Colony Optimization (ACO), and Artificial Bee Colony (ABC) (43–46).

Customer segmentation is crucial to understanding and targeting customer needs and preferences. The commonly used algorithms in SCM for customer segmentation include K-means clustering, RL, SVM, Clustering, Fuzzy Logic, K-Nearest Neighbors (KNN), and Latent Dirichlet Allocation (LDA) (47, 48, 6, 49–51).

Fraud detection is essential to identify and prevent fraud in SCM. The commonly used algorithms in SCM for fraud detection include Decision Trees, Gaussian Processes Classifier, GRNN, Gradient Boosting, RL, SVM, and HMM (52–56)

The study found that AI algorithms have a wide range of applications in supply chain management, and each algorithm has unique features and limitations. The appropriate algorithm for a specific use case depends on the problem's nature and data availability. Moreover, the study results provide a high-level overview of how different algorithms can be used in various aspects of SCM and help practitioners understand which algorithms are suitable for specific problems.

## Discussion

This study demonstrates that various AI algorithms are employed across various Supply Chain Management (SCM) areas, including vendor selection, production planning, resource allocation, quality control, predictive maintenance, visibility, demand forecasting, inventory optimisation, transportation optimisation, and customer segmentation.

Reinforcement Learning (RL) is the most frequently used AI algorithm, valued for its ability to learn from experience and optimise decision-making over time. Support Vector Machine (SVM) is another common algorithm used for its capabilities in handling both linear and nonlinear data with high accuracy in classification tasks. Gradient Boosting is popular for vendor selection, demand forecasting, quality

control, and fraud detection, as it improves prediction accuracy by combining multiple weak models into a robust model. Other popular algorithms include General Regression Neural Network (GRNN), Long Short-Term Memory (LSTM), and Mixed Integer Linear Programming (MILP).

The study shows that these AI algorithms are versatile and can be applied in multiple SCM areas. However, challenges such as data availability and quality, and the need for human oversight in interpreting AI-generated results remain. Despite these challenges, there is a growing trend of AI applications in SCM, as shown by the increasing number of relevant studies and publications.

In conclusion, while AI algorithms show potential to improve efficiency, accuracy, and decision-making in SCM, their adoption is not without challenges and limitations. Further research is necessary to understand AI's opportunities and challenges in SCM and to develop best practices for its adoption and implementation.

## Conclusion

This paper delves into the classification and utilisation of AI in Supply Chain Management (SCM), reviewing relevant literature and presenting an extensive list of AI algorithms applied in diverse SCM contexts. AI has the potential to greatly improve SCM by boosting efficiency, accuracy, and flexibility while also decreasing costs. However, the paper identifies obstacles to AI's adoption in SCM, such as lack of understanding, data quality and availability issues, concerns about privacy and security, and a lack of trust in AI systems. AI has been applied in various SCM areas, including vendor selection, production planning, resource allocation, quality control, predictive maintenance, visibility, demand forecasting, inventory optimisation, transportation optimisation, and customer segmentation. Different algorithms are used based on the specific requirements of each application. Despite its potential, there are limitations to the study. It heavily relies on past research, which may not accurately represent the current state of AI in SCM.

Furthermore, the listed algorithms may not be suitable for every SCM scenario and might require customisation. Potential biases and errors exist in the data used for training and testing AI algorithms, and AI adoption requires substantial investment, which could be challenging for smaller organisations. The ethical implications of AI in SCM, including privacy, security, and transparency issues, also need to be considered. Overreliance on technology could lead to reduced human oversight and accountability, emphasising the need for ethical guidelines for AI in SCM. Further research is recommended to explore AI's potential benefits and challenges in specific SCM applications and develop hybrid AI algorithms that merge different AI techniques to enhance SCM. Despite the limitations and challenges, AI's application in SCM can lead to better decision-making, increased efficiency, and reduced costs.

## Literature

1. Allam Z, Bibri SE, Sharpe SA. (2022) The Rising Impacts of the COVID-19 Pandemic and the Russia–Ukraine War: Energy Transition, Climate Justice, Global Inequality, and Supply Chain Disruption. *Resources*; 11(11):99. Available from: URL: <https://www.mdpi.com/2079-9276/11/11/99>.
2. Bui Trong H, Bui Thi Kim U. (2020) Application of Information and Technology in Supply Chain Management: Case Study of Artificial Intelligence – A Mini Review. *EJENG*; 5(12):19–23. Available from: URL: <https://ej-eng.org/index.php/ejeng/article/view/2254>.
3. Harapko S. How COVID-19 impacted supply chains and what comes next. *EY* 2023 Jun 1 [cited 2023 Mar 5]. Available from: URL: [https://www.ey.com/en\\_gl/supply-chain/how-covid-19-impacted-supply-chains-and-what-comes-next](https://www.ey.com/en_gl/supply-chain/how-covid-19-impacted-supply-chains-and-what-comes-next).
4. Riahi Y, Saikouk T, Gunasekaran A, Badraoui I. (2021) Artificial intelligence applications in supply chain: A descriptive bibliometric analysis and future research directions. *Expert Systems with Applications*; 173:114702.
5. Toorajipour R, Sohrabpour V, Nazarpour A, Oghazi P, Fischl M. (2021) Artificial intelligence in supply chain management: A systematic literature review. *Journal of Business Research*; 122:502–17.



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6. Tirkolae EB, Sadeghi S, Mooseloo FM, Vandchali HR, Aeini S. (2021) Application of Machine Learning in Supply Chain Management: A Comprehensive Overview of the Main Areas. *Mathematical Problems in Engineering*; 2021:1–14.
7. Hosseinnia Shavaki F, Ebrahimi Ghahnavieh A. (2022) Applications of deep learning into supply chain management: a systematic literature review and a framework for future research. *Artif Intell Rev*:1–43.
8. Feizabadi J. (2022) Machine learning demand forecasting and supply chain performance. *International Journal of Logistics Research and Applications*; 25(2):119–42.
9. Rolf B, Jackson I, Müller M, Lang S, Reggelin T, Ivanov D. (2022) A review on reinforcement learning algorithms and applications in supply chain management. *International Journal of Production Research*:1–29.
10. Hangl J, Behrens VJ, Krause S. (2022) Barriers, Drivers, and Social Considerations for AI Adoption in Supply Chain Management: A Tertiary Study. *Logistics*; 6(3):63.
11. Kitchenham B, Pretorius R, Budgen D, Pearl Brereton O, Turner M, Niazi M et al. (2010) Systematic literature reviews in software engineering – A tertiary study. *Information and Software Technology*; 52(8):792–805.
12. Kitchenham B, Pearl Brereton O, Budgen D, Turner M, Bailey J, Linkman S. (2009) Systematic literature reviews in software engineering – A systematic literature review. *Information and Software Technology*; 51(1):7–15.
13. Bertolini M, Mezzogori D, Neroni M, Zammori F. (2021) Machine Learning for industrial applications: A comprehensive literature review. *Expert Systems with Applications*; 175:114820.
14. Richter L, Lehna M, Marchand S, Scholz C, Dreher A, Klaiber S et al. (2022) Artificial Intelligence for Electricity Supply Chain automation. *Renewable and Sustainable Energy Reviews*; 163:112459.
15. Cavalcante IM, Frazzoni EM, Forcellini FA, Ivanov D. (2019) A supervised machine learning approach to data-driven simulation of resilient supplier selection in digital manufacturing. *International Journal of Information Management*; 49:86–97.
16. Makkar S, Devi GNR, Solanki VK. (2020) Applications of Machine Learning Techniques in Supply Chain Optimization. In: Gunjan VK, Garcia Diaz V, Cardona M, Solanki VK, Sunitha KVN, editors. *ICICCT 2019 – System Reliability, Quality Control, Safety, Maintenance and Management*. Singapore: Springer Singapore; p. 861–9.
17. Jafarzadeh Ghouschi S, Hushyar I, Sabri-Laghaie K. (2021) Multi-objective robust optimization for multi-stage-multi-product agile closed-loop supply chain under uncertainty in the context of circular economy. *JEIM* 2021.
18. Rizova MI, Wong TC, Ijomah W. (2020) A systematic review of decision-making in remanufacturing. *Computers & Industrial Engineering*; 147:106681.
19. Tsai J-F, Lin M-H, Hu Y-C. (2008) Finding multiple solutions to general integer linear programs. *European Journal of Operational Research*; 184(2):802–9.
20. Gebre SL, Cattrysse D, van Orshoven J. (2021) Multi-Criteria Decision-Making Methods to Address Water Allocation Problems: A Systematic Review. *Water*; 13(2):125.
21. Mohammadi M, Noorollahi Y, Mohammadi-Ivatloo B, Yousefi H, Jalilinasrabad S. (2017) Modeling the uncertainties in energy hubs for optimal scheduling - A review. *Journal of Energy Management and Technology*.
22. Djigal H, Xu J, Liu L, Zhang Y. (2022) Machine and Deep Learning for Resource Allocation in Multi-Access Edge Computing: A Survey. *IEEE Commun. Surv. Tutorials*; 24(4):2449–94.
23. Menos-Aikateriniadis C, Lamprinos I, Georgilakis PS. (2022) Particle Swarm Optimization in Residential Demand-Side Management: A Review on Scheduling and Control Algorithms for Demand Response Provision. *Energies*; 15(6):2211.
24. Alarcon-Gerbier E, Buscher U. (2022) Modular and mobile facility location problems: A systematic review. *Computers & Industrial Engineering*; 173:108734.
25. Qadir J. (2016) Artificial intelligence based cognitive routing for cognitive radio networks. *Artif Intell Rev*; 45(1):25–96.
26. Miglani A, Kumar N. (2021) Blockchain management and machine learning adaptation for IoT environment in 5G and beyond networks: A systematic review. *Computer Communications*; 178:37–63.
27. Rai R, Tiwari MK, Ivanov D, Dolgui A. (2021) Machine learning in manufacturing and industry 4.0 applications. *International Journal of Production Research*; 59(16):4773–8.
28. Bampoula X, Siaterlis G, Nikolakis N, Alexopoulos K. A (2021) Deep Learning Model for Predictive Maintenance in Cyber-Physical Production Systems Using LSTM Autoencoders. *Sensors*; 21(3):972.
29. Chilukuri SK, Challa NP, Mohan JSS, Gokulakrishnan S, Mehta RVK, Suchita AP. (2021) Effective Predictive Maintenance to Overcome System Failures—A Machine Learning Approach. In: Sharma H, Saraswat M, Yadav A, Kim JH, Bansal JC, editors. *Congress on Intelligent Systems*. Singapore: Springer Singapore;. p. 341–57 (Advances in Intelligent Systems and Computing).



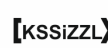


30. Silva N, Ferreira LMD, Silva C, Magalhães V, Neto P. (2017) Improving Supply Chain Visibility With Artificial Neural Networks. *Procedia Manufacturing*; 11:2083–90.
31. Ivanov D. (2022) Digital Supply Chain Management and Technology to Enhance Resilience by Building and Using End-to-End Visibility During the COVID-19 Pandemic. *IEEE Trans. Eng. Manage.*, p.1–11.
32. Anitha R, Rai D. (2022) Internet of things with artificial intelligence detection and blockchains of crop availability for supply chain management. *IJKBD*; 12(3/4):444.
33. Du Ni, Xiao Z, Lim MK. (2020) A systematic review of the research trends of machine learning in supply chain management. *Int. J. Mach. Learn. & Cyber.*; 11(7):1463–82.
34. Aamer A, Eka Yani LP, Alan Priyatna IM. (2020) Data Analytics in the Supply Chain Management: Review of Machine Learning Applications in Demand Forecasting. *OSCM: An Int. Journal*, 1–13.
35. 2019 8th International Conference System Modeling and Advancement in Research Trends (SMART). IEEE; 2019.
36. Sarhani M, El Afia A. (2014) Intelligent system based support vector regression for supply chain demand forecasting. In: 2014 Second World Conference on Complex Systems (WCCS). IEEE, p. 79–83.
37. Kilimci ZH, Akyuz AO, Uysal M, Akyokus S, Uysal MO, Atak Bulbul B et al. (2019) An Improved Demand Forecasting Model Using Deep Learning Approach and Proposed Decision Integration Strategy for Supply Chain. *Complexity*; 2019:1–15.
38. Seyedan M, Mafakeri F. (2020) Predictive big data analytics for supply chain demand forecasting: methods, applications, and research opportunities. *J Big Data*; 7(1).
39. Yingli Wang SP. (2022) Moving from the supply chain to the digital supply network. Henry Stewart Publications. Available from: URL: <https://www.ingentaconnect.com/content/hsp/jscm/2019/00000002/00000001/art00007>.
40. Jauhar SK, Jani SM, Kamble SS, Pratap S, Belhadi A, Gupta S. (2023) How to use no-code artificial intelligence to predict and minimize the inventory distortions for resilient supply chains. *International Journal of Production Research*, p.1–25.
41. Kumar KR, Ramanan TR, Sridharan R. A (2020) Study on the impact of backorder sales on an integrated supply chain. *IJSOM*; 36(4):403.
42. ElMaraghy HA, Mahmoudi N. (2009) Concurrent design of product modules structure and global supply chain configurations. *International Journal of Computer Integrated Manufacturing*; 22(6):483–93.
43. Gonzalez-Feliu J. (2011) Two-echelon transportation optimisation: a meta-narrative analysis. *Work. pap. oper. manag.*; 2(1):18.
44. Bisset C, Terblanche S. (2021) A Systematic Literature Review On Stochastic Programming Models In The Retail Industry. *SAJIE* 2021; 32(2):97–110. Available from: URL: <https://repository.nwu.ac.za/bitstream/handle/10394/39341/Bisset%20C%20Final.pdf?sequence=1&isAllowed=y>.
45. Liotta G, Stecca G, Kaihara T. (2015) Optimisation of freight flows and sourcing in sustainable production and transportation networks. *International Journal of Production Economics*; 164:351–65.
46. Egilmez G, Celikbilek C, Altun M, Süer GA. (2016) Cell loading and shipment optimisation in a cellular manufacturing system: an integrated genetic algorithms and neural network approach. *IJISE*; 24(3):302.
47. Bandyopadhyay S, Thakur SS, Mandal JK. (2021) Product recommendation for e-commerce business by applying principal component analysis (PCA) and K-means clustering: benefit for the society. *Innovations Syst Softw Eng*; 17(1):45–52.
48. Dethloff J, Haasis H-D, Kopfer H, Kotzab H, Schönberger J, (eds.) (2015) *Logistics Management*. Cham: Springer International Publishing; (Lecture Notes in Logistics).
49. Hamister JW. (2012) Supply chain management practices in small retailers. *International Journal of Retail & Distribution Management*; 40(6):427–50.
50. Seyedan M, Mafakeri F, Wang C. (2022) Cluster-based demand forecasting using Bayesian model averaging: An ensemble learning approach. *Decision Analytics Journal*; 3:100033.
51. Jayalakshmi V. (2018) INTERNATIONAL JOURNAL OF BASIC AND APPLIED RESEARCH SOCIETY OF EDUCATION AND RESEARCH International Journal of Basic and Applied Research. Available from: URL: [https://www.researchgate.net/profile/Jayalakshmi-V/publication/343336125\\_INTERNATIONAL\\_JOURNAL\\_OF\\_BASIC\\_AND\\_APPLIED\\_RESEARCH\\_SOCIETY\\_OF\\_EDUCATION\\_AND\\_RESEARCH/International\\_Journal\\_of\\_Basic\\_and\\_Applied\\_Research/links/5f23eb53458515b729f5ee65/INTERNATIONAL-JOURNAL-OF-BASIC-AND-APPLIED-RESEARCH-SOCIETY-OF-EDUCATION-AND-RESEARCH-International-Journal-of-Basic-and-Applied-Research.pdf](https://www.researchgate.net/profile/Jayalakshmi-V/publication/343336125_INTERNATIONAL_JOURNAL_OF_BASIC_AND_APPLIED_RESEARCH_SOCIETY_OF_EDUCATION_AND_RESEARCH/International_Journal_of_Basic_and_Applied_Research/links/5f23eb53458515b729f5ee65/INTERNATIONAL-JOURNAL-OF-BASIC-AND-APPLIED-RESEARCH-SOCIETY-OF-EDUCATION-AND-RESEARCH-International-Journal-of-Basic-and-Applied-Research.pdf).
52. Mross E., Tchintchin D. R. (2022) The Effectiveness of User Input for Fraud Detection in the Supply Chain Management Field;





53. Wan F. (2021) XGBoost Based Supply Chain Fraud Detection Model. In: 2021 IEEE 2nd International Conference on Big Data, Artificial Intelligence and Internet of Things Engineering (ICBAIE). IEEE; p. 355–8.
54. Pallathadka H, Ramirez-Asis EH, Loli-Poma TP, Kaliyaperumal K, Ventayen RJM, Naved M. Applications of artificial intelligence in business management, e-commerce and finance. Materials Today: Proceedings 2021.
55. Olson DL. (2020) A review of supply chain data mining publications [15-26 Pages / Journal of Supply Chain Management Science, Vol 1 No 1-2 (2020): January 2020 - June 2020].
56. Pallathadka H, Mustafa M, Sanchez DT, Sekhar Sajja G, Gour S, Naved M. (2021) Impact Of Machine Learning On Management, Healthcare And Agriculture. Materials Today: Proceedings.



# THE IMPACT OF E-PRESCRIPTION ON THE COMPETITIVENESS OF PHARMACIES

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**Abstract:** The pharmaceutical industry is one of the most innovative sectors in terms of products, so its competitiveness is perhaps unquestionable compared to other sectors. In addition to its propensity to innovate, the industry is also characterised by a strict system of standards, which leads to specific competition for public pharmacies serving consumers. The primary objective of our research is to determine how public pharmacies can increase their competitiveness by using the digital innovations available to them for marketing purposes. The narrower objective is to examine the impact of the introduction of electronic prescription as a cloud-based service on their activities and, therefore, on their performance.

**Key words:** competitiveness, e-prescription, pharmacy

## Introduction

In Hungary, as in any other country, the supply of medicines is a key area of public health care. It encompasses the entire pharmaceutical vertical, that is manufacturing, production, storage, and distribution, and all the industrial, logistical, and commercial activities that bring the product to the end user (Simon, 2010). In the domestic market, pharmacies are responsible for the supply of medicines for the treatment of the public, for providing information on their correct use, and for providing preventive, educational and advisory services (Law Library, 2021). Their activities make them the last and perhaps the most important element of the complex process-based supply chain model outlined by Harland (1996).

Our research focuses on the competitiveness of this segment within the pharmaceutical supply chain, namely the public pharmacies. The pharmaceutical industry can be considered one of the most innovative sectors in terms of products, so its competitiveness is perhaps unquestionable compared to other sectors. However, in addition to a high propensity to innovate, the industry is characterised by strict legal and ethical regulation, which accompanies the product from the manufacturing process to the point of sale (Antalóczy et al. 2021). This rigid system of standards and the oligopolistic nature of the market leads to a specific competitive pressure on pharmacies serving consumers.

## Background, History, Review-of-Literature, Methodology of the research

### The emergence of industrial results in the services market

Creating value is the most important task of any business. Regardless of the nature of the product, only those organisations that find and eliminate losses in their transformation processes that do not create value for the customer can be successful. One way to identify these losses is to apply a lean approach. Processes that are streamlined by identifying and then eliminating or reorganising unproductive activities become faster, more reliable, of higher quality and play a significant role in cost savings (Kato - Smalley, 2011).

Nowadays, the clear dividing line between manufacturing and service enterprises is becoming increasingly blurred and with it the need for well-functioning leaning processes in production by pure service enterprises (Jenei et al. 2007).

In the service sector, customer satisfaction is one of the most important measures of operational performance (Tamus, 2009). A satisfied customer projects a loyal, positive image of the service provider, which is essentially the basis for stable operations and the potential for growth (Hofmeister-Tóth, 2006).

In pharmacy services, as in office-based services, part of the time is taken up by necessary processes that do not require the presence of the user. Most of these processes are routine and template-like, but they require significant resources and have a high potential for error due to their monotonous nature (OECD, 2014). Processes that are automated can also meet higher security requirements. It is enough to think that the human factor, inattention, or the possibility of fatigue are excluded, and the process used performs the assigned task with the same accuracy in the many periods. Besides the elimination of input errors, data security is also an essential element. It can be said that there is no more loyal worker than an automated process.

The automation of pharmaceutical sales is still far behind other sectors because of its specific human factor characteristics, such as advice and pharmacist care. The first step towards optimising processes is the development of unified cloud-based digital systems, which in Hungary started in 2017 with the introduction of the Electronic Health Service Space and e-Prescription (EESZT, 2020). The development of digital medicine technology could in the future lead to personalised medicine, which could be combined with the spread of 3D-printed, precise, and individually formulated medicines in pharmacies. The emergence of this technology will not only achieve a high level of patient safety, but also patient-centred therapy and the most optimal level of drug management (Zidan, 2017). The development of a unified system of medication ordering in a digital cloud-based space is also an important initial step towards the widespread adoption of robotic pharmacy dispensing. The full automation of the drug dispensing process, and with it the widespread use of pharmacy robots, will significantly reduce medication dispensing errors, while also having a positive impact on inventory management and freeing up resources (Rodriguez-Gonzalez et. al. 2018). The introduction of e-prescribing, which can be considered as a first step towards pharmacy robotization and automation, has caused significant changes in the pharmacy dispensing process in our country, and its study can highlight the importance and positive economic impact of digitalization.

### **The entry of medicines into the electronic market**

The electronic, online tools of the modern age can be of great help in improving the quality of services if we can use them properly. This development can also be observed in the healthcare sector. Both on the patient and the provider side, advanced info communications technologies have emerged. They open new dimensions of convenience for consumers in using the healthcare system. eHealth provides unique access to data, diagnostics, and healthcare services for both professionals and users. As a complex entity, eHealth includes the collection, storage, processing, diagnosis, information transfer, communication between professionals and between professionals and patients, and even education. (Lányi, 2019). eHealth is evolving at a rapid pace, with a steady increase in the number of its sectors. In our country, the most important sectors include:

- the electronic health record system;
- e-Prescription;
- telemedicine;
- health informatics;
- modern (tele)surgery (Sipos, 2018).

The potential of e-health has been recognised by marketers around the world and they are shaping their marketing strategy in line with digital developments. Pharmacies should not be left out of the digitalisation process. Today, pharmacies need to develop their own digital health strategy and communicate digitally with their target groups, as consumers are increasingly using the online space to find information about healthcare providers (Sipos, 2019). We have also reached the stage where the packaging of medicines carries important technological information in digital form, allowing them to track the medication and even the optimal use of each dose (Piutti, 2020).

The e-recipe introduced in Hungary in 2017 has become part of this online space. e-Prescription has fundamentally changed the way consumers buy medicines. The electronic prescription is stored in the cloud, accessible anytime and anywhere, as if the patient were always carrying it in his pocket. Accordingly, there is no need to plan for its dispensing, as it is always available. Another important advantage is that the prescribing physician and dispensing pharmacist have real-time access to the medication history, avoiding duplicate prescriptions or prescriptions with incompatible active ingredients (MOSZ, 2017). International experience shows that e-prescription is spreading rapidly, with countries with advanced e-health systems such as Austria and Estonia already storing and transmitting 85-90% of patient data digitally when needed. As a good example of the cost-effectiveness of e-prescriptions, the cost of printing paper prescriptions in Estonia has fallen from €63,668 in 2009 to around €1,000 in 2010 (Georgiev - Shtereva-Tzouni, 2020).

### Objective and hypothesis

The primary objective of our research is to find out how public pharmacies can increase their competitiveness, especially by using the digital innovations available to them for marketing purposes. Our hypothesis was:

**H:** For pharmacies with a high (90%= $\leq$ ) e-prescribing rate, dispensing has become significantly easier over the study period.

### Methodology

In the research, the population considered was the 2,287 pharmacies operating in Hungary in 2021 based on officially published statistical data (KSH, 2021). Only companies with the classification of public pharmacy were included in the sample, so branch and hand-held pharmacies were not considered as a separate unit, and institutional pharmacies were not included.

We chose a standard questionnaire survey as our quantitative research method. To reach a specific target group, we used a link sent by e-mail to pharmacy managers, which navigated to the online questionnaire filling interface. The number of questionnaires sent to pharmacy managers was 350, representing 15% of the total. Questionnaire data were processed using the statistical software package SPSS version 27.0.1 with a 95% confidence level and a margin of error of 5%. Correlations were examined using cross-tabulations and  $\chi^2$  tests, and Cramer's association coefficient was used to determine the strength of the relationships found.

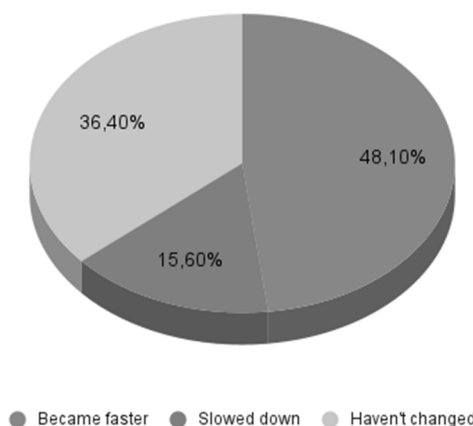
### Results

The survey was carried out between 1 December 2021 and 31 January 2022. The number of questionnaires returned and evaluated was 77. Given the online nature of the questionnaire, the sample was not representative.

The proportion of pharmacies operating in towns with less than 50,000 inhabitants was over-represented in the sample, given that the chains providing data in the survey are mainly operating in such municipalities.

A significant proportion of respondents (48.1%) felt that the introduction of e-prescription had accelerated dispensing. However, it can be observed in (Figure 1) that 36.4% of the sample reported no change, while 15.6% felt that time efficiency had deteriorated.

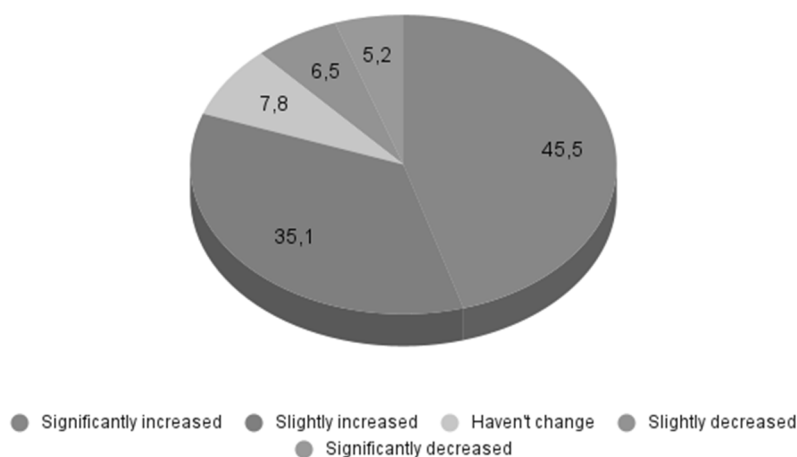
A key question was whether the closures imposed in 2020 because of the COVID-19 epidemic would have changed the turnover of the pharmacies surveyed. A highly significant result was an increase in turnover among the responses (Figure 2). 45.5% of pharmacies reported a significant increase in turnover, while 35.1% reported a slightly increase. Very few, only 5.2% of respondents, reported a significant decrease in sales.



**Figure 1. Impact of e-prescription on expediting (%)**

Source: Own research, 2022, N=77

The possibility of whether speed of dispensing, simplification of service processes and increase in demand have any relationship with the average proportion of e-prescriptions, was first investigated using analysis of variance. We found that there is no significant difference between the plurality means of e-prescription rates for responses to speed of dispensing and simplification of service processes, as there is significant overlap in the standard deviation of the means. In these cases, the analysis of variance does not show a relationship between the criteria. However, the results of the analysis of variance indicated a clear relationship between the increase in turnover and the increase in the proportion of e-prescription.



**Figure 2. Change in pharmacy turnover in 2020 (base year 2019) (%)**

Source: Own research, 2022, N=77

## Conclusions

In our research, we looked at how digitalisation is emerging and its potential benefits for the pharmaceutical market. In our secondary research, we found that, as in other sectors of the economy, the pharmaceutical industry, and within its pharmaceutical distribution, is experiencing innovations towards automation and robotisation, which are expected to be drivers of competitiveness in the sector. The introduction of electronic ordering of medicines as a single cloud-based service has paved the way for the full automation of processes



and the widespread use of pharmacy robots. Digitised processes will significantly increase the safety of medicines while optimising inventory management and freeing up resources.

In our primary research, we found that pharmacies with a high (90%=<) e-prescription rate had a simpler dispensing process. Correlation analyses showed that there is a strong association between a high rate of e-prescribing and speed and ease of dispensing. The introduction of electronic prescriptions as a first step in the implementation of full-scale pharmacy digitisation, by making dispensing work faster and safer, has resulted in a positive perception among the pharmacists surveyed.

## Literature

1. Anatólczy, K., Gáspár, T., Sass, M. (2021), *A gyógyszeripari értéklánc sajátosságai Magyarországon*, Közgazdasági szemle, LXVIII. évf., 2021. június pp:645-673
2. EESZT (2020), *Tájékoztató a gyógyszer-felírás és kiadás aktuális szabályairól*, EESZT információs portál, [https://e-geszsegugy.gov.hu/kereses?p\\_p\\_id=101&p\\_p\\_lifecycle=0&p\\_p\\_state=maximized&p\\_p\\_mode=view&\\_101\\_struts\\_action=%2Fasset\\_publisher%2Fview\\_content&\\_101\\_assetEntryId=1048734&\\_101\\_type=content&\\_101\\_urlTitle=erecept-tajekoztatas-2020-julius&inheritRedirect=false](https://e-geszsegugy.gov.hu/kereses?p_p_id=101&p_p_lifecycle=0&p_p_state=maximized&p_p_mode=view&_101_struts_action=%2Fasset_publisher%2Fview_content&_101_assetEntryId=1048734&_101_type=content&_101_urlTitle=erecept-tajekoztatas-2020-julius&inheritRedirect=false) (letöltve:2021.08.05.)
3. Georgiev, A. A., Shtereva-Tzouni, D. (2020), *Development Of E-Health In Austria, Bulgaria, Croatia, Estonia And Slovakia*, Archives of Business Research, 8(4). 155-162., Services for Science and Education, United Kingdom 2020., DOI: 10.14738/abr.84.8114.
4. Harland, C. M. (1996), *Supply Chain Management: Relationships, Chains and Networks*, British Journal of Management, 7(s1). pp 63-80. doi:10.1111/j.1467-8551.1996.tb00148.x
5. Jenei, I., Losonci, D., Demeter, K. (2007), *A karcsúsítás lehetőségei adminisztratív környezetben egy irodai példa nyomán*, Műhelytanulmány, Budapesti Corvinus Egyetem Vállalatgazdaságtan Intézet ISSN 1786-3031
6. Jogtár (2021), *2005. évi XCV. Tv. az emberi alkalmazásra kerülő gyógyszerekről és egyéb, a gyógyszerpiacot szabályozó törvények módosításáról*, Nemzeti Jogszabálytár 2021., <https://www.njt.hu/jogszabaly/2005-95-00-00> (letöltve:2021.08.08.)
7. Kato, I., Smalley, A. (2011), *Toyota Kaizen Methods, Six Steps to Improvement*, Productivity Press Taylor & Francis Group, New York 2011., ISBN 978-1-4398-8400-3
8. KSH (2021), *Gyógyszertárak*, Összefoglaló táblák (STADAT), Központi Statisztikai Hivatal 2021. [https://www.ksh.hu/stadat\\_files/eg/hu/eg0021.html](https://www.ksh.hu/stadat_files/eg/hu/eg0021.html) (letöltve:2021.03.12.)
9. Lányi, B. (2019), *Az e-egészségügyi koncepciója és fogyasztói elfogadottsága*, Közép-európai Közlemények 12. évf. 2. szám, Egyesület Közép-Európa Kutatására/SZTE-Juhász Gyula Pedagógusképző Kar, 2018., ISSN1789-6339
10. MOSZ (2017), *Konferencia az e-recepről*, Gyógyszertár XVI. évf. 4. szám, Magángyógyszerészek Országos Szövetsége Budapest 2017., ISSN15888231
11. OECD (2014), *OECD Economic Surveys Hungary 2014*, OECD Publishing 2014., ISBN 978-92-64-20451-5, [http://dx.doi.org/10.1787/eco\\_surveys-hun-2014-en](http://dx.doi.org/10.1787/eco_surveys-hun-2014-en)
12. Piutti, F. (2020), *How to tackle innovation in pharma head on*, European Pharmaceutical Manufacturer Magazine 2020.03.31., <https://www.epmmagazine.com/pharmaceutical-industry-insights/how-to-tackle-innovation-in-pharma-head-on/> (letöltve:2021.08.21.)
13. Rodriguez-Gonzalez, C.G., Herranz-Alonso, A., Escudero-Vilaplana, V., Ais-larisgoitia, M.A., Iglesias-Peinado, I., Sanjurjo-Saez, M. (2018), *Robotic dispensing improves patient safety, inventory management, and staff satisfaction in an outpatient hospital pharmacy*. Journal of Evaluation in Clinical Practice 25(1) 2018. pp 28–35. <https://doi.org/10.1111/jep.13014> ISBN 1356-1294
14. Simon, J. (2010), *Marketing az egészségügyben*, Akadémiai Kiadó Budapest 2010 ISBN9789630597807
15. Sipos, B. (2018), *E-egészségügy: a jövő már itt van?* WEBBeteg 2018. <https://www.webbeteg.hu/cikkek/egeszsegugy/21893/e-egeszsegugy-a-jovo-mar-itt-van> (letöltve:2021.08.21.)
16. Sipos, B. (2019), *Digitális marketing a gyógyszertárban – avagy a jó bornak még mindig kell cégér*, Gyógyszertár XVIII. évf. 2. szám, Magángyógyszerészek Országos Szövetsége Budapest 2019., ISSN15888231
17. Tamus, A. (2009), *Szolgáltatásmarketing és –menedzsment*, Károly Róbert Kutató –Oktató Közhasznú Nonprofit Kft, Gyöngyös 2009., ISBN 9789639941052
18. Zidan, A. (2017), *“CDER Researchers Explore the Promise and Potential of 3D Printed Pharmaceuticals”*, U.S Food & Drug Administration, 2017, <https://www.fda.gov/Drugs/NewsEvents/ucm588136.htm> (letöltve: 2021.08.21.)



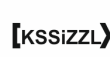
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## THE IDEA OF PSEUDOINNOVATIONS

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**Abstract:** This study presents the idea of pseudoinnovation concerning novelty, efficacy, and efficiency requirements that innovations meet and pseudoinnovations do not. The conceptual investigations demonstrate the essential aspects and roles of this idea in the theory and practice of innovation management. Two peculiar functions of this idea are considered: The notion of pseudoinnovation is a conceptual tool to distinguish innovations from similar artefacts and improves communication about innovative ideas. This study offers conceptual tools to identify pseudoinnovations and abuses of the term "innovation" in advertising, marketing, and manipulation. The investigations discuss novelty, efficacy, and efficiency requirements that innovations meet and pseudoinnovations do not fulfil. The aim of this paper is to identify the costs and risks of PS regarding their pseudo-newness, inefficacy and inefficiency. However, this investigation does not establish measures to assess costs and risks. The study only opens the way for their further specification.

**Key words:** quality management, innovation management, strategic management.

### Introduction

The idea of pseudoinnovations (PS) is derivative from the concept of innovation: PS are artefacts that are similar to but not innovative (Haustein & Maier, 1979; Jacko, 2018; Mensch, 1979; Walshe, 2009). This study presents three conditions that innovations meet while PS do not encounter:

- a. Novelty: Innovations are new. They have not appeared previously (evolutionary innovations modify well-known solutions, whereas revolutionary innovations implement previously unknown solutions).
- b. Efficacy: Innovations solve a problem. Thanks to innovations, achieving an objective is possible, which was impossible before.
- c. Utility (efficiency): Innovations provide more benefits than losses, while the advantage of benefits over losses is more excellent than other available solutions.

Innovation meets all these conditions. PS meet one or two, but not all of these requirements. Consequently, PS are similar and dissimilar to innovations. These are some combinations of the above conditions in PS:

**(a-b)** PS can be new but ineffective (they do not solve any problem). For example, some new medications are PS when they are new but cannot heal the disease they are supposed to cure.

**(ab-c)** PS can be new and effective but are inefficient when they are socially damaging by resolving some issues. For example, some drugs may heal one disease (are effective) but have some side effects (cause addiction, for example).

**(bc-a)** PS may also be effective or efficient, yet they are not new. In this case, they duplicate known solutions.

This paper aims to specify the idea of PS and its peculiar risk. However, this investigation does not set measures to identify this risk and distinguish PS from innovation. The study only opens the perspective for their further specification, which can set up these instruments.

As the study argues, because PS resemble innovations, they attract investors, producers, and customers when they erroneously presume that PS are innovations. Their attraction produces their peculiar risk (Davila & Epstein, 2014; Mensch, 1979).

## Pseudo-novelty and the state of the research

The literature about PS focuses on pseudo-novelty (pseudo-newness), which occurs when solutions replicate known solutions without producing any new value in this way. As authors notice, their design generates unnecessary costs (Walshe, 2009) and wastes resources (Haustein & Maier, 1979; Jacko, 2018; Mensch, 1979; Tchernev, 2017; Walshe, 2009).

Some authors distinguish between subjective and objective novelty. Subjective newness is the impression that something is new. Objective novelty is that some solution has never existed and functioned before.

The authors conditionally value subjective newness (Garud et al., 2015). Subjective novelty can promote purchase when its novelty is attractive to people (Mugge & Dahl, 2013). However, pseudo-novelty generates their design costs (Walshe, 2009).

Pseudo-novelty is subjective, the false impression of objective novelty, a deception. This perception may come from the ignorance of assessors. The authors present limits of knowledge about newness, psychological sources of originality impressions, and tactics of persuasion or manipulation to create this impression (Blitz, 1992; Brigandt & Love, 2012; Garud et al., 2015; Talke et al., 2009).

Experts highly appreciate the objective novelty of innovations (newness, originality) and specify criteria to identify novelty (Blitz 1992; Brigandt and Love 2012; Hausman 2012; Mugge and Dahl 2013; Talke et al. 2009) or methods for measuring objective originality (Verhoeven, Bakker, and Veugelers, 2016; Shibayama, Yin, and Matsumoto, 2021). However, all these criteria and methods require the competence of the evaluator and do not exclude their error in stating newness.

Usually, novelty is at the centre of innovation research, and PS are identified with pseudo-newness. In the context of this identification, one can easily overlook that PS can be new. However, some authors notice that PS can be new ineffective or inefficient or less efficient solutions than the available solutions (Haustein & Maier, 1979; Jacko, 2018; Mensch, 1979; Schmaltz & Lilienfeld, 2014; Tchernev, 2017; Walshe, 2009). However, authors discuss PS only with examples of pseudo-newness and name new ineffective or inefficient solutions as “innovations.” However, these novelties get some particular names, such as the dark side of innovations. Authors point to this side when novelties have destructive effects. These consequences can be, among other things, public health risks, environmental degradation, and harm to society or the economy (Coad et al., 2021; Segnestam Larsson & Brandsen, 2016; Yotopoulos, 1974).

## Pseudo-efficacy

Innovations are effective when they solve some problem. In this text, the term *problem* means that achieving some goals is impossible. The solution to the problem is the achievement or the method of achieving this objective. In this definition convention, innovations are effective (solve a problem) when they facilitate the achievement of some goal which was not achievable before (such as the first human-crewed spacecraft that made space travel possible). Innovations can also be new ways to achieve some already achievable goals in a new way (for example, aeroplanes allow humans to float differently than balloons).

### a. Direct efficacy

The inefficiency of PS consists of the fact that they do not solve the problem they are supposed to solve. It is their *pseudo-efficacy*. For example, when a product is to cure diseases, it does not play this function.

Pseudoefficacy is the function of false beliefs about causality. In this case, one believes that some actions or solutions cause some consequence, which is not true. Such PS can be a product of manipulation in presenting the product or service. This manipulation may be a lie when one raises false

information about causality to deceive people - users of the solution to motivate them to purchase decisions or investors to give money for designing the solution, producing, or implementing it.

However, pseudo-efficacy may also be the effect of false beliefs (prejudices). In this case, one can classify something as PS without the intention typical for lies or purposeful (misleading) understatements.

Evaluation of efficiency requires reliable knowledge about causality. In the cases of limited knowledge about causal links, some innovations may be wrongly accused of inefficacy. In this case, the fact that one cannot explain the causality motivates one to classify some solutions as PS. This classification may follow from the logical error *ignoratio elenchi* in reasoning when one draws statements about facts from the premise that we are ignorant about them:

*We cannot explain the correlation occurring between A and B. Therefore, there is no causality between A and B.*

Which reduces to:

*We do not know anything about C; therefore, C does not occur.*

Where C is the causality.

There is no direct inference about facts from ignorance. For example, the law logic already worked the *onus probandi* in the juridical process to protect reasoning from drawing statements about facts or evaluations from ignorance. For example, one cannot prove a person's guilt by stating that she cannot prove her innocence. This is the statement about ignorance. In this situation, the prosecutor still must prove or at least substantiate the accusation by pointing to other circumstances because ignorance cannot produce proof.

Ignorance may, of course, be the reason to specify the probability of some facts. Therefore, our ignorance about C is an excellent reason to presume a low likelihood of C. However, ignorance is an appropriate premise for any proof.

#### b. Indirect efficacy

Some innovations may be indirectly efficient when they solve another problem than they are supposed to solve, analogously to accidental discoveries or inventions. For instance, Wilhelm Roentgen constructed the first equipment to conduct X-rays by accident when conducting a routine experiment with cathode rays; John Pemberton did not know that he would create a beverage (Coca-Cola) when working on a prescription for a headache. Placebos are an excellent example of indirect efficacy – they cure some diseases when the patient believes they do so.

However, indirect efficacy may also occur in PS when presented as a solution to the problem they do not solve. In this case, PS solve some issues but do not solve the problem they are supposed to solve. Some examples:

- Some medical companies present a placebo as the cure for a disease to increase their income.
- According to some ideologies, some social changes are solutions to a problem. These novelties do not solve this problem. However, they provide more power for this group.
- Corporate greenwashing: Some companies engage in greenwashing, presenting themselves as environmentally friendly or sustainable without making substantive changes to their practices. This practice may be driven by a desire to enhance their brand image or gain a competitive advantage rather than genuinely addressing environmental concerns.

These examples lead to the crucial question about innovation efficacy: *Whose problem should innovations solve?*

#### c. Problems and groups of interests

In specifying innovation goals, one should consider the expectations of various stakeholders, including their potential users and society. The objectives of these parties can differ. By way of example, a new algorithm reduces the calculation from the harmful fumes of cars. This algorithm can meet the

goals of its producers because it benefits the sale of vehicles. However, it does not have to be so for their users and society. For them, it is a pseudo-innovation (Adams, 2015). Analogously, distorting the compatibility of new computer software with older computers increases computer sales (the objective of computer producers and sellers). However, it is ineffective (PS) for users of these computers. For example, some authors accuse Apple of deliberately slowing down iPhones to increase sales of new products and restrict repairs to products, even when repairs are relatively simple (Svensson et al. 2018). In this case, this practice solves the problem of the producer (the problem of increasing the sale) but causes problems for users.

Suppose one maintains that innovations solve the problems of innovation creators (designers, investors, sellers). In that case, some PS must be classified as innovation, for example, when they increase the profit of the creators without creating any value added for innovation users or when solutions are socially harmful. However, if innovations solve the problems of their users and, in the case of the most valuable innovations, the issue of humankind, one must investigate the moral question about the importance of problems that innovations solve. This question leads towards the requirement for the efficiency of innovations.

Therefore, in specifying the efficacy of innovations, one must decide about the group that sets the goals of innovations. When some novelties satisfy the purposes of some group at the expense of society, these novelties are PS.

One can easily fetishize the innovation efficacy by dogmatically electing some individual or group who arbitrarily sets the goals of innovations. This fetishization poses the risk of marginalizing the interests of or discriminating against some groups, such as minorities, in the practice of innovation management. To indicate one of the most shocking examples, the Nazis during the Second World War named concentration camps a ‘solution to a problem’ (Weindling, 2000).

## Pseudo-efficiency

The efficiency of solutions consists of the proportion between the problem's value and the solution's costs. PS are inefficient when costs or risks overbalance the benefits or chances they generate.

Innovations are efficient. They provide more benefits than losses, while the advantage of benefits over losses is more excellent than other solutions available.

If concerning chances and risks, innovations generate more precious opportunities and do not produce significant risks. Consequently, innovations improve the world. They change it for the better or give this chance without causing a substantial danger of making reality worse.

PS do not fulfil this function even if it solves a problem. PS are less efficient than available solutions.

One can gradually evaluate problems according to a scale between more and less significant ones. Some issues may not be worth solving when their solution consumes more precious resources than the solution itself. For example, one can *solve* the problem of overpopulation by creating and spreading a new virus that exterminates a part of humankind. This *solution* is PS because it destroys values more precious than the solution itself. For example, a change is not efficient (PS) if it provides gain for the organization but contributes to a global economic crisis. (Adams, 2015; Alchian, 1953; Chappelow, 2019; Cowan & Rizzo, 1995; Kapteyn, 1985; Witzum & Young, 2013).

## Conclusion

This study identifies the difference between innovations and PS with their novelty, efficacy, and novelty. The study shows that the discussion on PS focuses on pseudo-novelty. However, as argued, ineffectiveness and inefficiency are essential characteristics of PS.



## Literature

1. Adams, C. (2015). *Ethics versus profit*. ICAEW Economia, December. <http://economia.icaew.com/features/december-2015/ethics-versus-profit>
2. Alchian, A. A. (1953). *The meaning of utility measurement*. The American Economic Review, 43(1), 26–50.
3. Blitz, D. (1992). *Emergent evolution: Qualitative novelty and the levels of reality*. Springer Netherlands. <https://doi.org/10.1007/978-94-015-8042-7>
4. Brigandt, I., & Love, A. C. (2012). *Conceptualizing evolutionary novelty: Moving beyond definitional debates*. Journal of Experimental Zoology Part B: Molecular and Developmental Evolution, 318(6), 417–427.
5. Chappelow, J. (2019). *Utility definition*. Investopedia. <http://www.investopedia.com/terms/u/utility.asp>
6. Coad, A., Nightingale, P., Stilgoe, J., & Vezzani, A. (2021). *Editorial: The dark side of innovation*. Industry and Innovation, 28(1), 102–112. <https://doi.org/10.1080/13662716.2020.1818555>
7. Cowan, R., & Rizzo, M. J. (Eds.). (1995). *Profits and Morality*. University of Chicago Press.
8. Davila, T., & Epstein, M. (2014). *The Innovation Paradox: Why Good Businesses Kill Breakthroughs and How They Can Change*. Berrett-Koehler Publishers. <https://books.google.pl/books?id=W8UIAgAAQBAJ>
9. Garud, R., Simpson, B., Langley, A., & Tsoukas, H. (Eds.). (2015). *The Emergence of Novelty in Organizations*. OUP Oxford.
10. Haustein, H.-D., & Maier, H. (1979, September). *Basic, Improvement and Pseudo-Innovations and their Impact on Efficiency* [Monograph (IIASA Working Paper)]. <http://pure.iiasa.ac.at/id/eprint/1087/>
11. Jacko, J. F. (2018). *Innowacje a pseudo innowacje. Niektóre normatywne założenia dystynkcji*. Zarządzanie Publiczne, 2018(Numer 4 (44)), 427–440. <https://doi.org/10.4467/20843968ZP.18.033.9936>
12. Kapteyn, A. (1985). *Utility and economics*. De Economist, 133(1), 1–20. <https://doi.org/10.1007/BF01675959>
13. Mensch, G. (1979). *Stalemate in Technology: Innovations Overcome the Depression*. Ballinger Pub. Co. <http://archive.org/details/stalemateintechn00mens>
14. Mugge, R., & Dahl, D. W. (2013). *Seeking the Ideal Level of Design Newness: Consumer Response to Radical and Incremental Product Design*. Journal of Product Innovation Management, 30(S1), 34–47. <https://doi.org/10.1111/jpim.12062>
15. Schmaltz, R., & Lilienfeld, S. O. (2014). *Hauntings, homeopathy, and the Hopkinsville Goblins: Using pseudoscience to teach scientific thinking*. Frontiers in Psychology, 5. <https://doi.org/10.3389/fpsyg.2014.00336>
16. Segnestam Larsson, O., & Brandsen, d T. (2016). *The implicit normative assumptions of social innovation research: Embracing the dark side*. In T. Brandsen, S. Cattacin, A. Evers, & A. Zimmer (Eds.), *Social Innovations in the Urban Context* (pp. 293–302). Springer, Cham. [https://doi.org/10.1007/978-3-319-21551-8\\_24](https://doi.org/10.1007/978-3-319-21551-8_24)
17. Svensson, S., Richter, J. L., Maitre-Ekern, E., Pihlajarinne, T., Maigret, A., & Dalhammar, C. (2018). *The Emerging 'Right to Repair' legislation in the EU and the U.S.: Going Green*, CARE INNOVATION 2018.
18. Talke, K., Salomo, S., Wieringa, J. E., & Lutz, A. (2009). *What about Design Newness? Investigating the Relevance of a Neglected Dimension of Product Innovativeness*. Journal of Product Innovation Management, 26(6), 601–615. <https://doi.org/10.1111/j.1540-5885.2009.00686.x>
19. Tchernev, G. (2017). *Innovations and innovative approaches or pseudo-innovations in the context of general globalization? It's time to wake up!* Open Access Macedonian Journal of Medical Sciences, 6(1), 1–5. <https://doi.org/10.3889/oamjms.2018.057>
20. Walshe, K. (2009). *Pseudoinnovation: The development and spread of healthcare quality improvement methodologies*. International Journal for Quality in Health Care, 3(21), 153–159. <https://doi.org/10.1093/intqhc/mzp012>
21. Weindling, P. J. (2000). *Delousing and the Holocaust*. In P. Weindling (Ed.), *Epidemics and Genocide in Eastern Europe, 1890–1945* (p. 0). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198206910.003.0041>
22. Witztum, A., & Young, J. T. (2013). *Utilitarianism and the role of utility in Adam Smith*. The European Journal of the History of Economic Thought, 20(4), 572–602. <https://doi.org/10.1080/09672567.2011.592846>
22. Yotopoulos, P. A. (1974). *Rationality, efficiency, and organizational behavior through the production function, darkly*. Food Research Institute Studies, 13(3), 1–12.



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## PHYSICAL CULTURE MANAGEMENT IN LOCAL GOVERNMENT UNITS – COMMUNE

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**Abstract:** The study presents the practice of managing physical education in Polish communes. This study shows the organizational structures related to the management of physical education in the Commune Office. The work aims to determine the strengths and weaknesses of this organization's three physical education management tactics. These tactics are as follows: 1. Most of the tasks and facilities related to physical education are entrusted by municipalities to nongovernmental organizations operating in the city. 2. The commune creates organizational units related to physical education. 3. Some of the tasks related to physical education are carried out by municipal organizational units and some by nongovernmental organizations. The article shows the advantage of the third tactic over the other tactics. The presented research uses the method of analysis and synthesis of documents (government acts, summaries, municipal balance sheets and others) and case studies.

**Keywords:** sport management, physical education, commune

### Introduction

In this article, “municipality” means self-governing community and the relevant territory. A commune is the basic unit of administrative division in Poland. The constitution of a commune is determined by its statute. It can be a rural commune, an urban-rural commune or an urban commune. In Poland, some communes also perform the tasks of districts (Pol. *powiat*).

According to the Act of 8 March 1990 on Municipal Self-Government, the inhabitants of each commune form a self-governing community by operation of law.<sup>3</sup> According to this law, satisfying the community's collective needs is one of the commune's tasks. Among other things, the tasks include developing of physical culture and tourism, including recreational areas and sports facilities. Each municipality independently constructs a development strategy in this direction. (Wankiewicz 2010, p. 434-445)

Physical culture is essential in improving the quality of life and society's satisfaction level. That is why managing physical culture in local government units is so important. The correct performance of municipalities by performing their own tasks, which are, among others, physical culture, significantly increases the level of physical activity of citizens and improves their health. As a component of physical culture, sport is also an excellent tool for promoting the commune, which has recently been appreciated and used by the municipal authority. Therefore, the guarantee of effective implementation of tasks in physical culture and sport is a systematic examination of the needs of residents. For this reason, it is crucial to increase accessibility, improve quality, and take care of the diversity of sports infrastructure. This should be followed by intelligent and transparent shaping of the expenditure structure on the construction, maintenance and modernization of sports facilities, as well as subsidies for nongovernmental organizations, awards and scholarships for the best athletes, or the organization of sports and recreational events and support for local initiatives. (Kaliński 1993)

### Legal situation

The definition of the tasks in the Act on Municipal Self-Government is identical to the Act of 18 January 1996 on physical culture. This old law defined physical culture as part of the national culture,

<sup>3</sup>Act of 8 March 1990 on Municipal Self-Government, Journal of Laws of 1990 No. 16, item 95, Article 1.1.

and access to it should be accessible regardless of gender, age, religion, race and the degree and type of disability. Also, here there is a repeated provision from the Act on Municipal Self-Government that local government units carry out tasks in physical culture as their own tasks. This act divided physical culture into physical education, sport, recreation, and rehabilitation. According to this, municipalities should, in particular, create organizational conditions for implementing the physical education programme. As far as the tasks of the public purpose in the sphere of physical recreation and sport are concerned, they included, among others, the organization of classes, competitions, sports and recreational events, providing instructors to conduct recreational activities, and creating and providing access to sports and recreation facilities. The tasks related to physical rehabilitation were carried out by healthcare facilities. This situation was in force until 2010.

On 25 June 2010, the Sports Act was established.<sup>4</sup> This law introduced a new definition of sport. It defines sport as all forms of physical activity which, through ad hoc or organized participation, contribute to the development or improvement of physical and mental condition, the development of social relations or the achievement of sports results at all levels. According to this Act, sport is also considered to be competition based on intellectual activity, aiming to achieve a sporting result. At this point, chess and e-sports have been sanctioned. The definition of sport in this act referred directly to the definition of sport in the document adopted by the European Union, the so-called White Paper on Sport. It is all the more astonishing that in the other part of the Act on Sport, there was a provision that sport, physical education, and physical rehabilitation make up physical culture. In this list, without knowing why the "recreation" section, which was present in previous normative acts, was missing. (Białosięganatematsportu, 2017).

Therefore, the adaptation of municipalities to these two existing acts (the Act on Municipal Self-Government and the Act on Sport) can be explained and thus create a conceptual mess in the name of individual committees of the Municipal Council and official structures. And so the problem commission dealing with physical culture, among others, in Krakow is „Komisja sportu i kulturyfizycznej,” in Częstochowa „Komisja Kultury, Sportu i Turystyki” and in Zakopane „Komisja Sportu i Turystyki”. When it comes to units responsible for physical culture in the Commune Office, in Krakow it is “Zarząd Infrastruktury Sportowej” and in Częstochowa - „Wydział Kultury i Sportu a w Zakopanym Wydział Kultury Fizycznej i Komunikacji Społecznej.”

## Patterns of practice

Among the dozen or so models functioning in public administration, the following models stand out, which can be used in a local government unit for the development of physical culture (Wojciechowski 2003):

- a) self-sufficient model,
- b) market model (market and regulatory),
- c) mixed model (combines elements of the own model with the market model),
- d) partnership model (PPP),
- (e) outsourcing model (management of public services by an external partner).

One can distinguish three ways of managing physical culture in the municipality. The first way is when most of the tasks and objects related to physical culture are entrusted to municipalities by nongovernmental organizations operating in their area. This method occurs, for example, in Krakow. The second occurs when local governments create communal organizational units related to physical culture (the so-called OSiR) and only carry out the commune's own tasks in physical culture. The third way of managing physical culture in the municipality is mixed. Some tasks related to physical culture are carried out by municipal organizational units and some by nongovernmental organizations. This method is the most common and occurs, for example, in Częstochowa and Zakopane.

<sup>4</sup>Act of 25 June 2010 on sport, Journal of Laws of 2010 No. 127, item 857, Art. 2.1a.

Municipal organizational units such as OSiR are appointed and approved by a resolution of the Commune Council. The primary subject of the Centre's activity is the management and administration of sports and recreational facilities and equipment, land development in sports and recreation facilities and the provision of services in the field of sport and recreation based on the principles provided for by law.

As far as nongovernmental organizations carrying out tasks in the field of physical culture are concerned, they are bound by the Act of 24 April 2003 on Public Benefit and Volunteer Work. One of the types of public benefit organizations may be sports clubs that do not operate for profit and allocate all income to perform tasks resulting from their statute. Therefore, local government units can support only activities involving non-profit, amateur sports using funds from targeted subsidies. These organizations can receive grants from the municipality only through a competition called a grant competition or a call for proposals. First, the Commune Council adopts a resolution to join the competition, the Commune Office announces a competition, sports clubs join it, and it is considered by a commission specially appointed for this purpose.<sup>5</sup>

Another important normative act regulating the financing of sports activities of nongovernmental organizations by the municipality and higher-level units is the Act on Sport of 2010 mentioned before. It specifies the purposes for which sports clubs may receive subsidies. These include: – implementation of sports training programmes, – purchase of sports equipment, – financing of participation in sports competitions or their organization, – payment of costs related to the use of sports facilities, – payment of sports scholarships and salaries for training staff. The Act on Sport also states that a subsidy may be paid only if the implementation of the objectives mentioned above will improve the conditions for practising sport or increase the availability of the local community to participate in a given club.<sup>6</sup>

Regarding the management of physical culture in the municipality, sports councils may be an advisory body. The tasks of the sports council include, in particular, giving opinions on 1) development strategies of communes, districts, and voivodships in the field of physical culture; 2) the draught budget in part concerning physical culture; 3) programmes for the development of sports facilities in a given area, including in particular local spatial development plans in the scope of areas used for physical culture purposes; 4) draught resolutions concerning physical culture. Members of sports councils perform their functions voluntarily.<sup>7</sup>

A particular form of public consultation is the participatory budget. As part of the participatory budget, residents decide annually on the part of the municipal budget expenditure in a direct vote. The tasks selected as part of the participatory budget are included in the budget resolution of the commune. In communes which are cities with powiat rights, the creation of a participatory budget is obligatory, except that the amount of the participatory budget is at least 0.5% of the commune's expenditure included in the last submitted report on the implementation of the budget. In this aspect, the commune residents can create a policy for developing a physical culture in their locality by submitting their own projects.

The introduction of methods of effective management of public services and the most advantageous model is a long-term process. Whether the services will be better or worse by the local community depends on how much the local government can respond to residents' expectations. The importance of physical culture continues to grow and thus contributes to strengthening its social role. The provision of services in the physical culture not only impacts the health of local communities but also has an educational dimension and plays a social, cultural and recreational role. Physical education services, particularly in the sports sector, are a dynamic and growing sector that can boost economic growth and

<sup>5</sup>Act of 24 April 2003 on public benefit activities and volunteer work, Journal of Laws of 2003, No. 96, item 873, as amended.

<sup>6</sup>Act of 25 June 2010 on sport, Journal of Laws of 2010 No. 127, item 857., Article 28(2)

<sup>7</sup>Act of 25 June 2010 on sport, Journal of Laws of 2010 No. 127, item 857, Article 30.

job creation. It can serve as a tool for local and regional development. Working synergistically with tourism, it can improve the standard of infrastructure and select new partnerships to finance physical culture and sports facilities. (Zawicki, Mazur, Bober 2004, p.16)

In 2017 and 2018, the National Council of Regional Chambers of Auditors audited the correctness of the financing of tasks in the field of physical culture and sport by local government units. The results of the audits showed the lack of a coherent system of regulations governing the financial support of a physical culture that covers a wide area of sport, including physical education and physical rehabilitation. It seems reasonable to consider the possibility of carrying out legislative changes aimed at organizing the law in financing physical culture and sport and preventing the emergence of possible actions that may result in uncontrolled spending of public funds. (Krajowa Rada Regionalnych Izb Obrachunkowych, 2020, pp 54-56)

## Summary

The local government makes various decisions important for local communities in its daily activities. This also applies to the aspect of physical culture management. It is worth mentioning that the importance of physical culture is still growing and thus contributes to strengthening its social role. The provision of services in the physical culture not only impacts the health of local communities but also has an educational dimension and plays a social, cultural and recreational role. Therefore, local governments are still looking for an optimal model of physical culture management. There is still a lot to be done in this field.

## Literature

1. Act of 14 March 1990 on Municipal Self-Government, Journal of Laws of 1990, No. 16, item 95.
2. Act of 18 January 1996 on physical culture, Journal of Laws of 2001, No. 81, item 889.
3. Act of 24 April 2003 on Public Benefit and Volunteer Work, Journal of Laws of 2003, No. 96, item 873.
4. Act of 25 June 2010 on sport, Journal of Laws of 2010, No. 127, item 857.
1. Biała księga na temat sportu (2017) *EurLex*, Bruksela. Online: <https://eur-lex.europa.eu/PL/legal-content/summary/white-paper-on-sport.html> (dostęp 5.07.2023).
2. Kaliński R., *Rola samorządu w rozwoju kultury fizycznej*, „Trening” 1993, nr 3 (19).
3. Krajowa Rada Regionalnych Izb Obrachunkowych (2020), *Informacja o wynikach kontroli koordynowanej Finansowanie Kultury Fizycznej i Sportu przez Jednostki Samorządu Terytorialnego w latach 2017 – 2018*, Zielona Góra. Pp. 54-56.
4. Wankiewicz B., *Miejsce samorządu terytorialnego w finansowaniu kultury fizycznej*, *Ekonomiczne Problemy Usług*, Zeszyty Naukowe Uniwersytetu Szczecińskiego nr 60, 2010, pp. 434-445.
5. Wojciechowski W., *Zarządzanie w samorządzie terytorialnym*. Wyd. Dyfin, Warszawa 2003.
6. Zawicki M., S. Mazur S., J. Bober J. (2004), *Zarządzanie w samorządzie terytorialnym – najlepsze praktyki*, wydawnictwo Małopolska Szkoła Administracji Publicznej Akademii Ekonomicznej; Ministerstwo Spraw Wewnętrznych i Administracji, Kraków, p.16.



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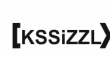
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## LABOR MARKET ACCEPTANCE OF DISABLED PEOPLE IN HUNGARY AND SLOVAKIA

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**Abstract:** The present paper examines changes in the situation of people with disabilities in Hungary and Slovakia. It seeks to explore whether the state safety net and support systems provided so far are sufficient to maintain the livelihoods and living standards of those affected. According to advocacy organizations, during the pandemic, many people with disabilities were dismissed from the open labour market and fled to the sheltered labour market, where their living standards declined. Our research covered a wide range of people with disabilities, including the visually impaired, the hearing impaired, the mobility impaired and the mentally disabled. People with altered working ability can supplement the state aid in two ways, in the sheltered and open labor market. Retaining a job can be successful in both cases, but only when it comes to finding a job do people encounter negative stereotypes. Acceptance in the open labour market and perceptions of positive discrimination among healthy workers were investigated by means of a questionnaire. Our research found that Hungary and Slovakia, with limited financial opportunities, have different preferences for the integration of people with disabilities into the world of work. Slovakia places more emphasis on creating sheltered employment, while Hungary tries to steer people with disabilities towards the open labour market with the help of the people concerned.

**Key words:** People with disabilities, sheltered and open labour market, pandemic, maintaining livelihoods and living standards.

### Introduction

Our research examines the changing labour market situation of people with disabilities during the COVID-19 pandemic. We have analyzed the different measures of the open labour market and sheltered employment, and the acceptance of people with disabilities in the open labour market. Our motto is inspired by the name of Pope Benedict XVI, who carried the highest dignity of the Church from 2005 to 2013 and continues to be highly respected. "The supreme measure of a society's humanity is the way it treats the poor, the elderly, the sick, the infirm" (PPKE 2019). Our research was carried out with the help of blind and partially sighted people, deaf and hard of hearing people, people with reduced mobility, people with intellectual disabilities and their representative organizations. By means of our questionnaire-based survey, we analyzed the acceptance of workers with reduced capabilities among healthy workers in Hungary and Slovakia. In the theoretical part of our publication, we first clarify the concepts related to disability and then describe the advocacy organizations and basic labour market opportunities in the two countries. We conclude with an international perspective. The changes during the COVID-19 epidemic are presented in the practical part of the paper through a content analysis based on in-depth interviews. Since the problems during the COVID-19 epidemic were manifested in the open labour market, we also used a quantitative method to investigate the perceptions of Hungarian and Slovakian workers on the acceptance of workers with disabilities and positive discrimination.

### Literature review

A person as a member of society may be defined by the category of disability or impairment, but when referring to a worker, the terms person with a disability or a person with reduced capabilities are used (Illyés 2000; WHO 2001). According to the Hungarian Employment Act, a person with a disability is defined as a person who is physically or mentally disadvantaged and whose chances of finding and



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keeping a job are reduced (Dósa, Hanti 2012). The Act does not address whether the person concerned receives any benefits because of his or her health condition. If the disadvantaged person's health status is still better than 60%, he or she is not entitled to disability benefits. Impairment means a disturbance of biological function that manifests itself as a physiological or anatomical abnormality. Impairment refers to a partial or total, temporary or permanent impairment of various functions such as sensory, motor, mental functions such as walking, vision, speech, communication (Horkai i in. 2013). The notion of disability is linked to the world of work, as it expresses how an impairment, disability or reduced capability affects an individual's chances of finding and keeping a job (Prugberger 2001). Today, there are six classifications of disability in Hungary (Dósa, Hanti 2012; Rehabportal 2022). In Slovakia, there is a category of severely disabled people receiving social care and a category of non-severely disabled people receiving social care. A disability with 41% impairment means a reduction in working capacity, an impairment of more than 50% falls into the severe category and mostly prevents people from working. There are also people with so-called poor health who may also benefit from some of the social services available to people with disabilities (Rehabportal 2022). In Hungary, the number of people with disabilities was 577,000 according to the 2001 census (European Council 2014). Due to the pandemic, more recent data will be available after the census in 2023. Based on some of the available historical data, we look at changes in the number of people with disabilities.

In Hungary, intellectual disability is the most common problem among the population under 14 years of age, followed by autism and mobility disability. Among 15–29-year-olds, intellectual disability is still the most common, followed by mobility disability. In the 30-34 age group, mobility disability overtakes intellectual disability. In the 45-59 age group, mobility disability is predominant, followed by visually impaired people and intellectual disability. In the 60-64 age group, mobility impairment is so prevalent that it accounts for more than half of all disabilities, followed by visually impaired people and then severe internal disabilities. The 75-age group also has a very high prevalence of disability, with the next most deaf seniors, followed by the visually impaired.

It can be observed that the proportion of people with a disability in Slovakia increases significantly with age. While the share in the age group 15-29 years is 7.2%, 45.7% of people aged 50 and over are disabled. The table shows data from 2012 to 2017 and shows that the proportion of people with disabilities is decreasing among younger people but increasing among people aged 40 and over. Younger people are living healthier lives, office workers are exercising and doing less physical work. The health of the over 40s is already failing, reflecting their previous lifestyles, with many problems. Disabled people find their main source of income in the processing sector (Table 4). Because of the high degree of automation, even people with intellectual disabilities can find a job in the sector, and people with hearing impairments are also likely to find jobs. Trade and motor vehicle repair are also a suitable field for many workers with a disability. Vehicle repair can be a suitable activity for people with autism and hearing impairment. Human health and social care require emotional intelligence, and workers with disabilities are more sensitive to the problems of patients who need help. Public administration employs nearly 10% of people with disabilities, and with proper organization, customer services can even employ visually impaired people. It is also worth mentioning education, languages can be taught to blind and partially sighted people, especially if the aim is communication.

The spatial distribution of accredited workplaces for people with disabilities in Hungary in 2013 was characterized by the fact that most of them were located in Budapest and Pest county (69), with a significant number of organizations in Jász-Nagykun-Szolnok county (59), Borsod-Abaúj-Zemplén county (42) and Baranya county. By 2022 the number of sheltered jobs increased to 1425. In 2022 Slovakia had a total of 4307 protected workplaces. Of these, 154 organizations were active in the capital Bratislava. In the regional centres, 13 in Banská Bystrica, 12 in Košice, 190 in Trenčín and 313 in Prešov. A significant proportion of people with a disability active in the labour market need assistance. In most cases this assistance is special work organization measures, followed in roughly equal measure by personal assistance and special equipment or workplace adaptations. The survey was carried out by

the Hungarian Central Statistical Office in 2012 and shows that it would be possible to increase the number of people in the open labour market by management and organizational measures alone, without investment (Hungarian Central Statistical Office 2012).

### **Aim of research and methodology**

We conducted quantitative research to explore the difficulties of people with disabilities in finding employment and self-employment. In particular, we have looked at the changes brought about by COVID-19, whereby we use the assumption that people with disabilities may have felt safe in the sheltered labour market. Based on an empirical questionnaire survey (380 respondents), we analyzed the acceptance of people with disabilities by members of mainstream society. In order to measure acceptance in the open labour market, a questionnaire has been developed, the main parts of which are demographics, an assessment of positive discrimination by type of disability, and an analysis of the most supportive living situations. Two hypotheses were formulated.

H1: In the two countries under study, the acceptance of people with intellectual disabilities in the open labour market is low even when integration is achieved either without special measures or with the help of mentors, technical assistance, or organizational measures.

H2: In both countries, the life stages considered to deserve support the most are retirement, the period of home creation, entry into the open labour market and the amount of money that states should allocate to families with children with disabilities.

### **Results**

We conducted quantitative research to explore the difficulties of people with disabilities in finding employment and self-employment. In particular, we have looked at the changes brought about by COVID-19, whereby we use the assumption that people with disabilities may have felt safe in the sheltered labour market. Based on an empirical questionnaire survey (380 respondents), we analyzed the acceptance of people with disabilities by members of mainstream society. In order to measure acceptance in the open labour market, a questionnaire has been developed, the main parts of which are demographics, an assessment of positive discrimination by type of disability, and an analysis of the most supportive living situations. Two hypotheses were formulated.

Our survey was conducted among employees in Hungary and Slovakia between July and October 2022. Respondents were contacted via social media and asked to forward the questionnaire. The high number of responses was due to the active role of our invited contacts in forwarding the questionnaire, who felt that our information was short but to the point. An important criterion for the selection of the respondents was that they should be active in the labour market and be able to share their experiences and opinions about the acceptance of people with disabilities. It is important to note that our sample was not representative, the demographic distribution of 216 respondents from Hungary and 164 respondents from Slovakia is shown in Table 1. We were able to collect a diverse sample in terms of age, income, place of residence and job. This sample reflects the situation in Hungary and Slovakia in terms of open labour market acceptance. In Hungary, there have been several successful and unsuccessful attempts to integrate people with disabilities into the open labour market, which caused many failures, dismissals and job losses for the people concerned.

This sample reflects the situation in Hungary and Slovakia in terms of labour market acceptance and perceptions of positive discrimination. This was discussed in more detail in the first part of this article. However, attempts at integration have led to greater acceptance. To confirm our first hypothesis, considering the following findings, the open labour market acceptance of people with intellectual disabilities in both countries under study is consistently below the level of integration of visually impaired, hearing impaired and mobility impaired people at all four different levels of support.

*Table 1. Demographic distribution of the samples*

	Hungary	Slovakia		Hungary	Slovakia
Gender (%)			Residence (%)		
Male	52.8%	40.2%	village	22.7%	32.9%
Female	45.8%	58.5%	town	39.4%	32.3%
Other	1.4%	1.2%	city	30.1%	23.2%
Revenue (%)			capital	7.9%	11.6%
Well below average	0.9%	1.8%	Occupation (%)		
Below average	15.7%	10.4%	blue-collar	12.5%	14.6%
Average	44.4%	70.7%	white-collar	47.2%	56.1%
Above average	33.3%	15.2%	manager	22.2%	17.7%
Well above average	5.6%	1.8%	entrepreneur	16.7%	6.1%
Age (%)			n/a	1.4%	5.5%
20-29	6.5%	23.8%	Number of respondents (persons)		
30-39	38.4%	29.9%	Per country	Hungary	Slovakia
40-49	25.0%	40.2%		216	164
50-59	20.8%	0.6%			
60-69	9.3%	5.5%			

Source: authors' own research

In their case, the hospitality units described in the previous section offer a way out of this rejection. According to the second hypothesis, there are four possible life situations that require more support. However, the items we have listed only partially correspond to the opinions (Table 2).

Support to enter the open labour market is ranked first by respondents in Hungary, but not in the top four by respondents in Slovakia. They believe that by developing a sheltered labour market they can provide a more secure life for their disabled fellow citizens. In both countries, they would like the state to increase support for families with disabled children (Hungary 2nd, Slovakia 1st).

Financial support for retirement came third in both countries. The creation of a home, as we assume, is ranked fourth in Slovakia. In Slovak public life, there have been debates for some years on how to address housing for people with disabilities. In Hungary, respondents rate the secure foundations, i.e., primary education, as important. This means that our second hypothesis is only partially fulfilled.

**Table 2. Acceptance of people with disabilities in the open labour market according to respondents**

		Possible	1	2	3	4	5	6	7	Mean	
visually impaired	Without help	Hungary	204			2.9%	2.0%	3.9%	18.6%	72.5%	6.56
		Slovakia	164			4.9%	11.6%	6.1%	12.2%	65.2%	6.21
	Organizational measure	Hungary	216				6.0%	33.3%	29.6%	31.0%	5.86
		Slovakia	164				17.1%	24.4%	23.8%	34.8%	5.76
	Mentoring	Hungary	216			0.0%	1.4%	32.9%	26.9%	38.9%	6.03
		Slovakia	164			4.9%	12.8%	23.8%	5.5%	53.0%	5.89
	Technical aid	Hungary	216			0.0%	6.0%	16.7%	18.5%	58.8%	6.30
		Slovakia	164			4.9%	6.7%	17.7%	24.4%	46.3%	6.01
hearing impaired	Without help	Hungary	204		0.0%	3.4%	0.0%	16.2%	21.1%	59.3%	6.33
		Slovakia	164		6.1%	4.9%	5.5%	6.1%	19.5%	57.9%	6.02
	Organizational measure	Hungary	204		0.0%		12.7%	34.3%	30.4%	22.5%	5.63
		Slovakia	155		6.5%		12.9%	18.7%	23.9%	38.1%	5.68
	Mentoring	Hungary	216		0.0%	0.0%	6.5%	44.0%	27.3%	22.2%	5.65
		Slovakia	164		6.1%	4.9%	18.3%	17.1%	0.6%	53.0%	5.60
	Technical aid	Hungary	204		0.0%	0.0%	5.9%	12.7%	25.0%	56.4%	6.32
		Slovakia	164		6.1%	5.5%	6.1%	12.2%	17.1%	53.0%	5.88
disabled	Without help	Hungary	216				2.8%	7.4%	16.2%	73.6%	6.61
		Slovakia	154				4.5%	5.8%	14.3%	75.3%	6.60
	Organizational measure	Hungary	216				0.0%	29.2%	26.4%	44.4%	6.15
		Slovakia	154				7.1%	23.4%	19.5%	50.0%	6.12
	Mentoring	Hungary	216				0.5%	27.8%	33.8%	38.0%	6.09
		Slovakia	154				13.0%	23.4%	13.0%	50.6%	6.01
	Technical aid	Hungary	216				11.1%	0.0%	27.8%	61.1%	6.39
		Slovakia	154				7.1%	24.0%	12.3%	56.5%	6.18
mentally handicapped	Without help	Hungary	204	0.0%	5.9%	5.4%	16.7%	6.4%	16.7%	49.0%	5.70
		Slovakia	154	17.5%	0.0%	5.2%	13.0%	7.1%	13.6%	43.5%	5.07
	Organizational measure	Hungary	204	0.0%		23.0%	0.5%	25.0%	32.4%	19.1%	5.24
		Slovakia	154	18.2%		1.3%	16.2%	13.6%	18.8%	31.8%	4.91
	Mentoring	Hungary	204	0.0%	0.0%	5.9%	2.9%	46.6%	27.5%	17.2%	5.47
		Slovakia	154	5.8%	5.8%	12.3%	12.3%	19.5%	12.3%	31.8%	4.98
	Technical aid	Hungary	204	0.0%	5.9%	0.5%	5.9%	19.6%	33.3%	34.8%	5.78
		Slovakia	154	11.7%	0.0%	0.0%	14.9%	29.9%	11.7%	31.8%	5.14

Source: authors' own research



## Summary

Our study examines the labour market opportunities and COVID-19 involvement and acceptance of people with disabilities in Slovakia and Hungary. It is known from other research that this vulnerable group is more vulnerable to social and other crises than the healthy (European Commission, 2021, Gabrielli & Irtelli, 2021). Today, states and non-profit organizations are taking action to protect those affected. The lessons from the in-depth interviews show that disabled people dismissed from the open labour market still had the option of returning to the sheltered labour market. The study interviewed successful people with disabilities from both countries who have made and are making enormous efforts, but who do not complain about this and continue to fight. It seems appropriate that people with a disability should be employed in the tourism and hospitality sector, which is facing labour shortages. Although this sector was badly affected by the pandemic, it represents a new opportunity for people with disabilities. Slovakia is training the right professionals and jobs for people with intellectual disabilities may be in the hotel industry. In Hungary, they can employ waiters and assistant cooks in the framework of a business. This is particularly important for people with intellectual disabilities with minimal open labour market acceptance. IT, gardening and social work provide gainful employment for many people with disabilities in both countries.

The state should strive to direct those people with disabilities who are able to do so, by all possible means, towards the open labour market, where they can eventually achieve the level of income necessary for independent living. However, the safety net of sheltered employment must be maintained. Another solution is to ensure that the sheltered labour market provides an income that allows people to lead healthy and meaningful lives. Kama's (2004) study concludes that it is very important for the more successful people with disabilities to show how much work there is in their success, and that their media coverage can change public perceptions. The opinion shaping described by the author is still taking place today and supports our belief that physical, social and cultural barriers can be overcome, but they do exist. Madriaga et al. (2010) found that students entering higher education face difficulties in accessing the curriculum. There are successful models for their labour market integration. Baranauskiene and Dobrovolskyte (2017) present such a model, which aims not only to improve labour market indicators but also to increase the socialization and well-being of those involved. Slovakia and Hungary have limited financial resources. Both countries invest in the creation and maintenance of sheltered employment and in the integration of people with disabilities into the open labour market, but the rates differ. In Hungary, various organizations and associations place great emphasis on enabling people with disabilities to work together with members of the majority society. The result is greater acceptance of people with disabilities, but the disadvantage is that they experience a lot of failure. When people with a disability talk about state support, neither in Slovakia nor in Hungary do they think about financial support from the state. Rather, they seek to obtain funding for NGOs that want to ensure a dignified way of life. Although they cannot be wasteful, the disabled workers in the open and sheltered labour market are able to pay their bills, have a varied diet and save a little. They are in much greater need of events where they can discuss their joys, worries and problems in finding a job. People with disabilities do not need benefits, they need real help to get on in the labour market. It is harder to find a job in the open labour market, but people with disabilities are seeking challenges with the stubborn determination they need in their lives and trying to do their best in the jobs they have already got. There are some initiatives that do not yet have government support but are badly needed. It is important that we approach our fellow human beings with disabilities with empathy and understanding. Remember: "Every human being, whether disabled or not, strives to the best of his or her ability, and if he or she seeks happiness, will find it". The quote is a reflection of Naoki Higashida, a Japanese writer with autism, born in 1992.

## Acknowledgement

Hereby we would like to thank you for all scholars who participated in HR Covid scientific team (KoronaHR). The Authors gratefully acknowledge the contribution of the Scientific Grant Agency of the Slovak Republic under the VEGA grant 1/0688/21.

## Literature

1. Baranauskienė I., Dobrovolskytė I. (2017), *Preconditions for the successful integration of disabled persons into the labour market. Society. Integration. Education*. Proceedings of the International Scientific Conference, 2, pp. 378-387. <https://doi.org/10.17770/sie2017vol2.2358>
2. Dósa Á., Hanti P. (2012), *Cares related to health impairment*. Complex Press Legal and Business Content Services Ltd., Budapest.
3. European Commission. (2021), *How vulnerable groups were left behind in pandemic response*. Europe Commission-Horizon. In electronic access <https://ec.europa.eu/research-and-innovation/en/horizon-magazine/how-vulnerable-groups-were-left-behind-pandemic-response> (access: 21.03.2023)
4. European Council. (2014), *Annual Report on Human Rights and Democracy in the World*. In electronic access <https://www.consilium.europa.eu/hu/press/press-releases/2015/06/22/fac-human-rights-report/> (access: 12.02.2023)
5. Gabrielli F., Irtelli F. 2021. *Anxiety, Uncertainty, and Resilience During the Pandemic Period*. Intexchopen. In electronic access <https://www.intexchopen.com/books/10814> (access: 15.03.2023)
6. Horkai A., Nagy É., Pálvölgyi M., Vingender I. (2013), *Health and society*. Semmelweis University, Faculty of Health Sciences, Budapest.
7. Hungarian Central Statistical Office. (2012), *Disabled people in the labour market*. Budapest.
8. Illyés S. (2000), *Basic knowledge of special needs education*. ELTE BGGYFK, Budapest.
9. Kama A. (2004), *Supercrises versus the pitiful handicapped: Reception of disabling images by disabled audience members*. 29, 4, pp. 447-466. <https://doi.org/10.1515/comm.2004.29.4.447>
10. Madriaga M., Hanson K., Heaton C., Kay Helen, Newitt S., Walker A. (2010), *Confronting similar challenges? Disabled and non-disabled students' learning and assessment experiences*, *Studies in Higher Education*, 35, 6, pp. 647-658, DOI: 10.1080/03075070903222633
11. PPKE. (2019), *Immigration through Christian eyes. Bishop János Székely's lecture at the University*. In electronic access <https://btk.ppke.hu/aktualis/rolunk-irtak/bevanderlas-kereszteny-szemmel> (access: 12.03.2023)
12. Rehabilitation Portal. (2022), *Disability*. In electronic access <https://rehabportal.hu/tudastar/megvaltozott-munkakepesseg/relevantn%C3%BDch-organiz%C3%A1ci%C3%AD.xlsx> (access: 18.02.2023)
13. WHO. (2001), *International Classification of Functioning, Disability and Health (ICF)*. In electronic access <https://apps.who.int/iris/bitstream/handle/10665/42407/9632428382-hun-LR.pdf?sequence=124&isAllowed=y> (access: 14.03.2023)



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# MANAGING DIGITAL SOVEREIGNTY: THE IMPORTANCE OF CONTROL AND OWNERSHIP IN THE DIGITAL AGE USING THE EXAMPLES OF POLAND, THE CZECH REPUBLIC AND GERMANY

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**Abstract:** The topic of strengthening digital sovereignty and its mechanisms of action, particularly with regards to EU states such as Poland, the Czech Republic and Germany, is largely unexplored. This is an essential element of security management in countries in economically and socially turbulent times. Using a relatively new digital sovereignty index, this article assesses the strengths and weaknesses of digital sovereignty in these countries and identifies potential fields of action for improvement. The shortage of skilled workers with digital expertise in these countries highlights the practical relevance of the recommendations for human resource management (HRM), including improving cooperation between universities and industry.

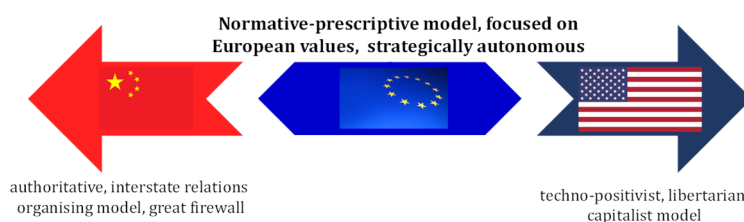
**Key words:** digital sovereignty, data security, European Union, security management

## Introduction

The concept of digital sovereignty refers to the power and control individuals and nations have over their digital data and infrastructure. As technology advances, the issue of digital sovereignty has become more relevant, with concerns over the centralisation of data leading to the concentration of power in the hands of a few (government-influenced) corporations and the vulnerability of critical systems, cyber-attacks, and loss of privacy. To address these concerns, some countries have taken steps to strengthen their digital sovereignty, such as the EU's GDPR and the development of national digital infrastructure. However, there is a lack of a tested model to measure digital sovereignty on state level, so this paper proposes using a theoretical model to evaluate the states of Poland, the Czech Republic and Germany and provide measures to strengthen their digital sovereignty.

## Literature overview

Digital sovereignty refers to a state's ability to control and regulate its digital environment, including its digital infrastructure, data, and cyberspace. It allows nations to control their critical infrastructure (Haché, 2014, pp. 165–173) and it can be used to promote economic development (Maurer, Skierka, Morgus, & Hohmann, 2015) (Haché, 2014, pp. 165–173). It is important for protecting personal and sensitive information, controlling critical infrastructure, and promoting economic development (Deutscher Ethikrat, 2017, pp. 253–261) (Polatin-Reuben & Wright, 2014/2014, p. 6) (Kucęba & Chmielarz, 2018, p. 58). In recent years, the increasing importance of digital technologies in everyday life and their impact on society have led to growing concerns about the need to ensure digital sovereignty (Kukkola, Ristolainen, & Nikkarila, 2019). The concept has given rise to a new interdisciplinary field of research called Science and Technology Studies (STS) (DeNardis, Cogburn, Levinson, & Musiani, 2020, pp. 87–92). China and the USA are examples of countries pursuing different models of digital sovereignty, with China pursuing state-institutionalized, autarky-oriented policies and the USA relying on a techno-positivist, capitalist, and libertarian basic model (Creemers, 2020, pp. 107–131) (Hannas & Tatlow, 2021) (Holtmann, 2018, p. 169). Both countries have dominance in the digital economy, but the notion of digital sovereignty is not discussed intensively in either country (Werthner, Prem, Lee, & Ghezzi, 2022, pp. 227–231).



**Figure 1. Model of digital sovereignty**

Source: based on (Pohle & Thiel, 2021)

Various models exist to evaluate a country's digital and sovereignty status, with different parameters and analysis methods. The comparative index analysis approach compares relevant parameters to determine the strengths and weaknesses of countries' digital sovereignty, using calculated indices to create a composite index and rank countries accordingly. There are many comparative indices for state comparison, and although they are subject to criticism, their use is becoming more prevalent (Bjerre, Römer, & Zobel, 2019, pp. 649–662). Some of them compare the degree of sovereignty of states (Barnett, 2017/2017), others focus on the digital capabilities of states (Yera, Arbelaitz, Jauregui, & Muguerza, 2020) (United Nations, 2022/2022). An index tailored to the self-conception of EU states, the Digital Sovereignty Index (DSI) is based on publicly available secondary data and provides a ranking of UN states (Kaloudis, 2022/2022).

The DSI aggregates additively and multiplicatively over 3 sub-indices  $\Delta_{1,2,3}$  and 30 parameters  $X_{1,\dots,30}$  an index value for the UN states. Several qualitative studies have been conducted to analyse the digital sovereignty of various countries and regions and identify areas for improvement. However, the only model that integrates both qualitative descriptions and quantitative criteria as a basis for evaluating digital sovereignty is the one mentioned above, which is outlined below in calculating and ranking a DSI (Kaloudis, 2022/2022, p. 184).

**Table 1. Parameter overview**

$X_i$	description	$X_i$	description	$X_i$	description
1	Sovereignty	11	TOP University	21	Import ICT goods total
2	GDP p.c.	12	Leiden Index	22	Import ICT services
3	FDI in	13	Human capital	23	Digital STRI
4	FDI out	14	OpenData Index	24	EDBI
5	Start-up invest	15	R&D expenditure	25	WDC
6	TIMMS	16	Quantum pub. funding	26	GDPR
7	Assesm. reading, etc.	17	AI Index	27	Internet access
8	Expend. education	18	Blockchain start-ups	28	SIM cards
9	Qualif. ICT employees	19	Exp. ICT services total	29	Governments online
10	Patents	20	Exp. ICT serv./total	30	E-Government rank

Source: based on (Kaloudis, 2022/2022)

## Objectives

This article aims to compare the digital sovereignty of UN states, focusing on Poland, the Czech Republic, and Germany, by using a set of relevant parameters to calculate a composite index for each country. The results will be used to group and categorize the countries, identify strengths and weaknesses, and determine areas for improvement. The reliability of the comparative index analysis method will also be evaluated.

## Methodology

The comparative index analysis method is a systematic approach to measure countries' digital sovereignty by comparing a set of relevant parameters. The method includes selecting parameters, collecting data, calculating indices, statistical analysis, comparing results to state-specific indices, and visualizing results (OECD, 2008/2020). A set of relevant parameters was chosen to measure digital sovereignty in the author's work, including control over digital data and infrastructure, security and privacy, domestic development of digital technology, and parameters related to state sovereignty (Kaloudis, 2022). Poland, the Czech Republic, and Germany were used as examples to assess their relative strengths and weaknesses in these areas.

## Results

With the focus on EU countries it is stated that all are in the top 50 of the UN-ranking, with Germany in 13<sup>th</sup> rank, the Czech Republic in 29<sup>th</sup> and Poland in 35<sup>th</sup>. The selection of Germany, the Czech Republic, and Poland is based on their representation of one of the three groups A, B and C of EU states, based on a comparison of the subindices  $\Delta_1$  and  $\Delta_2 + \Delta_3$ .

*Table 2. TOP 50 DSI Ranks*

Rank	Country	Rank	Country	Rank	Country
1	USA	18	UK	35	<b>Poland</b>
2	Ireland	19	Austria	36	Latvia
3	Norway	20	Iceland	37	Greece
4	Luxembourg	21	Israel	38	Korea Rep.
5	Switzerland	22	Italy	39	Slovak Rep.
6	Denmark	23	Spain	40	Hungary
7	Netherlands	24	Arab Emirates	41	Chile
8	Sweden	25	Estonia	42	Saudi Arabia
9	Finland	26	Portugal	43	Russia
10	Australia	27	Slovenia	44	Croatia
11	Singapore	28	Qatar	45	Monaco
12	Canada	<b>29</b>	<b>Czech Rep.</b>	46	Malaysia
<b>13</b>	<b>Germany</b>	30	Cyprus	47	Liechtenstein
14	Japan	31	China	48	Kuwait
15	France	32	Malta	49	Romania
16	New Zealand	33	Lithuania	50	Bulgaria
17	Belgium	34	Hong Kong		

Source: based on (Kaloudis, 2021) and (Kaloudis, 2022/2022)

*Table 3. Statistical values of  $\Delta_1$  and  $\Delta_2 + \Delta_3$*

	Sovereignty parameters ( $\Delta_1$ )	Digitalisation parameters ( $\Delta_2 + \Delta_3$ )
Mean value	23.27	22.21
1 <sup>st</sup> quartile	10.53	13.03
Median	19.05	16.95
<b>3<sup>rd</sup> quartile</b>	<b>29.39</b>	<b>29.25</b>

Source: Own study

The countries can be classified by a categorisation cut, which is shown graphically in Figure 4. The 3<sup>rd</sup> quartile is chosen as the categorisation cut line in each case to identify a group of top performers and to delineate others in this regard.



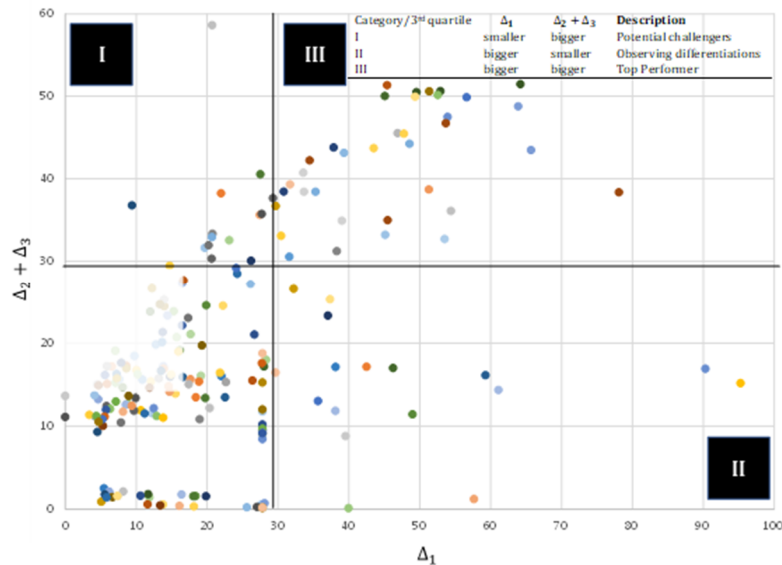


Figure 2 - All states, sub-index points for  $\Delta_1$  and  $\Delta_2 + \Delta_3$

Source: Own study

No EU countries are included in category II. If the group of EU states in category I is referred to as group C, Poland falls into this group.

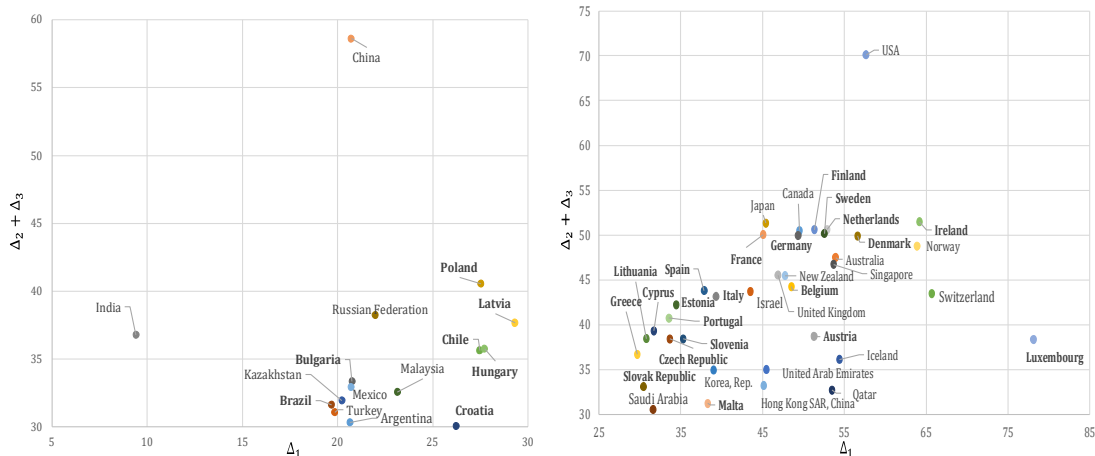


Figure 3 – DSI sub-indices, left: Category I, right: Category III: (EU countries in bold)

Source: Own study

The states of Germany and the Czech Republic can be assigned to category III, but fall into two groups here.

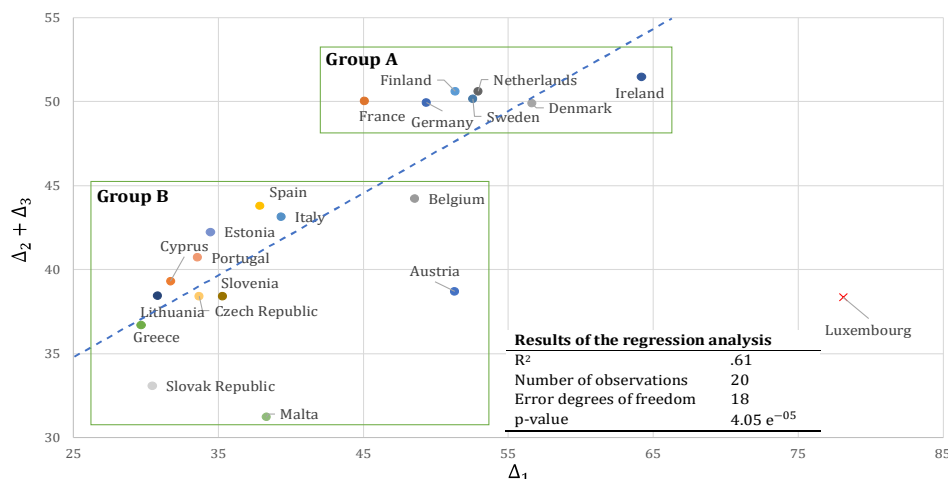


Figure 4 - Analysis of sub-indices for DSI, Category III:  $\Delta_1, \Delta_2 + \Delta_3$

Source: Own study

If the EU states in category III are divided into groups A and B, Germany can be placed in group A and the Czech Republic in group B. In order to develop proposals to strengthen the digital sovereignty of states, recommendations can be derived in various ways.

### Group recommendations

From the parameter analysis, recommendations for strengthening digital sovereignty can be derived for groups A, B and C and thus also for Poland, the Czech Republic and Germany. This can be done, for example, according to the following pattern.

It is recommended that the countries in Category I, Group C—Poland (and Latvia, Hungary, Croatia, Bulgaria)—strive to reach the top quartile of their comparison group. This can be achieved by focusing on reducing barriers to digital trade, expanding university education, promoting business activity, utilizing open data, and enhancing digitally accessible public authorities. This aligns with the following parameters that need to be strengthened in Group C: TOP University,  $X_{11}$ , OpenData Index,  $X_{14}$ , digital STRI,  $X_{23}$ , EDBI,  $X_{24}$  and Governments online,  $X_{29}$ . This will help these countries attain a higher ranking among the Category I states.

For the countries in Category III, Group B—Czech Republic (and Austria, Belgium, Italy, Spain, Malta, Estonia, Slovenia, Portugal, Cyprus, Lithuania, Greece, the Slovak Republic)—it is suggested that they aim to reach the intermediate level of Group A. To do this, the following areas of action are crucial: increasing exports of ICT services and imports of ICT goods, putting more emphasis on key technologies such as AI, and enhancing cooperation between universities and industry. This corresponds to the following parameters in Group B: Export ICT services (total),  $X_{19}$ , Import ICT goods total,  $X_{21}$ , Export ICT services from total,  $X_{20}$ , AI Index,  $X_{17}$ , and Leiden Index,  $X_{12}$ .

For the countries in Category III, Group A—Germany (and Ireland, Denmark, the Netherlands, Sweden, Finland, France)—the following recommendations are made: increase investment in start-ups, enhance the number of qualified individuals in the IT labour market, increase the research and development budget, increase the research and development budget and the number of ICT patents,  $X_{10}$ , and lower the barriers to setting up businesses. This is equivalent to the parameters: Start-up investments,  $X_5$ , Qualified ICT employees,  $X_9$ , R&D expenditure,  $X_{15}$ , ICT-Patents,  $X_{10}$ , and EDBI,  $X_{24}$ .

The parameters for the Leiden Index, qualified ICT employees and the TOP University Ranking show a need to catch up in the training of skilled employees in the industry of the states.

### Comparison of states with the USA and China

In the following, the 30 parameters of the countries Poland, the Czech Republic and Germany are compared with those of the opposing concept partners USA and China.

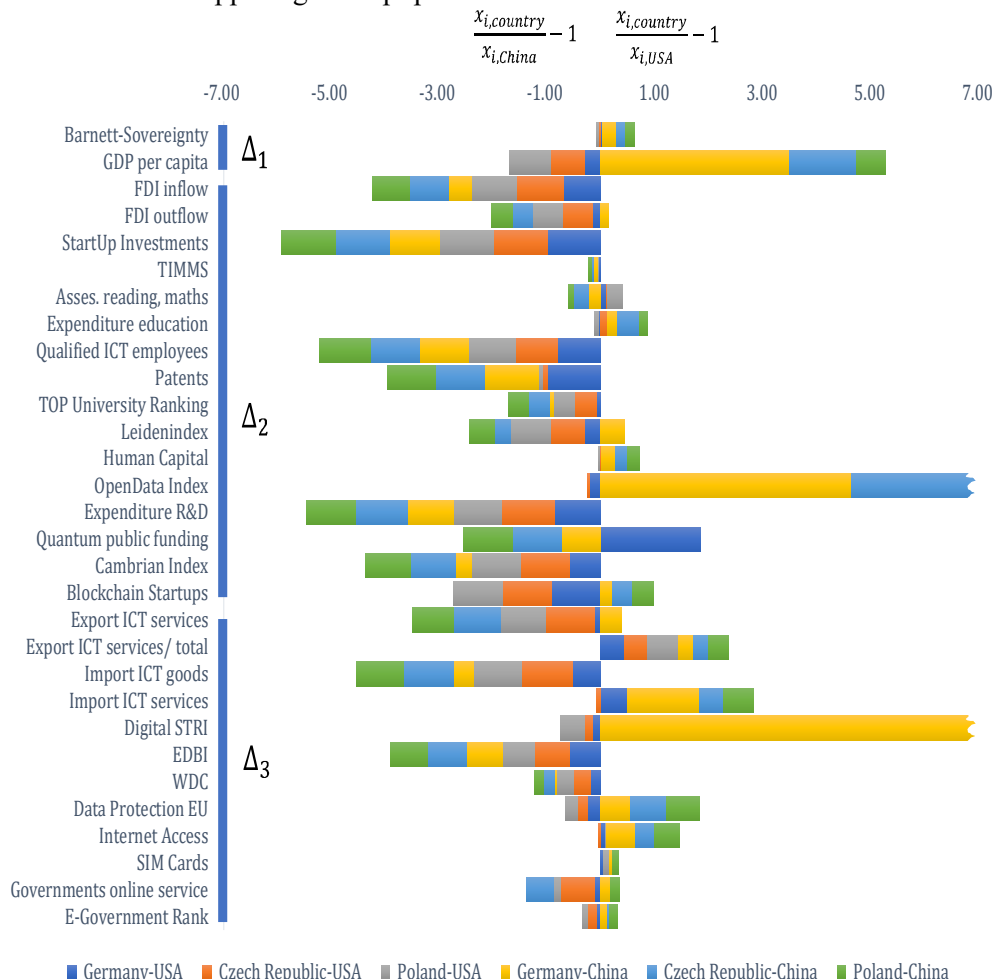


Figure 5 - Deviation Poland, the Czech Republic and Germany to USA and China

Source: Own study

The three sample countries, Poland, the Czech Republic, and Germany, need to catch up with the USA in most parameters related to digital sovereignty, with a few exceptions such as reading and writing assessments and ICT service exports. They also show a need to catch up with China in 17 out of 30 parameters, including FDI, start-up investments, qualified ICT employees, R&D expenditure, ICT patents, and investments in Quantum and AI. Education and training of qualified ICT employees in cooperative approaches between universities and industry is identified as an important area for strengthening digital sovereignty in these countries.

### Discussion and conclusions

In this paper, the authors compare the digital sovereignty of different UN states, using the method of comparative index analysis, with a particular focus on: Germany, the Czech Republic and Poland. In the UN's ranking of the sovereignty of its member states, Germany was ranked 13th, the Czech Republic

29th and Poland 35th. The leader in sovereignty is still the USA. The above ranking was carried out on the basis of parameters such as: control over digital data and infrastructure, security of information systems, privacy of digital information, national development of digital technology including: knowledge, skills and competence of human resources in the field of ICT. Therefore, in the course of a discourse based on the UN's ranking of digital sovereignty, it is important to highlight that China, despite its digital dominance, was ranked 31st. This is influenced by limited territorial institutionalism. China, which produces digital technologies largely independently through strong regulation and isolation, still follows the still limited need for cyber sovereignty of the individuals who make up society. Based on its own statistical analyses, a division into quartiles was made according to the level of digital sovereignty of the UN member states, which is the basis for the cross-categorisation. Thus, Germany has been classified at the intermediate level. Recommendations have been proposed for countries representing this level, which include, among others the following: increasing investment in start-ups or creating social intellectual capital. The Czech Republic was ranked in the same quartile as Germany, one level lower. Also in this concluding discourse, it is emphasised that the most relevant recommendations for countries classified in the same category as the Czech Republic are: an increase in exports and imports of ICT services and goods, the diffusion of AI (including machine learning and now multivariate deep learning), as well as an increase in the number of innovative ICT projects carried out through binary cooperation of universities, R&D units with industry and also intermediary organisations.

Poland was classified in the quartile of countries, where work related to the diffusion of new, innovative ICT solutions should be intensified. Key recommendations for countries classified in the same group as Poland are: mitigation of barriers to digital trade, diffusion of electronic document circulation systems and electronic document management systems - especially in public administration. At the same time, it is emphasised that in all the European countries highlighted, despite their classification at different levels, a special role is attributed to human resources, their development and, in particular, the creation of social intellectual capital, which is an accelerator for the intensification of digital sovereignty activities. Detailing the research in this article, in the context of comparing the digital sovereignty of the three highlighted European countries with that of the leading United States, the results are collated for thirty parameters that multidimensionally identify digitisation and digitalisation activities. Although the USA is the leader in all identified areas, it is observed that the differences are beginning to blur. This demonstrates the intensification of multifaceted activities in European countries. This is definitely a move in the right direction, yet, it needs to be stressed that the European struggle to maintain its digital sovereignty is largely dependent on import of IT technologies from the US market where big production companies possess adequate capabilities to satisfy the need for digital products from the European market. Presently, the conducted analysis of the listed thirty parameters of digital sovereignty demonstrates quantitative differences in the dynamics and effectiveness of action. This also applies to Germany, the Czech Republic and Poland, in the areas defined by these parameters. In summary, top-down, society-wide, legislative, legal and administrative actions are important in the context of improving digital sovereignty. These, however, should not follow the Chinese model of confinement within the territory of Europe, as it lacks the capacities of big Chinese high-tech companies and is unable to be digitally self-sufficient. Hence, such activities are being implemented in varying degrees of intensification in all three selected European countries. In Poland, in the context of recommendations introduced for countries classified at the same level, an "open" social coalition for the introduction of the "Polish Charter of Digital Sovereignty" has been established. This coalition was formed by: economists, scientists, experts in new technologies, experts of consumer organisations, with the aim of strengthening lobbying in this area. The main lines of action for digital sovereignty have been identified, which also confirm the relevance of the formulated recommendations proposed in the article. Among these lines of action, the following stand out: the sealing of VAT and better parcel controls in e-commerce, the introduction of a digital tax for digital giants to support the digital sovereignty action of the remaining players in the national economy, the appointment

of a consumer representative and the strengthening of the digital competences of the President of the Office of Consumer and Competition Protection, the obligation of digital platforms to report regularly, and the introduction of an OSA (Algorithm Impact Assessment) mechanism to verify automated systems in terms of their security and impact on competition and consumers.

Further research that will be continued in this area will focus, among others, on evaluating the implementation of the recommended measures in, among others: Germany, the Czech Republic and Poland and measuring their impact on the change of categorisation in the determined quartiles of digital sovereignty of UN member states.

## Literature

1. Barnett, M. A. (2017). Quantifying Sovereignty: A New Way to Examine an Essential Concept.
2. Beltrán, N. C. (2016). Technological Sovereignty: What Chances for Alternative Practices to Emerge in Daily IT Use? *Hybrid. Revue des arts et médiations humaines*. (03).
3. Bjerre, L., Römer, F., & Zobel, M. (2019). The Sensitivity of Country Ranks to Index Construction and Aggregation Choice: The Case of Immigration Policy. *Policy Studies Journal*, 47(3), 647–685. doi.org/10.1111/psj.12304
4. Cottey, A., Csernaton, R., Dobber, J., Fiott, D., Ghalehdar, P., Groitl, G., & Martill, B. (2022). *Beyond autonomy: Rethinking Europe as a strategic actor*. London, UK: LSE Ideas.
5. Creemers, R. (2020). *Governing cyberspace: Behavior, power, and diplomacy, China's Conception of Cyber Sovereignty. Digital technologies and global politics*. Lanham: Rowman
6. DeNardis, L., Cogburn, D. L., Levinson, N. S. Musiani, F. (2020). *Researching internet governance: Methods, frameworks, futures*. doi.org/10.7551/mitpress/12400.001.0001
7. Haché, A. (Ed.) (2014). *For Free Information and Open Internet: Technological Sovereignty*. Paris. Retrieved from [https://www.coredem.info/IMG/pdf/pass11\\_an-2.pdf](https://www.coredem.info/IMG/pdf/pass11_an-2.pdf)
8. Hannas, W. C., & Tatlow, D. K. (2021). *China's quest for foreign technology: Beyond espionage. Asian security studies*. doi.org/10.4324/9781003035084
9. Holtmann, D. (2018). *Potsdamer Beiträge zur Sozialforschung: Die Performanz von Politik, Wirtschaft und Gesellschaft für 43 Länder und 6 Wohlfahrtsregime*. Potsdam: Wirtschafts- und Sozialwissenschaftliche Fakultät / Sozialwissenschaften.
10. Kaloudis, M. (2021). Sovereignty in the Digital Age – How Can We Measure Digital Sovereignty and Support the EU's Action Plan? *New Global Studies*, doi.org/10.1515/ngs-2021-0015
11. Kaloudis, M. (2022). From Quality to Quantity: How Can Digital Sovereignty be Parsed into Measurable Components? doi.org/10.11118/ejobsat.2022.011
12. Kucęba, R., & Chmielarz, G. (2018). Issues of personal data management in organizations – GDPR compliance level analysis. *Informatyka Ekonomiczna*, 1(47), 58–71. doi.org/10.15611/ie.2018.1.05
13. Kukkola, J., Ristolainen, M., & Nikkarila, J.-P. (2019). GAME PLAYER Facing the structural transformation of cyberspace. *Finnish Defence Research Agency Publications*. (11).
14. Maurer, T., Skierka, I., Morgus, R., & Hohmann, M. (2015). Technological sovereignty: Missing the point? In *Cyber Conflict: Architectures in Cyberspace (CyCon), 2015 7th International Conference on*. Symposium conducted at the meeting of Global Public Policy Institute.
15. OECD (2020). *Handbook on Constructing Composite Indicators*. Retrieved from <https://www.oecd.org>
16. Pohle, J., & Thiel, T. (2021). 2.3.2 Digitale Souveränität. In C. Pierrat (Ed.), *Digitale Gesellschaft: Band 36. Der Wert der Digitalisierung: Gemeinwohl in der digitalen Welt* (Vol. 36, pp. 319–340). Bielefeld: doi.org/10.14361/9783839456590-014
17. Polatin-Reuben, D., & Wright, J. (2014). An Internet with {BRICS} Characteristics: Data Sovereignty and the Balkanisation of the Internet. *4th USENIX Workshop on Free and Open Communications on the Internet (FOCI 14), 2014*.
18. United Nations (2022). *E-Government Survey 2022: Digital Government in the Decade of Action for Sustainable Development*
19. Werthner, H., Prem, E., Lee, E. A., Ghezzi, C. (Eds.) (2022). *Springer eBook Collection. Perspectives on Digital Humanism* doi.org/10.1007/978-3-030-86144-5
20. Yera, A., Arbelaitz, O., Jauregui, O., & Muguerza, J. (2020). Characterization of e-Government adoption in Europe. *PLOS ONE*, 15(4), 1–22. doi.org/10.1371/journal.pone.0231585



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## NON-MATERIAL MOTIVATIONAL FACTORS IN THE OPINION OF GENERATION Z REPRESENTATIVES

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**Abstract:** The contemporary socio-economic situation in the world, the introduction of modern technologies and constant changes in the labor market mean that each generation entering adulthood has new needs and different motivational factors should be applied to it. The aim of the article is to present the needs of the youngest generation Z, which is currently making its debut on the labor market. The opinions of representatives of generation Z were constructed on the basis of conducted empirical research with the use of survey method. The article is of theoretical and empirical character.

**Key words:** non-material incentives, motivation, generation Z, labour market.

### Introduction

Motivation plays a key role in the life of every human being, affects his development and commitment to work. The basic instrument of motivation is financial remuneration, which allows you to meet basic physiological needs, however, the guarantee of adequate remuneration is the starting point for extending material motivation with an additional non-financial (non-material) element. Each person is different and should be motivated in a different way, just like each generation has its own needs, goals and values, the satisfaction of which requires the use of specific stimuli. For representatives of the youngest Generation Z (people born after 1995), work is only a means to achieve the set, individual goals and dreams. This generation values self-development and eagerly participates in trainings offered by companies. The priority for Generation Z is to maintain work-life balance and be able to pursue their passions and interests. Appropriate motivation is the role of the employer, who should know the needs of all employees, regardless of which generation they belong to. These arguments, among others, argue for the great importance that the process of non-wage motivation plays in the labour sphere of representatives of generation Z.

The purpose of this paper is to present and discuss the results of the research which investigate the expectations of representatives of Generation Z regarding non-material incentives that should be offered by the employer and expectations regarding the atmosphere in the workplace, e.g. employee adaptation, management style, trust or relationships in the organization. The empirical part of the article presents the results of the conducted survey research analyzing the above issues. The presentation of the research results is preceded by a discussion of the issues of motivation, non-wage motivators and the characteristics of generation Z, based on literature research.

### Theoretical aspects of motivation

For years, people have been looking for an answer to the question - how and with what means to motivate people to work. A number of theories of motivation and incentive systems have been developed in the scientific literature. The literature of organization and management presents a whole range of definitions of motivation. The term motivation comes from the Latin word *movere*, which means to move, to encourage someone to do something. According to psychologists, "motivation is an internal human force that activates and organizes his actions aimed at achieving the intended goal. Motivation stems from instincts, drives and states of tension. The psychophysical activity of the employee related to his mobilization and willingness to undertake difficult tasks depends on the type of motivation"

(Pieter 1963, p. 155). S. P. Robbins is of the opinion that motivation is “the desire to do something, dependent on the ability of this action to satisfy some need of a given individual” (Robbins 1994, p. 94). a need is defined as "a physiological or psychological lack of something that makes certain outcomes attractive" (Robbins 1994, p 94). However, according to S. Zając, incentive systems may have a wide range of solutions tailored to the various needs of the employee (Zając 2014, pp. 185-202). The motivation process should contribute to the proper implementation of the organization’s goals and tasks. For this purpose, it is necessary to know about the people you intend to motivate. It is necessary to get to know the employee's personality traits, his aspirations, and inclinations. This will help to adjust the appropriate means of influencing the employee (Siwek 2013). According to L. H. Haber, “motivation is the individual approach of the manager to the employee by understanding his expectations and needs and creating the right working conditions while choosing the best way to manage. In this way, the employee's actions will become the basis for achieving the company's goals (Haber 1995, p. 144).

### **Non-financial motivation**

The literature of organization and management usually divides motivation tools into material incentives and non-material motivators. Material tools make employees ready to make the greatest effort to meet felt needs (Białosiewicz et al., 2011, p. 71). Compensation for work includes a fixed wage, short-term financial incentives, and long-term financial incentives. Analyzing employee involvement, it can be argued that "basic salary is not a determinant of motivation to work" (Sekuła 2011, p. 17). The movable parts of remuneration have a much greater motivational meaning, among them, e.g. short-term financial stimulus. They are awarded to employees who perform their duties in an exemplary manner, are entrepreneurial, creative, contribute to improving the efficiency and quality of work and show their own initiatives (Nieżurawska 2010, p. 80). According to Janowska, non-wage motivators are incentives based on the employee's recognition of the values and characteristics of work, challenges, climate, and environment (Janowska 2004, p.147). These are non-monetary incentives received by the employee, e.g. cafeteria forms of remuneration that are adjusted to expectations of a given employee. The essence of cafeteria forms of remuneration is to match benefits and privileges to the employee's expectations. It consists in choosing a tangible form of payment within a predetermined amount” (Przewoźna-Krzemińska 2014, p. 80). However, non-cash benefits should not be separated from financial incentives. In Poland, flexible remuneration systems are often equated with a cafeteria (Nieżurawska 2014, 8(46)). For some representatives of the presented generation of employees, stability of work, development, the possibility of influencing decisions regarding work, interest from the supervisor, recognition, prestige, atmosphere in the company, fair treatment or respect are often important. This form of motivation is definitely more difficult than creating an incentive financial system.

The most commonly used non-wage benefits in companies include: medical care in a private medical center, additional insurance, also for family members, loans and preferential loans, deferred remuneration system (shares, share options, bonds), admission tickets (sports centers, Spas, theatres, philharmonics and etc., vouchers for services, social co-financing for leisure, reimbursement of education costs, employee training, free meals, company car, parking, monthly tickets, casual days, flexible working hours, "golden parachute" - in the event of a merger or acquisition of the company, the manager is guaranteed employment in the new organization in a similar position or will receive an adequate security pay, work in the company's branch abroad, employee benefits program (Porębska 2004, 175).

These benefits are characteristic of Generation X, whose representatives appreciate praise from employers, as well as free time, which they are often willing to give up in the name of higher earnings and appreciation in the company. The effect of the selected non-wage incentive instrument depends on various factors, e.g. the age of the employee (representative of a specific generation), level of education, position held, family situation, personality, then the incentive measures are effective. Appropriately



motivating employees is the duty of every employer, it is difficult, especially when the company simultaneously employs representatives of different generations who have different goals, values and ambitions. What really motivates the representatives of the Z generation will be partly presented by the research results presented in this article.

### Generation Z

If employers want to hire the best and brightest graduates, they should identify and listen carefully to these defined and indicated expectations. If not, companies risk losing valuable young talent to competitors. "In the conditions of globalization and growing competition, enterprises should pay attention to: improving the quality of work by caring for the quality of employment, continuous education and training for employees, protection of employee rights and balance between work and non-professional life, which affects the level of employee satisfaction" (Karczewska 2018, p. 25). For Generation Z, work-life balance is the basis for functioning in professional life. "The generation for whom work-life balance has already become obvious appreciates *work and lifestyle*. Employment is therefore supposed to give a sense of meaning, and the company's philosophy should be consistent with the professed values and support the lifestyle. (Machnik 2019, s.16). Generation Z is characterized by the ability to learn and efficiently acquire knowledge, employees are good at teamwork, goal-oriented, they are a challenge for the employer, they fight for their own, while they treat remote work as a standard and not a privilege, they do not know the world without the Internet, they are afraid about their future, a high salary is crucial for them, they know languages, they are socially sensitive, unconventional, creative, they pay attention to the company's mission, they excel in international work environments, they reject toxic jobs, and they prefer freedom as well as flexibility (2022, Generations on the Polish labour market).

### Methodology

The aim of the research was to investigate non-material factors in motivation of generation Z representatives in the sphere of labour and expectations regarding the atmosphere in the workplace, e.g. employee adaptation, management style, trust or relationships in the organization. The chosen research method was survey method. The study has been conducted on the representatives of generation Z (born after the year 1995), specifically on 324 students of Management Faculty of Czestochowa University of Technology during the first quarter of year 2023. The sample was targeted and included the students from the final year of the first and the second degree of studies on Management Faculty. These students are coming into the labour market after finishing their degree and quite often already are the employees. The questionnaire included closed questions with the answers on the Lickert scale or nominal scale. It covered several issues concerning the expectations of young people from the employers in terms of conditions of hiring and employment. The statistical calculations have been conducted with the use of the Statistica software. The percentage of rejected surveys equaled 60.

The questions posed by the researchers were as follows:

- Q1: Do young employees value the most aspects connected with work-life balance among non-wage incentives?
- Q2: Do young employees value good relations with coworkers or rather good relations with employer?
- Q3: Do young employees value trust and transparency when it comes to the employer?

### Research results and discussion

First issue investigated in the research were the expectations of the generation Z from the non-material benefits from the employer. The respondents could decide in each of the studied aspects, if this is important for them or not and was not restricted with the number of answers. The majority of young people expects co-financing training, courses, studies, etc. (60.4%), private medical care for the employees (55%) and extra vacation days (52.2%). A large share of answers concerned as well

organizing internal trainings and courses etc. (46%), free meals in the work time (34.3%), parking spaces (34.3%) and an access to sports services (29.2%). Some of the representatives of generation Z also care about co-financing of transport to work (28%), company car (25.5%) or private medical care for the family members (24.2%). The rest of the preferences are presented in table 1.

*Table 1. Non-wage expectations of representatives of generation Z*

Evaluate what you expect in terms of non-wage benefits from the employer:	percentage of people who chose a given answer
co-financing of trainings and studies	60.4
private medical care for the employee	55.0
additional vacation days	52.2
organizing internal trainings for the employees	45.9
free meals during work	34.3
parking spaces	34.3
access to sport services e.g. (fitness tickets)	29.2
co-financing transport to work	28.0
work car	25.5
private medical care for the family members of employee	24.2
co-financing of insurances	23.6
fuel card	23.3
social facilities, e.g. a relaxation zone	16.4
free transport to work	13.2
kindergarden for employees children	8.2
vouchers	6.6
cinema, theater tickets	4.4
other	0.3

Source: Own elaboration based on empirical research

The authors checked as well if there are statistically significant differences between men and women in choosing the above mentioned aspects with the use of the U-Mann Whitney test ( $p < 0.05$ ). Statistically significant differences have been established only in two expectations: women chose the kindergarden of employees' children more often than men and men chose the gas card more often than women. Other differences were statistically insignificant.

Second analyzed issue was the scope to which the nonmaterial aspects are important in terms of working atmosphere in organizations. The respondents assessed the scope on the scale from not important to very important. The majority of generation Z representatives assess as very important mutual trust between employer and employee (63.2%), transparency of the employer (fairness of actions) (63.8%) and positive relationships with colleagues (60.1%). Offering support (eg. mentoring), especially at the beginning of work (56%), positive relationship with the supervisor (56.3%) and mutual trust between colleagues (52.8%) were also very much appreciated. Not so much important occurred such aspects of organizational atmosphere as: activity of the superior in case of conflicts (29.2%) or possibility of psychological consultations for the employees (22.6%)

*Table 2. Opinions on the desired atmosphere in future work*

Rate how important the following aspects are for you in terms of the work atmosphere in the organization when choosing a future employer:	<i>not important</i>	<i>of little importance</i>	<i>of medium importance</i>	<i>important</i>	<i>very important</i>
offering support (e.g. mentoring), especially at the beginning of work	0.3	2.8	9.1	31.8	56.0
appreciation from the supervisor	0.6	1.9	14.5	35.5	47.5
positive relations with supervisor	0.0	1.6	8.5	33.6	56.3
democratic style of management	2.2	6.3	30.8	39.0	21.7
activity of supervisor in case of conflict between coworkers	0.9	5.0	22.3	42.5	29.2
mutual trust between employees and supervisor	0.6	0.6	5.3	30.2	63.2
transparency of an employer (honesty)	0.9	0.9	7.5	26.7	63.8
mutual trust between coworkers	0.3	1.9	10.7	34.3	52.8
positive relations with coworkers	0.3	1.6	8.2	29.9	60.1
possibility of psychological consultation for employees	6.9	12.3	27.4	30.8	22.6

Source: Own elaboration based on empirical research

It occurred that respondents value most the co-financing of trainings and private medical care most, not aspects connected with additional free vacation days, social facilities or kindergarden (Research question 1). Moreover, they value positive relations with coworkers more than with supervisor, and appreciate transparency and trust in terms of relations with employer (Research questions 2, 3).

In the research results, the representatives of generation Z, among non-wage incentives, mention primarily the need to co-finance learning (training, studies) from the employer, they are interested in additional vacation days and the possibility of remote work. They expect good working conditions and tools (company car, parking space, free food), but not necessarily social facilities with a relaxation zone, which they provide themselves, similarly to a kindergarten for children (women are more interested), they are not interested in gift vouchers, but they willingly use co-financing of sports services and medical insurance for their loved ones. The help of the employer in employee adaptation (mentoring) also seems to be crucial for the representatives of the Z generation, while for nearly half of the respondents, appreciation from the superior is extremely important. The presented research results regarding the atmosphere clearly indicate that the representatives of the surveyed generation value above all that the employer is honest, that the company is dominated by mutual trust between the supervisor and the employee, and trust between employees.

## Conclusions

The challenge for modern organizations is to respond to the demographic changes taking place on the market. The article presents a fragment of broader research on the opinions of representatives of generation Z on expectations related to professional work. The generational change regulates the needs and expectations on the labor market, and people starting work in the company are usually guided by their needs, expectations and aspirations. Appropriate communication between employees and positive relations between employees are very important factors for the representatives of the youngest generation on the labor market influencing the perception of the quality of the working environment (Robak 2023, s. 84).

In conclusion, "young people entering the labor market have clearly defined expectations regarding how they want to work and what they will receive in return, and not only remuneration adequate to the work performed, but something more" (Przewoźna-Krzemińska, Cichobłaziński 2018, p.70 ). The research was limited due to the size of the sample and could be continued on the students of other universities.



## Literature

1. Becton J.B. Harvell, Walker H.J., Jones-Farmer A. (2014), *Generational differences in workplace behavior*, „Journal of Applied Social Psychology”, 44 (3).
2. Białasiewicz T., Buczkowski T., Czerniachowicz B. (2008), *Elementy nauki o przedsiębiorstwie*, ECONOMICUS, Szczecin.
3. Cichobłaziński L., Przewoźna-Krzemińska A. (2018), *Przywództwo relacyjne odpowiedzią na wymogi współczesnego rynku pracy*, [w:] Bazan-Bulanda A., Kwiatek A., Skiba M. (red.) *Człowiek w organizacji. Nowe trendy w zarządzaniu zasobami ludzkimi*, Oficyna Wydawnicza Stowarzyszenia Menedżerów Jakości i Produkcji, Częstochowa.
4. Deloitte <https://www2.deloitte.com/pl/pl/pages/human-capital/articles/Raport-Pierwsze-kroki-na-ryнку-pracy-2021> (data dostęp: 10.05.2023).
5. Dolot A., *The characteristics of Generation Z*, <https://www.ementor.edu.pl/artukul/index/numer/74/id/1351> (access date: 10.05.2023).
6. Grzesik K., Kwiecińska M. (2018), *Systemy wartości i modele mentalne pokolenia Z preferowane w miejscu pracy (w:) Wyzwania w zarządzaniu zasobami ludzkimi we współczesnych organizacjach. Od teorii do praktyki*, Przedsiębiorczość i zarządzanie, t.19, Uniwersytet Ekonomiczny, Wrocław.
7. Haber L.H.(1995) , *Management. Zarys zarządzania małą firmą*, WPSB, Kraków.
8. Janowska Z., 2004, *Zarządzanie zasobami ludzkimi*, PWE, Warszawa.
9. Karczewska A. (2018), *Koncepcja równowagi praca-życie a satysfakcja pracowników we współczesnych organizacjach* [w:] Bazan-Bulanda A., Kwiatek A., Skiba M., *Człowiek w organizacji. Nowe trendy w zarządzaniu zasobami ludzkimi*, Oficyna Wydawnicza Stowarzyszenia Menedżerów Jakości i Produkcji, Częstochowa.
10. Kopertyńska M. W. (2009), *Motywowanie pracowników: teoria i praktyka*, Placet, Warszawa.
11. Kozioł L. (2011), *Instrumenty motywacji pracowników* [w:] Stabryła A., ( red.), *Analiza i projektowanie systemów zarządzania przedsiębiorstwem*, Wydawnictwo Mfiles, Kraków.
12. Machnik M. (2019), *Czego szukają studenci? Pokolenie Z w rzeczywistości zawodowej*. Przewodnik Employer Branding Book, HRM Institute, Kraków.
13. Nieżurawska J. (2010), *Elastyczne systemy wynagrodzeń*, Wydawnictwo Dom Organizatora, Toruń.
14. Nieżurawska J. (2014), *Systemy kafeteryjne jako forma wynagradzania menedżerów Z pokolenia Y*, 2014, Zeszyty Naukowe Wyższej Szkoły Bankowej, Nr 8(46) 214. Wrocław.
15. Pieter J. (1963), *Słownik psychologiczny*, PWN, Warszawa.
16. Porębska J. (2004), *Motywowanie poza płacą. Jak można motywować bez podwyższania wynagrodzeń w firmie*, „Gazeta Prawna” 2004, Nr 175.
17. Przewoźna-Krzemińska A. (2010), *Motywacyjne uwarunkowania organizacji pracy zespołowej* [w:] F. Byłok, A. Czarnecka, A. Słocińska (red.), *Człowiek, praca, organizacja wymiary socjologiczne, psychologiczne i zarządcze*, Wydawnictwo Politechniki Częstochowskiej, Częstochowa.
18. Przewoźna-Krzemińska A. (2011), *Kafeteryjne systemy motywowania pracowników* [ w:] A. Pabian ( red.), *Nowe kierunki, metody, techniki w zarządzaniu i marketingu*, Wydawnictwo Politechniki Częstochowskiej, Częstochowa.
19. *Raport - Pokolenia na polskim rynku pracy 2022*, (2022), wyd. Grafton Recruitment, <https://www.grafton.pl/pl/pokolenia-na-polskim-ryнку-pracy> (dostęp: 19.11.2022).
20. Robak E. (2023), *Komunikacja i relacje pracownicze w pracy zdalnej w opinii pokolenia Z*, (w:) Byłok F., Czarnecka A., Przewoźna-Krzemińska A., *Uwarunkowania i dylematy funkcjonowania człowieka we współczesnej organizacji*, Wydawnictwo Politechniki Częstochowskiej, Częstochowa.
21. Robbins, S. P., Judge T. A. (2011), *Zachowania w organizacji*, PWE, Warszawa.
22. Sekuła Z. (2008), *Motywowanie do pracy teorie i instrumenty*. PWE. Warszawa.
23. Siwek M., (2009), *Motywowanie pracowników jako narzędzie wzrostu efektywności organizacji i wyznacznik jej sukcesu*, *Studia i Materiały*, Rok 13, Nr 2/2009.
24. Zajac S., *Wpływ motywowania pracowników na jakość i efektywność pracy w przedsiębiorstwie*, *Prace Naukowo-Dydaktyczne* 2014, pp 185-202.



## **EXAMINATION OF THE APPLICABILITY OF BUSINESS MODELS IN START-UP COMPANIES**

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**Abstract:** Development's main driver is innovation, still fact 90% of start-ups – operating as industry's important innovation bases - will fail.

Current studies primarily examine success of start-ups with disruptive - mostly IT-related - capabilities setting them as benchmarks. Research's subject is which business model could result higher success rates of start-ups having average abilities. With primary questionnaire research surveyed expectations of start-ups regarding their business models and also examined them with secondary literature research. Start-up's main challenges were analysed in detail and identified most important reasons for their failing.

Research's conclusion showed the expectations of start-ups regarding their business models exceed existing models and stretch their limits. Nature of start-ups are not to pay enough attention to planning/organization of business operations. Based on the results we started developing foundations of chameleon business model, which allows better, more flexible planning of business operations, what may contribute to increasing success of start-ups.

**Key words:** business model, challenge, expectations, planning, start-up

### **Introduction**

In our fast-changing economic environment, we place a high value on innovation, innovative ideas and innovation-driven enterprises. The definition of a start-up comes from American entrepreneur Eric Ries, author of *The Lean Start-up*, which says that a start-up is an institution that provides a product or service that incorporates innovation under uncertain conditions (Ries, 2011). In all cases, start-ups are characterised by the fact that their solutions involve innovation relative to the current state of the market, they implement non-business plans, they listen to market needs, they seek appropriate business models by reacting quickly, and they design both product and business model for the international market in order to be scalable.

Being a start-up is a state of being for a certain period of time. When a company becomes a stable market player, turns a profit and the initial team of a few people swells to hundreds, we call it a scaleup, but the start-up mindset remains in most cases, and the risk-taking and continuous innovation necessary for further growth remains part of the company culture". Scaleup means a start-up company in the growth and production phase.

The high failure rate of these businesses is thought-provoking and worthy of deeper analysis. Therefore we set the following research objectives as the main aim of our research: to assess the awareness of the use of business models, to assess expectations of business models and to analyse the suitability of business models for start-ups.

### **Business models: an introduction**

Business models are one of the most important management topics of our time. They can be discussed from different points of view such as:

- theories and utilization (Zott et al. 2010);
- their role in info communication and e-business (Eisenmann 2002; Nemeslaki et al. 2008);
- business model design (Osterwalder et al. 2005);

- tools of innovation (Horváth et al. 2018); its role in business development (Móricz 2009; Morris et al. 2005, Teece 2017);
- in sustainability or green aspects (Seroka-Stolka et al. 2017; Geissdoerfer et al 2020).

Business model innovation is mainly related to maintain or improve competitive advantage, nowadays with a preferred focus on sustainable, green solutions (Andreini et al, 2022; Bendig et al, 2022; Chapman et al, 2022). Business models should serve as a link between strategic planning and the operational levels, as a tool for helping the operation under the continuously changing environment. As it is defined by Osterwalder et al. (2005), a business model describes how a business creates, delivers and captures value, business models shall be adaptive and open for change to be suitable to follow the changes in the environment. Besides green solutions, lean business models are also preferred by many industries like technology, biotechnology, computer science, telecommunication (de Faria et al., 2021; Shepherd and Gruber, 2021).

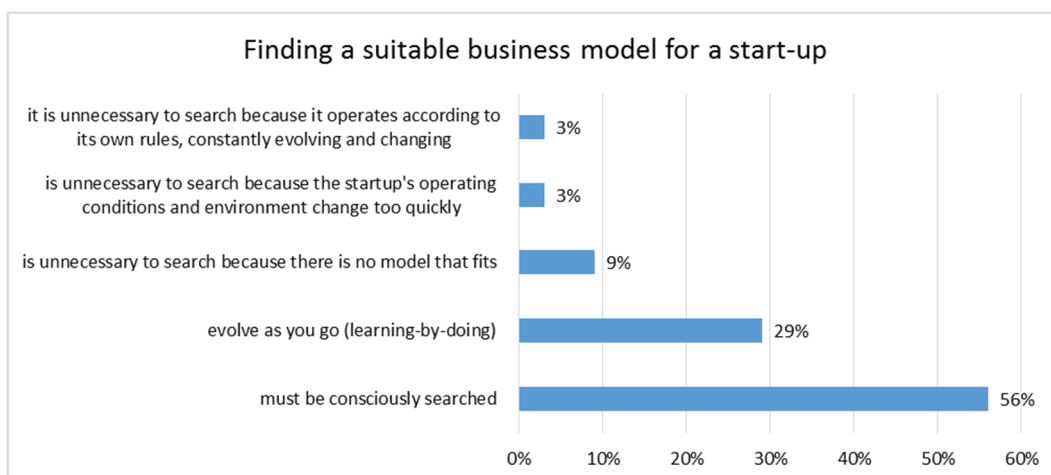
### Primary survey among start-up companies

To analyse the importance the business models and to explore the special requirements of their users, a primary research survey was conducted among people who work with start-ups (direct stakeholders) and people who work closely with start-ups (external opinion leaders), with a particular focus on the latter, given the fact that the functioning and success of start-ups is highly dependent on the quality of their support environment.

As the research was focused on the business behaviour of a very specific and rare formation in entrepreneurial practice – start-ups – we could only consider the relevant respondents whom we know personally and have works or presently work in this field or have or had close working relationship with this field. Accordingly, the questionnaire was sent to potential respondents in two ways: through start-up platforms and based on personal referrals.

The first question asked how consciously the start-up entrepreneurs use their business models. The statements and the answers are summarized by Fig. 1.

56% of respondents think that the model should be searched consciously, 29% want to develop as they go through the entrepreneurial process (by self-learning or learning-by-doing methods), while 15% think it is unnecessary for some reason.



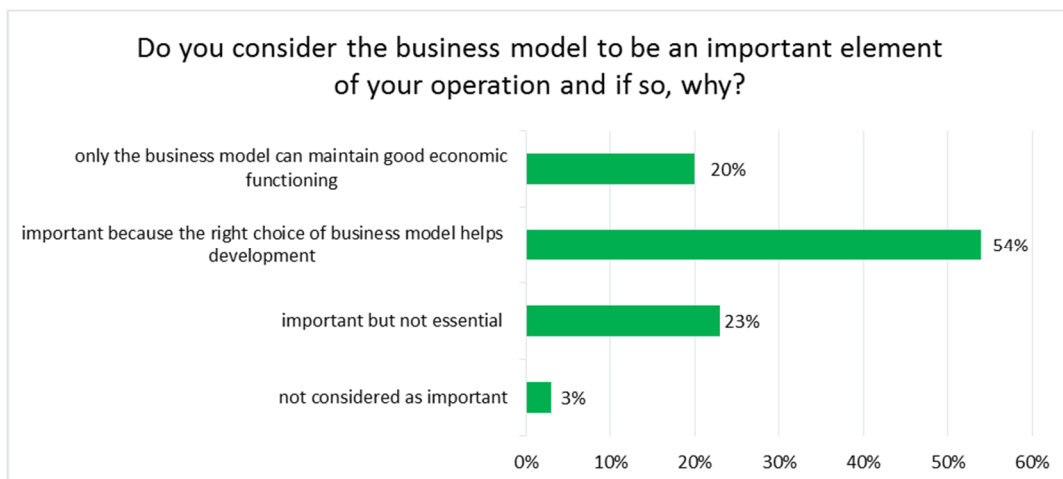
**Figure 1. Respondents opinion about choosing a suitable business models (%)**

Source: own research

Respondents were also asked about knowing the principles of existing business models, namely subscription (Netflix), platform (Amazon), network (multi-level marketing), collective business model (franchising, business alliances), loyalty-based (rewards consistent and/or increasing purchases), innovation driven (tech companies), open, inbound (positioned near potential customers). Answers showed that the respondents have a basic knowledge about the different business model types. The proportion of respondents with knowledge of the models listed was fairly even at 12%+/-2%, so these models are roughly equally well known, but the average number of models known per respondent is 4.6 out of the 7 typical models listed, i.e. 68% average knowledge of the models.

Third question was related to the conscious selection between business models: “Before choosing your own start-up business model, how many business models did you analyse in detail?” Most of the respondents (38%) evaluated 2-3 models, 21% evaluated minimum four, 9% checked one model and 32% of the respondents did not checked any models. As a summary, when choosing a model, 59% of respondents considered and analysed 2-4 models, 32% did not consider any.

Fourth question was related to the business model as an important element of the Business (Fig. 2.). The existence of a business model were considered important, 20% of respondents consider that without business model one cannot function well, 54% consider a well-chosen business model is important and useful tool of development and 23% consider it to be important but not indispensable. Only 3% did not considered business models as an important element of operation.



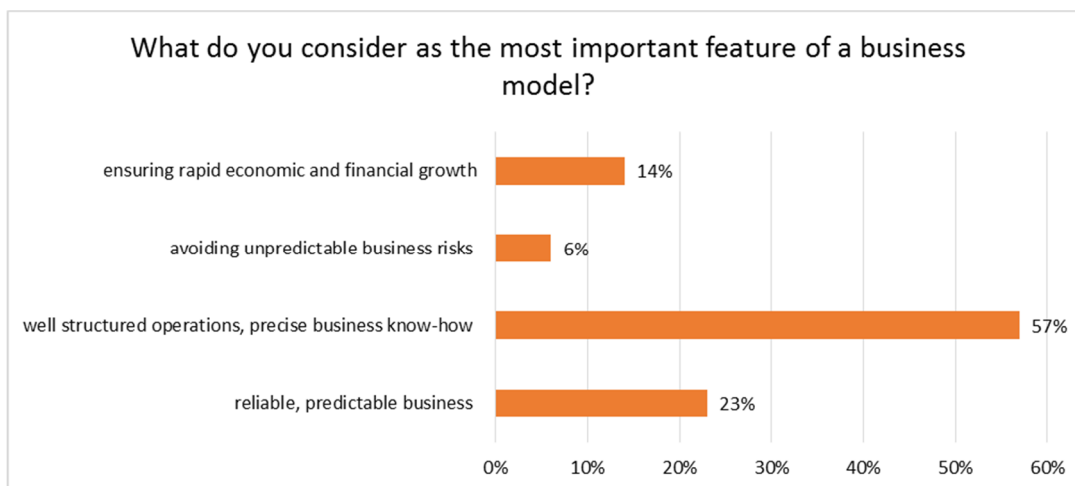
**Figure 2. Respondents' opinion about the importance of business model (%)**

Source: own research

For the next question, “What are the main criteria that led you to choose your current business model?” 31-31% of the respondents said, “it fits well to my business” and “this is the traditional business model of the industry I work”, 26% chose the answer “it provides the highest revenue and profit”, while 11% answered that “it poses the minimum risk to my business”.

Respondents were also asked about what they think about the role of their business model. According to 49%, it is “an opportunity to develop my business”, 45% it is a “consciously adopted, useful business structure”, and according to 3-3% of the respondents it is just “an external requirement” or “a necessary but limiting constraint”.

For the question “What do you consider as the most important feature of a business model?” the answers are given in Fig. 3.

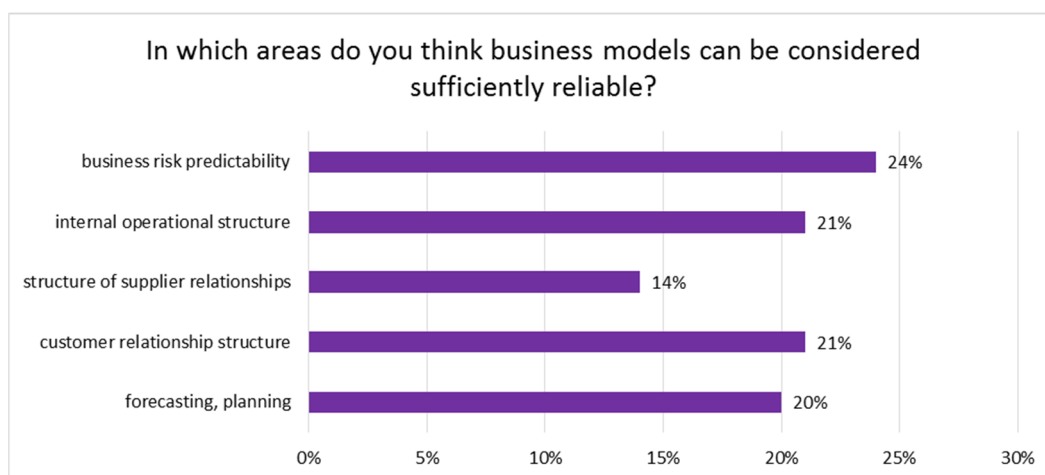


**Figure 3. Respondents' opinion about most important features of business models (%)**

Source: own research

Two questions were related to the adaptability of the business models. For the question “To what extent do you think your business fits in with known and common business models?” most of the answers (68%) showed positive opinion. 51% of the respondents answered that the own business fits fairly and 17% indicated that it fits perfectly to the business to existing business models. 23% of the respondents told that it does not or hardly fits and 9% answered that they do not know any business models that fit to the existing business.

For the question “In which areas do you think business models can be considered sufficiently reliable?” respondents could choose more answers. The answers for this question are summarized by Fig. 4.



**Figure 4. Respondents' opinion about most important areas of business model use (%)**

Source: own research

The results show that business models may give help in risk predictability, forecasting and planning, internal structure planning and customer relationship structure, which are among the main elements of the well-known business model creating techniques.



As the most important features of start-up models, respondents mentioned revenue and profit growth (21%), good structure (15%) and model flexibility (15%). One of the main features of start-up enterprises is the creative and innovative thinking, which is reflected well in the answers regarding the business model crating abilities: 54% of start-ups use a known model, and a remarkable proportion (37%) have created their own model and 9% does not use any models.

## Conclusions

As a summary, our research focused on the knowledge and utilization of business models in innovation-driven (start-up) companies. The results revealed that business models are widely used in the examined sample, entrepreneurs know the existing models and most of them are able to make some changes in order to a better adaptation and more successful utilization. Business models may help in organizing the processes and operation of the firms and help the further development. Business models are valuable tools for forecasting and predicting business processes in the changing environment, and they also support the planning of customer and supplier relationship processes, which are the most important pillars of business performance.

## Literature

1. Andreini, D., Bettinelli, C., Foss, N.J. et al. (2022), *Business model innovation: a review of the process-based literature*. “Journal of Management and Governance”, 26, 1089–1121 <https://doi.org/10.1007/s10997-021-09590-w>
2. Bendig, D., Kleine-Stegemann, L., Schulz, C., Eckardt, D. (2022), *The effect of green startup investments on incumbents’ green innovation output*, “Journal of Cleaner Production”, 376 (2), 134316, <https://doi.org/10.1016/j.jclepro.2022.134316>.
3. Chapman, G., Hottenrott, H.(2022), *Green start-ups and the role of founder personality*, “Journal of Business Venturing Insights”, Volume 17, e00316, <https://doi.org/10.1016/j.jbvi.2022.e00316>.
4. de Faria, V.F., Santos, V. P., Hadad Zaidan, F. (2021), *The Business Model Innovation and Lean Startup Process Supporting Startup Sustainability*, “Procedia Computer Science”, Volume 181, pp. 93-101, <https://doi.org/10.1016/j.procs.2021.01.106>.
5. Eisenmann, T. R. (2002), *Internet Business Models. Text and Cases*. McGraw-Hill.
6. Geissdoerfer, M., Pieroni, M.P.P., Pigosso, D.C.A., Soufani, K. (2020), *Circular business models: A review*, “Journal of Cleaner Production”, Volume 277, p. 123741.
7. Horváth, D., Móricz, P., Szabó, Zs. R. (2018), *Üzletimodell-innováció*. “Vezetéstudomány / Budapest Management Review”, 49 (6). pp. 2-12. doi: 10.14267/VEZTUD.2018.06.01
8. Móricz P. (2009), *Élenjáró magyarországi internetes vállalkozások fejlődése az üzleti modell szempontjából*. PhD thesis. Corvinus Egyetem, Budapest.
9. Morris, M. Schindehutte, M., Allen, J. (2005), *The Entrepreneur’s Business Model: Toward a Unified Perspective*. “Journal of Business Research”, 58, pp. 726-735.
10. Nemeslaki, A., Urbán, Zs., Trestyén, A. (2008), *Alapvető e-business modellek működése és magyarországi elterjedtségük*. “Vezetéstudomány” 39 (12) pp. 4-15.
11. Osterwalder, A., Pigneur, Y., Tucci, C. L. (2005), *Clarifying Business Models: Origins, Present, and Future of the Concept*. “Communications of the Association for Information Systems: Volume 15”.
12. Ries, E. (2011), *The Lean Startup: How Today’s Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*, Crown Publishing Group, New York
13. Seroka-Stolka, O., Surowiec, A., Pietrasiński, P., Dunay, A. (2017), *Sustainable business models*. “Zeszyty Naukowe Politechniki Częstochowskiej Zarządzanie”. 27.
14. Shepherd, D. A., Gruber, M. (2021). *The Lean Startup Framework: Closing the Academic–Practitioner Divide*. “Entrepreneurship Theory and Practice”, 45(5), 967–998. <https://doi.org/10.1177/1042258719899415>
15. Teece, D. J. (2017): *Business models and dynamic capabilities*. “Long Range Planning”, p. 1–10. doi: 10.1016/j.lrp.2017.06.007.
16. Zott, C., Amit, R., Massa, L. (2010), *The Business Model: Theoretical Roots, Recent Developments, and Future Research*. Working Paper WP-862. IESE Business School, University of Navarra

# THE NEED-BASED E-COMMERCE ADOPTION FOR SMES AFTER COVID-19 PANDEMIC WITH SPECIAL REFERENCE TO DIGITIZATION AS A MODERATOR

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**Abstract:** The COVID-19 pandemic has significantly impacted small and medium-sized enterprises in Pakistan and Bangladesh, leading to a need for e-commerce adoption. This paper explores the need-based e-commerce adoption for SMEs in these two countries, with a focus on the role of digitization as a moderator. The study highlights the importance of e-commerce for SMEs to remain competitive and meet changing consumer demands and explores the challenges and barriers to adoption in the Pakistani and Bangladeshi contexts. The study concludes that digitization plays a crucial role in enabling SMEs in Pakistan and Bangladesh to effectively leverage e-commerce, and provides recommendations for policymakers and SMEs to promote its adoption in these contexts. Moreover, this study observed in the time of COVID-19, that technological factors have a significant impact on e-commerce adoption. The organizational factors and external environment factors remain passive to encourage SMEs to adopt e-commerce.

**Key words:** Bangladesh, digitization, e-commerce adoption, Pakistan, pandemic

## Introduction

The COVID-19 pandemic has had a significant impact on businesses worldwide, leading to a surge in e-commerce adoption (Bhatti et al. 2020). As people strive to minimize physical contact, the shift towards online shopping has accelerated and is expected to continue even after the pandemic. Brick-and-mortar stores have turned to online sales to reach customers, resulting in the expansion of e-commerce categories like groceries and home goods. The pandemic has forced businesses to expedite their digital transformation plans and embrace e-commerce to stay competitive. Contactless payment methods have also gained popularity to reduce the risk of transmission (Abualrob, Kang 2016).

The growth of e-commerce adoption is closely linked to the increasing digitization of society, which has made it easier for companies to offer their products and services online. The internet, mobile devices, and social media have enabled businesses to reach a wider audience and conduct transactions online. Secure payment gateways have facilitated safe and convenient shopping experiences (Adam et al. 2020).

For small and medium-sized enterprises (SMEs), e-commerce adoption can help them continue operations and reach a broader customer base, especially amid the pandemic. Digitization plays a crucial role in enabling SMEs to adapt to the new digital landscape, streamline operations, improve efficiency, and reduce costs. Policymakers and stakeholders should prioritize e-commerce adoption among SMEs and provide support for digitization to help businesses thrive post-pandemic (Akpan, Ibidunni 2021). Automation and digitization have enhanced the efficiency and speed of e-commerce operations, leading to faster delivery times and improved customer satisfaction.



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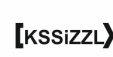
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The continued development of digital technologies is expected to further fuel the growth of e-commerce adoption (Axman, Kročová 2019). In the case of SMEs in Pakistan, factors like organizational readiness, perceived usefulness and ease of use, external pressure, and government support influence e-commerce adoption. Understanding these factors and the role of digitization can help SMEs make informed decisions and successfully transition to online platforms (Chaudhuri, Kumar 2015; Chowdhury et al. 2021).

## Study background

The literature review focuses on the importance of e-commerce adoption for businesses, particularly in the context of the COVID-19 pandemic. It explores the factors that influence the adoption of e-commerce and its impact on business performance. The review identifies organizational readiness, external pressures, and perceived benefits as key factors affecting e-commerce adoption. Organizational readiness includes factors such as IT infrastructure, organizational culture, and employee readiness, while external pressures encompass competition and government regulations.

Perceived benefits of e-commerce adoption include increased sales and customer reach. The review also highlights that e-commerce adoption has a positive impact on business performance, leading to increased sales, profitability, and customer satisfaction. Small and medium-sized enterprises (SMEs) are especially likely to benefit from e-commerce adoption due to enhanced customer reach and reduced transaction costs. However, challenges remain, including the lack of digital skills and resources, concerns about security and privacy, and the high initial investment required. Overcoming these challenges is crucial for businesses to fully harness the benefits of e-commerce adoption and maintain competitiveness in the modern market (Cuellar-Fernández et al. 2021).

The e-commerce adoption frameworks commonly used in research: the Diffusion of Innovation (DOI) framework and the Technology Acceptance Model (TAM). The DOI framework focuses on factors like relative advantage, compatibility, complexity, trialability, and observability, which influence the adoption of new technology. Studies applying this framework have found that factors such as perceived relative advantage, compatibility, complexity, trialability, and observability play a role in e-commerce adoption.

Perceived usefulness and perceived ease of use are the key factors in the TAM framework, and studies consistently show their significance in predicting e-commerce adoption. Both frameworks have been widely used to understand e-commerce adoption and identify important factors for adoption, such as perceived usefulness, perceived ease of use, relative advantage, and compatibility. Future research can explore the relationship between these factors and other constructs to gain a deeper understanding of e-commerce adoption in different contexts.

The two key factors that influence e-commerce adoption: technological factors and organizational factors. Technological factors include a company's technological readiness, user experience, security measures, mobile accessibility, and technology infrastructure. Companies that are more technologically advanced are more likely to adopt e-commerce, as it requires significant investment in technology. A positive user experience, secure payment systems, mobile compatibility, and robust technology infrastructure are crucial for encouraging e-commerce adoption.

Organizational factors, such as organization size, culture, leadership support, and available resources, also play a role in e-commerce adoption. Smaller organizations are more likely to adopt e-commerce due to the cost savings and increased efficiency it offers. Organizational culture that values innovation and risk-taking, leadership support for e-commerce adoption, and adequate resources for investment are important factors in promoting e-commerce adoption.

Both technological and organizational factors need to be considered by businesses to enhance their e-commerce adoption and effectively integrate it into their operations.

## Research outline

The summary describes the research design and topic of a study focused on the need-based e-commerce adoption for small and medium-sized enterprises (SMEs) in the context of Pakistan and Bangladesh after the COVID-19 pandemic.

The study aims to examine how digitization, as a moderator, influences the adoption of e-commerce by SMEs in these countries. The COVID-19 pandemic had a significant impact on SMEs, leading them to transform their businesses by utilizing online platforms for improved consumer access, timely product delivery, and cashless payment options. The pandemic also affected the mental health of people, workers, and managers in SMEs globally. Government-mandated COVID-19 protocols encouraged consumers to make online purchases, benefiting existing online platforms. Digitization, involving the storage of data online through websites and social media platforms, became crucial for SMEs to reduce product delivery costs, provide anytime access to consumers, and navigate government restrictions related to the pandemic. Based on the previous studies, the research set five hypotheses as follows:

- H1. evaluates a positive relationship between the need-based factors and digitization in the adoption of e-commerce in SMEs of Pakistan and Bangladesh after the COVID-19 pandemic.
- H2. External environmental factors In Pakistan increased e-Commerce adoption more than in Bangladesh after the Covid-19 pandemic.
- H3. Need-based factors In Bangladesh increased for e-Commerce adoption than in Pakistan after the Covid-19 pandemic.
- H4. Organizational Factors in Bangladesh increased e-Commerce adoption than in Pakistan after the Covid-19 Pandemic.
- H5. Technological Factors in Pakistan increased e-Commerce adoption more than in Bangladesh after the Covid-19 Pandemic.

The summary highlights the findings and conclusions from the study on need-based e-commerce adoption for SMEs in Pakistan and Bangladesh after the COVID-19 pandemic. The study emphasizes the importance of e-commerce adoption for SMEs to overcome challenges and adapt to the new normal. It is found that there is a strong positive relationship between digitization and e-commerce adoption in both countries, indicating that SMEs can leverage digital technologies to enhance their capabilities and improve market reach, operations, and efficiency.

The study also identifies the significance of need-based factors and digitization in influencing e-commerce adoption. External environmental factors were found to have a significant impact on e-commerce adoption in Bangladesh but an insignificant impact in Pakistan, likely due to the economic crisis faced by Pakistan.

The study suggests that policymakers and industry associations should invest in digital infrastructure, promote digital literacy, and create a supportive regulatory environment to facilitate e-commerce adoption among SMEs. It is important for SMEs to establish an online presence, streamline operations using digital technologies, and leverage digital innovations to meet changing customer needs.

Additionally, the study discusses the role of organizational factors and technological factors in e-commerce adoption. Organizational factors were found to have a significant relationship with e-commerce adoption in Bangladesh, while the relationship was weaker in Pakistan. Technological factors were found to have a significant relationship with e-commerce adoption in both countries. The comparative analysis reveals that Bangladesh has made more progress in digitization and e-commerce adoption compared to Pakistan, attributed to its better economic stability and digitization efforts.

## Conclusion

In conclusion, SMEs in Pakistan and Bangladesh need to adopt need-based e-commerce solutions to thrive in the post-pandemic era. Digitization serves as a crucial moderator for e-commerce adoption,

and policymakers, industry associations, and SMEs themselves should collaborate to facilitate the adoption process. The economic condition, organizational factors, technological factors, and external environment play important roles in determining the success of e-commerce adoption in both countries, with Bangladesh showing more favourable conditions for adoption compared to Pakistan.

## Literature

1. Abualrob, A. A., Kang, J. (2016), *The barriers that hinder the adoption of e-commerce by small businesses: Unique hindrance in Palestine*. "Information Development", 32(5), 1528-1544.
2. Adam, I. O., Alhassan, M. D., Afriyie, Y. (2020), *What drives global B2C E-commerce? An analysis of the effect of ICT access, human resource development and regulatory environment*. "Technology Analysis & Strategic Management", 32(7), 835-850.
3. Akpan, I. J., Ibidunni, A. S. (2021), *Digitization and technological transformation of small business for sustainable development in the less developed and emerging economies: a research note and call for papers*. "Journal of Small Business & Entrepreneurship", 1-7.
4. Axman, M., Kročová, Š. (2019), *Safety of technical infrastructure in crisis situations*. International Multidisciplinary Scientific GeoConference: SGEM, 19(3.1), 481-488.
5. Bhatti, A., Akram, H., Basit, H. M., Khan, A. U., Raza, S. M., Naqvi, M. B. (2020), *E-commerce trends during COVID-19 Pandemic*. International Journal of Future Generation "Communication and Networking", 13(2), 1449-1452.
6. Chaudhuri, P., Kumar, A. (2015), *Role of digitization and e-commerce in Indian economic growth: an employment generation perspective*. Conference: 98th Annual Conference of Indian Economic Association
7. Chowdhury, M. S. A., Akter, S., Chowdhury, M. M., Ahsan, S. M. H., Arafat, A. Y. (2021), *Is COVID-19 a Blessing for Ecommerce: A View from Bangladesh*. Global "Journal of Management and Business Research", 21(B2), 17-21.
8. Cuellar-Fernández, B., Fuertes-Callén, Y., Serrano-Cinca, C. (2021), *Survival of e-commerce entrepreneurs: The importance of brick-and-click and internationalization strategies*. "Electronic Commerce Research and Applications", 46, 101035.



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# WALK THE TALK? - THE INVOLVEMENT OF SOVEREIGN WEALTH FUNDS IN REPUTATIONAL RISK SCANDAL CASES

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**Abstract:** This paper presents a comprehensive analysis of the involvement of major 24 Sovereign Wealth Funds (SWFs) in reputational risk scandal cases, utilizing data from Refinitiv spanning the period 2007-2020. These SWFs collectively account for 87% of global SWFs' assets under management and 94% of their public equity holdings. The study investigates whether SWFs were invested in the public equity holdings of companies involved in scandal cases, both at the time of the scandal's appearance and during a two-year period before and after the event. The findings reveal that commodity-based Reserve Investment Funds from developed countries with a liberal investment style, particularly those characterized as balanced growth investors, exhibit over-proportional involvement in reputational risk cases. This trend also holds true for SWFs with the highest levels of transparency in environmental, social, and governance (ESG) and sustainable development goals (SDG) matters, which typically rely on self-reported ESG information provided by invested companies. The findings raise questions about the alignment of some evaluated SWFs' investment behaviours with their stated commitment to "walk the talk" on ESG and SDG matters.

**Key words:** Sovereign Wealth Funds, ESG, reputational risk, exogenous shock, special events, scandal cases, Corporate Social Responsibility.

## Introduction

Scandal cases are not uncommon in the financial industry, with Credit Suisse being just one recent example. In addition to environmental damage, events such as the Volkswagen diesel gate affair and the BP Deepwater Horizon disaster have resulted in significant losses for investors in terms of public equity stakes. However, it is not just financial losses that result from such scandals - the reputational damage to the companies involved and the industries they operate in can also be severe (Malik, Chowdhury, Alam 2023, p. 2).

The involvement of Sovereign Wealth Funds (SWFs) in these scandal cases has attracted significant attention in recent years (Liang, Renneboog 2020, p. 386). As large, government-owned investment funds with significant assets under management, SWFs are expected to act as responsible, long-term investors with a focus on ESG factors (Cuervo-Cazurra, Grosman, Megginson 2021, p. 80). However, their involvement in reputational risk cases has raised questions about their alignment with ESG goals and their impact on long-term sustainability.

Against this backdrop, this paper presents an analysis of the involvement of major 24 SWFs in reputational risk scandal cases. These SWFs collectively account for a significant portion of global SWFs' assets under management and public equity holdings (Aggarwal, Goodell 2018, p. 85; Farag, Neupane, Marshall et al. 2022, p. 4). The study aims to investigate whether SWFs were invested in the public equity holdings of companies involved in scandal cases, both at the time of the scandal's appearance and during a two-year period before and after the event (Martínek 2021, p. 5). The findings provide valuable insights into the investment behaviour of SWFs in relation to reputational risk scandals and contribute to the ongoing debate around responsible investment and sustainable finance (Nobanee, Alhajjar, Abushairah et al. 2021, p. 3).

## **Background, History, Review-of-Literature, and Methodology of the research**

Private investors, whether through direct equity investments or investments in Exchange Traded Funds (ETFs) and mutual funds, may lack the expertise, time, and financial resources to identify potential scandal cases before they occur. Institutional investors, on the other hand, are expected to have the intellectual resources and capacity to investigate such matters in advance. SWFs are considered one of the most influential types of institutional investors in the global financial system, alongside pension funds and insurance companies (Bortolotti, Fotak, Megginson 2015, p. 3012). Their massive assets under management and long-term investment horizons give them significant power to shape the financial markets, and their investment behaviour has an impact on the overall stability and sustainability of the system (Dyck, Lins, Roth et al. 2019, p. 701).

While SWFs may have different financial backgrounds, including commodity-based investments in oil and gas, their primary goal is to preserve state-owned capital over the long term (Gangi, Meles, Mustilli et al. 2019, p. 440). As such, they are expected to act as responsible, long-term investors with a focus on ESG factors. However, their involvement in scandal cases has raised questions about their alignment with ESG goals and their impact on long-term sustainability (Wurster, Schlosser 2021, p. 16).

Investigating the involvement of SWFs in reputational risk scandals is important for several reasons. First, as significant investors in public equity holdings, SWFs have the potential to exert significant influence on the companies they invest in (Aizenman, Glick 2009, p. 372; Grasso 2017). Additionally, as large and influential investors in the global financial system, SWFs have a unique responsibility to consider ESG factors in their investment decisions. This is not only important for promoting long-term sustainability and stability in the financial system, but also for ensuring that SWFs align with the values and priorities of their respective countries and citizens. Finally, as major players in the global financial system, the investment behaviour of SWFs can have significant implications for the overall sustainability and stability of the financial system (Megginson, Fotak 2015, p. 782; Bassan 2015).

The global financial industry has been rocked by numerous scandal cases over the years, with more than 20 high-profile cases having emerged in recent times. These cases have resulted in significant financial losses for investors, as well as irreparable reputational damage for the companies involved and their respective industries (Liang, Renneboog 2020, p. 411; Dai, Song, You et al. 2022, p. 2).

Examples of such scandal cases include the Volkswagen diesel gate affair, which resulted in the company paying billions in fines and compensation for manipulating emissions data, and the BP Deepwater Horizon oil disaster, which caused the largest marine oil spill in history and cost the company billions in clean-up efforts and settlements.

The widespread impact of these scandal cases on the financial industry highlights the importance of responsible investment practices and the need for investors to carefully consider potential reputational risks associated with their investment decisions.

The reputation of companies and industries can be severely impacted by scandals, resulting in significant financial losses and long-lasting effects. The objective of this research is to investigate the involvement of SWFs in public equity holdings of companies that have been involved in reputational risk scandals. The study covers a time frame of 13 years, from 2007 to 2020, and aims to provide insights into the investment behaviour of SWFs and their potential impact on long-term sustainability, particularly in relation to ESG factors. Using data from Refinitiv, the study examines the involvement of 24 major SWFs by AuM and available public equity holding data in these scandal cases. These SWFs collectively manage a significant portion of global assets under management and public equity holdings. By analysing their investment behaviour during the period leading up to, during, and after the scandal events, the study aims to provide valuable insights into the role of SWFs in promoting responsible and sustainable investment practices.

The findings of this study will provide valuable insights into the investment practices of SWFs and their potential impact on long-term sustainability, particularly regarding ESG factors. As responsible, long-term investors, SWFs are expected to promote sustainable investment practices and mitigate potential risks associated with scandal events.

By understanding the investment behaviour of SWFs in relation to reputational risk scandals, stakeholders can work towards improving the overall transparency and accountability of the global financial system. This study is significant to investors, regulators, and policymakers alike, as it highlights the need for responsible investment practices and promotes the long-term sustainability of the financial system.

An increasing number of studies (Liang and Renneboog, 2020; Farag et al., 2022) have examined the extent to which SWFs integrate ESG considerations into their investment decision-making processes. These studies have typically analysed the relationship between the ownership stakes of underlying companies and their ESG scores. For example, Liang and Renneboog (2020) found that SWFs take both historical ESG performance and recent improvements in ESG scores into account when acquiring ownership stakes in publicly traded companies. However, ESG scores have several limitations, including reliance on self-reported information, which may result in opaque content (Bautista-Puig et al., 2021; Johan et al., 2013; Jory et al., 2010).

*Table 1. Definition and description of variables*

Variable	Type	Scale Level	Binary	Variable's Categories	Additional information
INVESTMENT <sub>i</sub>	Dependant	Nominal	Yes	0="No", 1="Yes"	Investment in ESG scandal case
ESG <sub>i</sub> (X1 <sub>i</sub> )	Independent	Nominal	Yes	0="No", 1="Yes"	ESG disclosure of the SWF
SDG <sub>i</sub> (X2 <sub>i</sub> )	Independent	Nominal	Yes	0="No", 1="Yes"	SDG disclosure of the SWF
Origin of assets (X3 <sub>i</sub> )	Independent	Nominal	Yes	0="Commodity", 1="Non-commodity"	
Purpose of SWF (X4 <sub>i</sub> )	Independent	Nominal		1="Savings Fund", 2="Pension Reserve Fund", 3="Development Fund", 4="Stabilization Fund", 5="Reserve Investment Fund", 6="Other"	
Investment Style (X5 <sub>i</sub> )	Independent	Nominal		0="No data", 1="Liability Driven Investor", 2="Balanced Growth Investor", 3="Strategic Return Maximizer"	
Country's Economic Development (X6 <sub>i</sub> )	Independent	Nominal		0="No data", 1="Frontier", 2="Emerging", 3="Developed"	

Source: Own study

Involvement of SWFs in defined public equity scandal cases is defined as investment and disinvestment in at least 1 out of 20 investments during 2007-2020.

Hypothesis 1 (H1): SWFs do avoid investments in public equity scandal cases by taking into account both historical ESG performance and recent improvements in ESG scores when acquiring ownership stakes in publicly traded companies.

To test and then possibly find support for the hypothesis, the following alternative null hypothesis has been formulated:

Hypothesis 0 (H0): SWFs do not avoid investments in public equity scandal cases by considering both historical ESG performance and recent improvements in ESG scores when acquiring ownership stakes in publicly traded companies.

The Logit Regression Models for the dependent variables are as follows:

$$\text{INVESTMENT}_i = \text{Logit} (b_0 + b_1 * X_{1i} + b_2 * X_{2i} + b_3 * X_{3i} + b_4 * X_{4i} + b_5 * X_{5i} + b_6 * X_{6i}) + u_i$$

The findings suggest that the hypothesis H0 can be confirmed at a confidence level of 95%. SWFs do not avoid investments in public equity scandal cases by considering both historical ESG performance and recent improvements in ESG scores when acquiring ownership stakes in publicly traded companies. Hence, we must reject hypothesis H1. The findings reveal that commodity-based (Figure 1) Reserve Investment Funds (Figure 2) from developed countries (Figure 3) with a liberal investment style, particularly those characterized as balanced growth investors (Figure 4), exhibit over-proportional involvement in reputational risk cases. This trend also holds true for SWFs with the highest levels of transparency in ESG (Figure 5) and sustainable development goals (SDG) (Figure 6) matters, which typically rely on self-reported ESG information provided by invested companies (Klein 2021, p. 45).

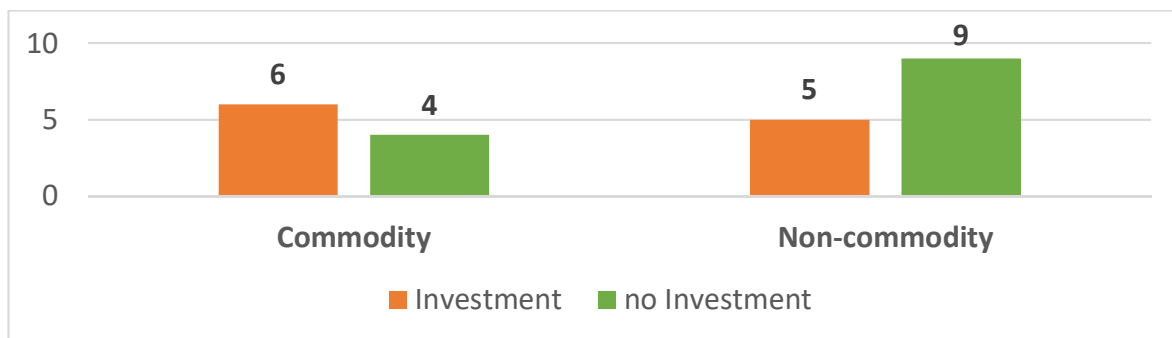


Figure 1. Bar chart showing involvement of top 24 SWFs by AuM in public equity scandal cases – by origin of assets

Source: Own study

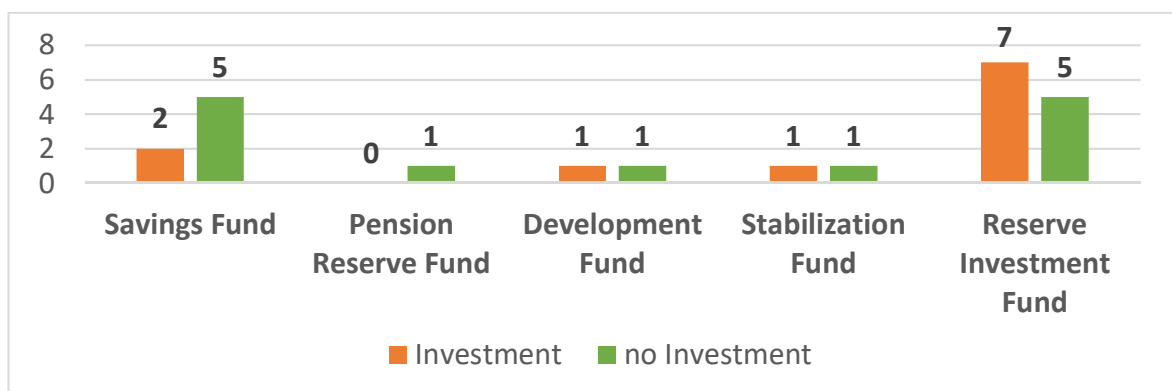
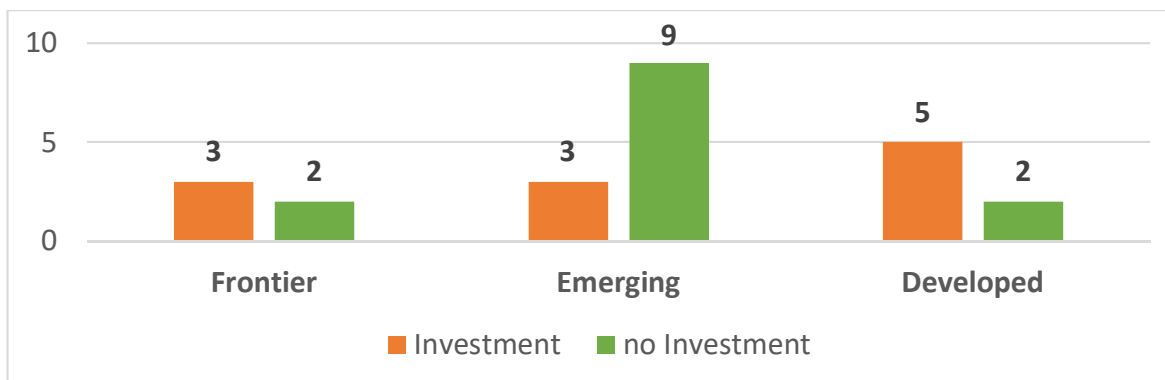


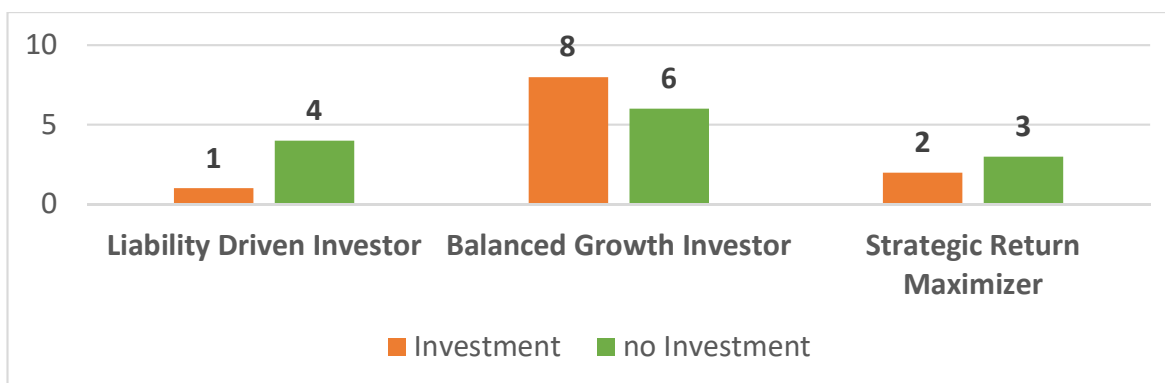
Figure 2. Bar chart showing involvement of top 24 SWFs by AuM in public equity scandal cases – by purpose of SWF

Source: Own study



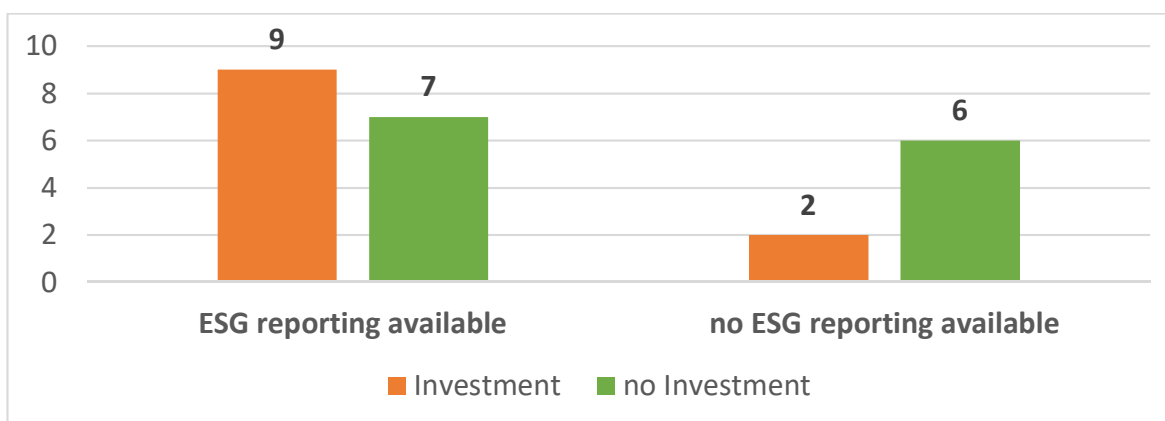
**Figure 3. Bar chart showing involvement of top 24 SWFs by AuM in public equity scandal cases – by country's economic development**

Source: Own study



**Figure 4. Bar chart showing involvement of top 24 SWFs by AuM in public equity scandal cases – by investment style**

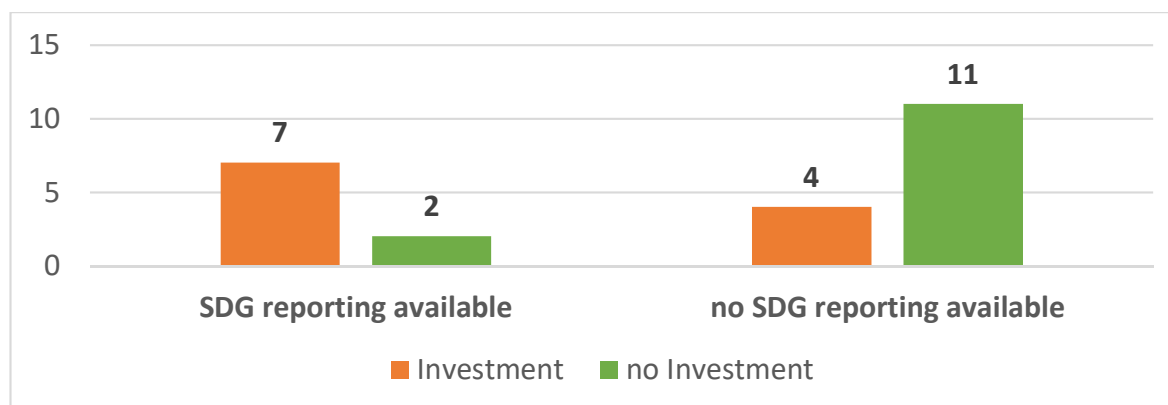
Source: Own study



**Figure 5. Bar chart showing involvement of top 24 SWFs by AuM in public equity scandal cases – by transparency on ESG goals**

Source: Own study





*Figure 6. Bar chart showing involvement of top 24 SWFs by AuM in public equity scandal cases – by transparency on SDG goals*

Source: Own study

## Discussion

The findings of this research shed light on the potential misalignment between the investment behaviour of certain SWFs and their stated commitment to ESG and SDG matters. It suggests that certain SWFs, such as the Government Pension Fund Global (Norway), the Korea Investment Corporation (Korea), the Alberta Investment Management Corporation (Canada), and the Texas Permanent School Fund (United States of America), have a higher involvement in global scandal case investments.

It supports the results of studies performed by e.g., Liang and Renneboog (2020) and Farag et al. (2022). They have provided support for the integration of ESG considerations by SWFs in their investment decision-making processes. These studies typically explore the correlation between SWFs' ownership stakes in companies and the companies' ESG scores. Liang and Renneboog (2020) specifically found that SWFs consider both the historical ESG performance of companies and their recent improvements in ESG scores when acquiring ownership stakes in publicly traded companies.

Despite the positive results from these studies, it is important to acknowledge certain limitations associated with ESG scores. Notably, these scores rely on self-reported information, which can lead to potential issues related to transparency and accuracy. Scholars such as Bautista-Puig et al. (2021), Johan et al. (2013), and Jory et al. (2010) have pointed out the concerns related to opaque content stemming from the use of self-reported data in calculating ESG scores.

While it may be due to their larger portfolio size and diversified equity holdings, this does not guarantee protection from the impact of scandal cases. In addition, the engagement of SWFs in scandal cases has prompted significant scrutiny regarding their commitment to ESG goals and their potential impact on long-term sustainability (Wurster & Schlosser, 2021, p. 16). These scandals have cast doubt on the extent to which SWFs prioritize responsible investment practices and ethical considerations in their decision-making processes. Such incidents have led to concerns about the overall credibility and credibility of SWFs in terms of upholding ESG principles and contributing to sustainable development.

In some cases, there might be a time lag between current reporting on ESG and SDG topics and historical self-reported ESG data as basis for an investment decision. A change in ESG figures has not been considered. Furthermore, the influence of SWFs on ESG data of underlying assets has not been considered in this analysis.

It is crucial to understand whether SWFs consider only self-reported ESG and SDG data or rely on independent sources for their investment decisions. This leaves room for further research to investigate how SWFs can better align their investment behaviour with their commitment to sustainability and

responsible investing. As significant investors in the global financial system, SWFs must prioritize the long-term sustainability of their investments and consider reputational risks associated with investing in companies with poor ESG practices.

## Conclusion

In conclusion, the study presented a comprehensive analysis of the involvement of major SWFs in reputational risk scandal cases over a 13-year period from 2007 to 2020. The findings suggest that the financial involvement of SWFs in scandal cases is correlated with various characteristics of SWFs, as well as countries' domestic economic conditions and risk factors. The study raises questions about the alignment of some SWFs' investment behaviour with their stated commitment to ESG and SDG matters. It highlights the importance of promoting responsible investment practices and mitigating the potential negative impacts of reputational risk scandals. Further research is needed to investigate whether SWFs consider independent ESG data sources when making their investment decisions.

Therefore, we recommend further research in this area using independent data sources. These findings are of great significance to investors, regulators, and policymakers and can contribute to the stability and sustainability of the global financial system.

## Literature:

1. Aggarwal, R., Goodell, J.W. (2018), Sovereign Wealth Funds Governance and National Culture, *International Business Review*, 27, 78-92, <https://doi.org/10.1016/j.ibusrev.2017.05.007>.
2. Aizenman, J., Glick, R. (2009), Sovereign wealth funds: Stylized facts about their determinants and governance, *International Finance*, 12(3), 351-386, <https://doi.org/10.1111/j.1468-2362.2009.01249.x>.
3. Bassan, F. (2015), Sovereign wealth funds: A definition and classification, In *Research Handbook on Sovereign Wealth Funds and International Investment Law*. Edward Elgar Publishing, <https://doi.org/10.4337/9781781955208.00011>.
4. Bautista-Puig, N., Aleixo, A. M., Leal, S., Azeiteiro, U., Costas, R. (2021), Unveiling the research landscape of sustainable development goals and their inclusion in higher education institutions and research centers: major trends in 2000–2017. *Frontiers in Sustainability*, 2, 12, <https://doi.org/10.3389/frsus.2021.620743>.
5. Bortolotti, B., Fotak, V., Megginson, W. L. (2015), The Sovereign Wealth Fund Discount: Evidence from Public Equity Investments, *The Review of Financial Studies*, Volume 28, Issue 11, November 2015, Pages 2993-3035, <https://doi.org/10.1093/rfs/hhv036>.
6. Cuervo-Cazurra, A., Grosman, A., Megginson, W. L. (2021), A review of the internationalization of state-owned firms and sovereign wealth funds: Governments nonbusiness objectives and discreet power, *Journal of International Business Studies*, <https://doi.org/10.1057/s41267-022-00522-w>.
7. Dai, L., Song, C., You, Y., Zhang, W. (2022), Do sovereign wealth funds value ESG engagement? Evidence from target firm's CSR performance, *Finance Research Letters*, 50, 103226. <https://doi.org/10.1016/j.frl.2022.103226>.
8. Dyck, A., Lins, K. V., Roth, L., Wagner, H. F. (2019), Do institutional investors drive corporate social responsibility? International evidence, *Journal of financial economics*, 131(3), 693-714. <https://doi.org/10.1016/j.jfineco.2018.08.013>.
9. Farag, H., Neupane, B., Marshall, A. P., Koirala, S. (2022), The Impact of Sovereign Wealth Funds Investment on Firm ESG Reputation Risk, *Available at SSRN 4141487*, <https://dx.doi.org/10.2139/ssrn.4141487>.
10. Gangi, F., Meles, A., Mustilli, M., Graziano, D., Varrone, N. (2019), Do investment determinants and effects vary across sovereign wealth fund categories? A firm-level analysis, *Emerging Markets Review*, 38, 438-457, <https://doi.org/10.1016/j.ememar.2018.12.004>.
11. Grasso, G. (2017), Constitutionalism and Sovereign Wealth Funds, *Global Jurist*, 17(2), <https://doi.org/10.1515/gj-2016-0018>.
12. Johan, S. A., Knill, A., Mauck, N. (2013), Determinants of sovereign wealth fund investment in private equity vs public equity. *Journal of International Business Studies*, 44, 155-172, <https://doi.org/10.1057/jibs.2013.1>.
13. Jory, S. R., Perry, M. J., & Hemphill, T. A. (2010), The role of sovereign wealth funds in global financial intermediation. *Thunderbird International Business Review*, 52(6), 589-604, <https://doi.org/10.1002/tie.20381>.



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14. Klein, M.-J. (2021), The value of sustainability reporting for sovereign wealth funds - an analysis of the disclosure behaviour for environmental, social. In: PEFnet 2021: Abstracts. 1st ed. Brno: Mendelova univerzita v Brně, 2021, p. 45-46, ISBN 978-80-7509-811-5.
15. Liang, H., Renneboog, L. (2020), The global sustainability footprint of sovereign wealth funds, *Oxford Review of Economic Policy*, 36(2), 380–426, <https://doi.org/10.1093/oxrep/graa010>.
16. Malik, I. A., Chowdhury, H., Alam, M. S. (2023), Equity market response to natural disasters: Does firm's corporate social responsibility make difference?. *Global Finance Journal*, 55, 100801, <https://doi.org/10.1016/j.gfj.2022.100801>.
17. Martinek, S. A. (2021), The impact of Sovereign Wealth Funds on their investees: Methodology limitations, *Research in Globalization*, 3, 100072, <https://doi.org/10.1016/j.resglo.2021.100072>.
18. Megginson, W. L., Fotak, V. (2015), Rise of the fiduciary state: A survey of sovereign wealth fund research, *Journal of Economic Surveys*, 29(4), 733-778, <https://doi.org/10.1002/9781119158424.ch7>.
19. Nobanee, H., Alhajar, M., Abushairah, G., Al Harbi, S. (2021), Reputational Risk and Sustainability: A Bibliometric Analysis of Relevant Literature, *Risks*, 9(7), 134, <https://doi.org/10.3390/risks9070134>.
20. Wurster, S., Schlosser, S. J. (2021), Sovereign Wealth Funds as Sustainability Instruments? Disclosure of Sustainability Criteria in Worldwide Comparison, *Sustainability*, 13(10), 5565, <https://doi.org/10.3390/su13105565>.



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## HUNGARIAN SECONDARY SCHOOL STUDENTS' SELF-CARE KNOWLEDGE IN PRACTICE

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**Abstract:** In our research, we investigated Hungarian high school graduates' knowledge of financial products related to self-care by measuring their practical knowledge at the end of the 2020/2021 school year. In our preparatory secondary research, in addition to reviewing the Hungarian and Central European literature, we collected data on all expected and unanticipated life situations and the financial instruments that can be used to deal with them. In addition, we systematised the specific financial knowledge currently available in the curricula of different types of secondary schools that can be linked to self-care. In our primary research, we used a questionnaire method to address members of the age group surveyed in all types of secondary schools and asked them about their specific knowledge of financial products. We compared the results of our survey with the knowledge of secondary school students in class and found that the knowledge of financial instruments among graduating secondary school students is poor, many of several products have not even heard of and that they have heard of, most of them do not know how they work. We also found that their knowledge of tax benefits or other government subsidies related to financial products is also sketchy. It seems clear from the responses received that students consider this knowledge necessary and would be willing to take action to acquire it, even outside the classroom, but these results still need further analysis, which will be published in a study to conclude the research.

**Key words:** financial literacy, financial culture, self-care, secondary school

### Introduction

In Hungary, as in the other former Eastern European socialist countries, state monopolies operated in the financial market in the second half of the last century, excluding real market competition. After the change of regime, the financial market reopened, but on the one hand, there were no financial professionals with modern knowledge in the country and, on the other hand, the financial culture of the population virtually disappeared. The first problem was quickly solved by foreign-owned financial institutions, but it took more time to re-establish a retail financial culture. The impact of the 2009 global economic crisis has also made it clear that people need a deeper financial education and a change of mindset, as they now have to stand ground cope and make financial decisions in a money-centred, market economy environment. (Mészáros 2012).

One of the most important questions is where and when the young generation will be able to acquire the financial knowledge they will need in their lives, because unfortunately there are unexpected events too. Knowing about these events in advance and in good time will make them manageable by preparing for them through self-care. The most essential elements of self-care are: creating the conditions to manage with unexpected and predictable situations, the willingness to save and conscious saving (Állami Számvevőszék 2020). In other words, the means of self-care for future expected and unexpected events are mostly some kind of financial solutions, simplified: savings-based products for the former and insurance-based products for the latter. Judging financial culture is not an easy task, but it is a very important measure of development for an economy and a society (Bárczi, Zéman 2015). This is why it is important to learn about life situations and financial literacy from a young age. Many forms of self-care are supported by European states, either directly or through tax incentives, These measures indirectly develop financial literacy through a more conscious use of resources, which can later reduce the social burden on states, thus ensuring a more sustainable and predictable future for all.

In our research, we investigated the knowledge of self-care and financial products and the knowledge of related state subsidies of Hungarian secondary school students graduating in the school year 2020/2021 through the knowledge of 17 specific financial products in all types of schools, and we also examined the specific methods of knowledge acquisition and the willingness to acquire knowledge of the young people. A large representative sample was selected. 62.3% of schools belonging to the vocational education sector and 62.6% of schools belonging to the public education sector were asked to cooperate in the research.

Data collection was carried out by means of an online questionnaire, a link to the questionnaire was sent to the sampled schools by e-mail, accompanied by a letter of invitation and information. In this paper we summarise the main findings of our research to date, some of which have already been published, and our final analysis will be published in a final paper.

## Literature review

Developing financial awareness and deepening financial knowledge helps, among other things, to make informed, considered choices among the offers available in the competitive banking market and helps to avoid making decisions based on previous routines (Kovács, Sütő 2020). In a global world driven by finance, financial literacy is seen as almost a basic competence. Today, there is almost no country that has not taken steps to develop and improve financial literacy, but these steps have mostly been delayed (Csiszárík-Kocsir, Garai-Fodor 2018).

According to Dunay and colleagues (2015), consumer economic and financial education should start as early as possible, in schools, and be integrated into mainstream curricula wherever possible. In terms of financial orientation and financial literacy, it is advisable for students to learn about basic financial concepts and contexts during their secondary school years, as they will be able to make good decisions in the future based on these (Hegedűsné Barna et al. 2017).

In Slovakia, the importance of financial literacy for young people is increasing, with students from families with more than one child more financially literate than students from families with fewer children, but their results are weaker than expected (Gavurova et al. 2019). Research by Belás et al. (2016) on the level of financial literacy of Czech and Slovak students showed that students in both countries have low interest in economic issues and are not sufficiently motivated to learn new knowledge.

In the Czech Republic, financial education is a compulsory part of primary school education. It is already clear that the inclusion of financial education in the school curriculum was necessary (Opletalová 2015).

In Poland, most students are fully aware that savings are important, but the amount they save is not large, with students typically keeping money in cash and bank accounts (Osinska, Wasilewska 2020). Students are not well educated during their studies and are therefore not able to make good financial decisions (Palimąka 2020). Polish families' consumption levels have recently approached the EU average, but their financial savings are still one fifth of the EU average (Wereda, Prokopowicz 2017).

## Financial literacy in the Hungarian secondary education system

In Hungary, the National Curriculum regulates the teaching of general subjects in public education institutions. It does not contain specific curricula, but defines the tasks, values, development areas and educational objectives of public education. These 12 objectives include economic and financial education. The tasks of public education are broken down and detailed in framework curricula, but these do not currently include a time frame for economic and financial education, which can only be taught by the individual educational institutions within the limits of the number of free hours. There is currently no standardised teaching aid for financial education, and teachers have not yet been prepared.



In the field of vocational education and training, the new Vocational Education and Training Act has unified the training requirements for the 174 basic professions, the financial literacy is only professional part of two specific profession, so it can be concluded that there is no uniform method for teaching financial literacy and conscious financial education in either public education or vocational education. In practice, the financial education of secondary school pupils depends on the conscience of class teachers and individual subject teachers.

Fortunately, there are now several out-of-school programmes in Hungary that aim to provide young people with financial education and develop their financial literacy. These are usually programmes run by non-profit organisations or by individual financial institutions as part of their social responsibility activities, with the aim of broadening financial culture and introducing young people to practical finance and modern financial tools. The organisers of these programmes help teachers to develop creative, innovative and practical approaches that are already familiar in Europe, for example by combining financial education with mathematics and history. Accredited textbooks and free training courses are now available for enterprising secondary school teachers.

## Results

By the end of the survey, 811 complete responses had been received. Descriptive statistics methods were used to process the data, focusing on frequency trends. Simplification was applied to the data on the type of school, as institutions with a similar purpose operate under several names. We narrowed down to three types: institutions offering only school-leaving qualifications (gymnasium), institutions offering both school-leaving qualifications and vocational training (technical high school, vocational high school) and institutions offering only vocational training (vocational school, technical school). Women were the majority of respondents (56.7%), while the capital city had a low response rate.

Secondary research prior to the survey showed that at the time of the survey, 17 financial products provided a self-care tool to cover and manage all future expected and unexpected life situations. The products can be divided into five groups that will follow each other in terms of use as people age. They are: day-to-day banking products (bank card, bank account), preferential loan products for young people (student loan, Family Home Loan, baby shower loan), universal savings products (Hungarian Government Bond Plus, bank deposit) and finally health and pension pre-savings products (pension insurance, health fund, voluntary pension fund, pension pre-savings account). In addition, insurance products (life insurance, accident insurance, health insurance, home insurance, car insurance, compulsory motor liability insurance) provides a fifth group of life-long contingency covers. Table 1 shows the individual and cumulative awareness of the five groups. No weighting between products was applied, all products were included in the calculations with the same weight.

Awareness of Products is only acceptable for banking products, the soft loan and savings products awareness of young people is very low, and this age group already should be aware of these products. The results of the research show that the knowledge of senior secondary school students is poor in terms of knowledge of specific financial products related to self-care, with less than half of the students (45.3%) knowing only these products.

Looking at the results further analysed in addition to product awareness, we asked specifically whether or not state aid was linked to certain products. This question also served as a control for the product knowledge questions. The values obtained showed a large variance, again the data is examined broken down into 5 groups. Knowledge of state aids linked to financial products is summarised in Table 2.

*Table 1: Awareness of self-care products*

	never heard of it	I've heard of it, but I don't know it how it works	I heard about it and I know its operation
Banking products	0,4%	12,9%	86,7%
Preferential loan products	5,1%	51,8%	43,2%
Universal savings products	17,1%	53,4%	29,5%
Health and pension pre-savings products	18,4%	60,3%	21,3%
Insurance products	6,7%	39,3%	54,0%
SUMMARY	9,7%	45,0%	45,3%

Source: own editing (2023).

*Table 2: Knowledge of the public subsidies of products related to self-care by product group*

	correct answer	incorrect answer
Banking products	79,3%	20,7%
Preferential loan products	76,1%	23,9%
Universal savings products	62,1%	37,9%
Health and pension pre-savings products	49,3%	50,7%
Insurance products	58,6%	41,4%
SUMMARY	62,3%	37,7%

Source: own editing (2023).

Looking at the data, it is immediately apparent that the high rate of correct awareness of public subsidies for youth products is better than product knowledge and the same is true for savings and pension products. Awareness of subsidies for insurance and daily products is similar to product knowledge. The results of the research show that the knowledge of graduating secondary school students is deficient in the knowledge of public subsidies (tax, interest) related to some specific financial products, with only 62.3% of students being familiar with these types of public subsidies (Kovács, Dunay 2023).

Reviews at the ways of acquiring knowledge, the determining channels for acquiring self-care knowledge in all forms of education are the immediate human environment (parents, family, friends, acquaintances) and social media. 93.8% of students in gymnasium education said that they had acquired knowledge about self-care through their immediate human environment. The proportion was 86.7% for technical high school, vocational high school and 73.8% for vocational schools. 52.0% of students at vocational schools, 60.7% of students at technical high school, vocational high school and 61.5% of students at secondary schools learn financial literacy in support of self-care from social media (Kovács et al. 2021).

## Conclusions

Our results support the findings of Dunay and colleagues (2017) and Hegedűsné Barna et al. (2017): consumer economic and financial education should start in schools and be integrated into the general curricula, as it will help them to make good decisions in the future. It should be highlighted that not only the teaching of financial topics is important, but also their methodological background (Baranyi et al 2019). Contrary to the Czech example of Opletalová (2015), financial education is not a compulsory part of school curricula in Hungary. In contrast to the Polish example of Osinska and Wasilewska (2020), Hungarian students are not fully aware of savings.

Summarizing the results of the research, can be found at clearly the knowledge of financial products and the knowledge of state aids related to these products is incomplete among high school graduates. This is particularly detrimental as this lack of knowledge can soon lead to concrete losses when they enter the world. They will not be financially well prepared for the challenges of life if they are not aware

of the options available to them. Financial literacy is not just a matter for schools, but it is here that young people would have the opportunity to acquire cutting-edge knowledge in a coherent and structured way. To be successful, parents should also be involved in the programmes, their main role being support and practical education.

## Literature

1. Állami Számvevőszék(State Audit Office of Hungary). (2020), Elemzés: Nyugdíj, egészségügy, adózás. Állami Számvevőszék.
2. Baranyi, A., Csernák, J. Tóth, E. (2019), Results of the survey on studying finance basics. "LIMES: A II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola Tudományos Évkönyve" 2019 : VI pp. 27-38.
3. Bárcki, J., Zéman, Z. (2015), A pénzügyi kultúra és annak anomáliái. "Polgári Szemle", 11(1-3), 102-109.
4. Belás, J., Nguyen, A., Smrčka, L., Kolembus, J., Cipovová, E. (2016), Financial Literacy of Secondary School Students. Case Study from the Czech Republic and Slovakia. "Economics & Sociology", 9(4), 191-206. <https://doi.org/10.14254/2071-789X.2016/9-4/12>
5. Csiszárík-Kocsir, Á., Garai-Fodor, M. (2018), Miért fontos a pénzügyi ismeretek oktatása a Z generáció véleménye alapján? "Polgári Szemle", 14(1-3), 107-119. <https://doi.org/10.24307/psz.2018.0809>
6. Dunay, A., Swadzba, U., Vinogradov, S., Illés, B. C. (2015), Magyar egyetemi hallgatók pénzügyi tudatossága és vállalkozói attitűdje. 516-528. In: Veresné, Somosi M.; Lipták, K. (eds.) „Mérleg és Kihívások” IX. Nemzetközi Tudományos Konferencia = „Balance and Challenges” IX. International Scientific Conference Proceedings, University of Miskolc, Miskolc
7. Dunay, A., Vinogradov, Sz., Illés, B. Cs. (2017), Entrepreneurial attitudes of university students. The Hungarian case study. pp. 81-100. In: Swadzba, U., Žak, M., Cekiera, R. (eds.) Praca – konsumpcja – przedsiębiorczość : Świadomość ekonomiczna młodego pokolenia. Wydawnictwo Uniwersytetu Śląskiego (384 p., 20.
8. Gavurova, B., Kubak, M., Huculova, E., Popadakova, D., Bilan, S. (2019), Financial Literacy and Rationality of Youth in Slovakia. Transformations in Business & Economics, 18(3(48)), 43-53.
9. Hegedűsné Barna, R., Hegedűs, S., Molnár, P. (2017), Pénzügyi kultúra vizsgálata középiskolások körében. In: Multidiszciplináris Kiadványok Sokszínű Válaszok (pp. 72-91). Budapesti Gazdasági Egyetem, Kereskedelmi, Vendéglátóipari és Idegenforgalmi Kar.
10. Kovács, L., Sütő, Á. (2020), Megjegyzések a pénzügyi kultúra fejlesztéséről. Gazdaság és Pénzügy, 7(1), 137-146. <https://doi.org/10.33926/GP.2020.1.6>
11. Kovács, Z., Dunay, A., Vinogradov, S., Nagy, K., Illés, B. C. (2021), Végzős középiskolások pénzügyi kultúrával és öngondoskodással kapcsolatos ismeretei Magyarországon. "Gazdaság és Társadalom", 14(3-4), 123-150. <https://doi.org/10.21637/GT.2021.3-4.07>
12. Kovács, Z., Dunay, A. (2023), Pénzügyi és öngondoskodási ismeretek a magyar középiskolák végzős osztályaiban 2021-ben. In: Obádovics, C., Resperger, R., Széles, Z., Tóth, B. (eds.) Társadalom – Gazdaság – Természet: Szinergiák a Fenntartható Fejlődésben Konferenciakötet. (pp. 188-202). Soproni Egyetem Kiadó. [https://doi.org/10.35511/978-963-334-450-7\\_s4b\\_Kovacs\\_Dunay](https://doi.org/10.35511/978-963-334-450-7_s4b_Kovacs_Dunay)
13. Mészáros, A. (2012), Pénzügyi tudatosság képzés a gödöllői Szent István Egyetemen. "A Pszichológia Mint Társadalomtudomány", 401-420.
14. Opletalová, A. (2015), Financial Education and Financial Literacy in the Czech Education System. "Procedia - Social and Behavioral Sciences", 171, 1176-1184. <https://doi.org/10.1016/j.sbspro.2015.01.229>
15. Osinska, M., Wasilewska, K. (2020), Students' Attitudes Towards Savings and Investment: The Case of Poland. "European Research Studies Journal", XXIII(Special Issue 2), 1068-1085. <https://doi.org/10.35808/ersj/1926>
16. Palimaka, K. (2020), Financial Literacy of Students – The Case Study of UITM in Rzeszów, Poland. "Financial Internet Quarterly", 16(3), 106-118. <https://doi.org/10.2478/fiqf-2020-0021>
17. Wereda, W., Prokopowicz, D. (2017), Economic and Financial Situation of Households in Poland – Analysis and Diagnosis. "Zeszyty Naukowe SGGW, Polityki Europejskie, Finanse i Marketing", 18(67), 240-258. <https://doi.org/10.22630/PEFIM.2017.18.67.37>



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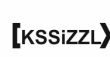
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# PREVALENCE OF POST-TRAUMATIC STRESS SYMPTOMS RELATED TO THE COVID-19 PANDEMIC AND THEIR IMPACT ON WORKPLACE FUNCTIONING

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**Abstract:** The COVID-19 pandemic, with its real threat to health and life, can be considered a traumatic stressor posing a risk of developing post-traumatic stress disorder (PTSD) symptoms. **Aim:** The purpose of this article was to investigate the prevalence of post-traumatic stress symptoms related to the COVID-19 in a group of employees and to assess their significance for functioning in the workplace. **Method:** The study included 46 employees (26 men and 20 women) from IT industry. The study used a self-designed survey and the *Impact of Event Scale - Revised version* (IES-R). **Results:** The results indicate the presence of clinical severity of symptoms in terms of the total PTSD index in 15.2% of the subjects, while taking into account the more rigorous diagnostic approach (where all three dimensions of PTSD must simultaneously reach a value above the cutoff point) - in 8.6% of the subjects. The highest rates were obtained by the subjects on the dimension of post-traumatic stress hyperarousal. **Conclusions:** The identified symptoms of post-traumatic stress in the studied group of employees may have implications for functioning in the workplace adversely affecting the employee's work performance, and thus organizational performance.

**Key words:** COVID-19 pandemic, employee, post-traumatic stress disorder (PTSD), workplace functioning

## Introduction

The COVID-19 pandemic appeared unexpectedly, spreading at a surprisingly fast pace around the world. The epidemic situation in the world aroused widespread fear and forced significant changes in functioning. Over time, the consequences of the experienced sense of threat began to manifest themselves in various areas of life, including mental health (Nilamadhab, Kar, Karc, 2021; Talevi et al., 2020). There has been an increase in the presence of anxiety, depression, post-traumatic stress disorders, or problems related to functioning in interpersonal relationships (Heitzman, 2020). As a result of the COVID-19 pandemic, in 2020-2021, the global prevalence of anxiety disorders increased by 25.6% with an overall incidence of 4,802.4 cases per 100,000 people (Santomauro et al., 2021). Importantly, although the overall number of infections has decreased compared to the state at the peak of the pandemic, the consequences of the epidemic situation may be felt just as intensely until now. Experiences related to e.g. with: fear of infecting oneself or one's relatives and thus the fear of losing one's health and/or life, as well as the fear of losing a job, reducing the working time or changing its organization may be severe enough to persist over time. In addition, a reduced but still persistent actual state of epidemic threat may constantly reinforce and sustain previously experienced distress. The article attempts to identify the symptoms of post-traumatic stress related to the COVID-19 pandemic in a group of working people. The assessment of the occurrence of these symptoms, and then also the planning of intervention methods for professionally active people, is an important element in improving job satisfaction and productivity and is also conducive to organizational performance.

## Literature review and research background

Research confirms the increased prevalence of post-traumatic stress disorder (PTSD) symptoms as a result of the COVID-19 pandemic (Qiu et al., 2021; Salehi et al., 2021; Yunitri et al., 2022). The pooled prevalence of PTSD (*post-traumatic stress disorder*) in the COVID-19 pandemic is estimated to be between 12 and 27.13% in the general population, between 15.45 and 36.3% among COVID-19 survivors and

between 17.23 and 29.22% among health care workers. These arguments suggest that despite some ambiguity regarding the diagnostic criteria, the COVID-19 pandemic and the stressors associated with it can be considered in terms of traumatic stressors, as a result of which PTSD may develop (Bridgland, Moeck, Green, 2021). According to the diagnostic criteria proposed by the DSM-5 (*Diagnostic and Statistical Manual of Mental Disorders*) (American Psychiatric Association, 2013), a traumatic stressor usually involves a direct reaction to the event (indirect if the stressor affects relatives), however, as it has been proven, the symptoms of traumatic stress may appear also as a result of the indirect impact of pandemic stressors, such as information about virus transmission presented in the media (Chao et al., 2020; Mertens et al., 2020). In China, nurses who were not involved in the care of COVID-19 patients and the general public had higher PTSD-like symptoms, depression, anxiety, stress symptoms, and physiological reactions, than front-line nurses (Li et al., 2020). The authors suggest that it is possible that front-line nurses referred to media information about COVID-19 to a lesser extent. In addition, the symptoms of post-traumatic stress may also appear as a result of an anticipated event that has not yet occurred, and may appear in the future, e.g. the risk of illness and death of a loved one. One of the criteria of a traumatic stressor in both DSM-5 and ICD 10 (*International Statistical Classification of Diseases and Related Health Problems*) also indicates its catastrophic nature (American Psychiatric Association, 2013; World Health Organization, 1998) which would eliminate many stressors related to the COVID-19 pandemic from this category (Norrholm et al., 2021). However, a number of stressful events related to the pandemic are confirmed to trigger symptoms from the traumatic stress spectrum (Bridgland, Moeck, Green; 2021). Trauma here may result from confrontation with several less intense experiences, such as, among others: fear of infection, exposure to quarantine and isolation, fear of losing a job, being closed, loneliness and losing social life (Łaskawiec et al., 2022). Moreover, due to the fact that new cases of COVID-19 are still appearing, experiences of peri-traumatic reactions (responses at the time of a stressful event or immediately after) are possible, which intensify the symptoms experienced (Bridgland, Moeck, Green; 2021).

The diagnosis of PTSD, in addition to the criterion related to exposure to a traumatic stressor (criterion A), also requires the presence of other characteristic symptoms. The table below presents a summary of other PTSD diagnostic criteria based on two commonly used classifications: DSM-5 and ICD-10.

**Table 1. List of other (except criterion A) diagnostic symptom criteria for PTSD according to ICD-10 and DSM-5**

Diagnostic criteria according to ICD-10	Diagnostic criteria according to DSM-5
<p>B. There is persistent recall or “reliving” of the stressor in the form of disturbing “flashbacks”, vivid memories, or recurring dreams, or feeling worse when faced with circumstances resembling or related to the stressor.</p>	<p>B: Presence of at least one symptom of intrusion related to the traumatic event that occurred after the traumatic event:            B1. Recurring unwanted, intrusive and stressful memories of a traumatic event.            B2. Recurrent, distressing dreams whose content and/or emotional content is related to the traumatic event(s).            B3. Dissociative reactions (e.g. flashbacks) in which the person feels or behaves as if the traumatic event(s) have happened again. (These reactions can be considered on a continuum with the most extreme intensity consisting in the loss of awareness in the surrounding reality).            B4. Severe or prolonged psychological distress when exposed to internal or external cues that symbolize or resemble some aspect of the traumatic event.            B5. Strong physiological responses to internal or external stimuli that symbolize or resemble some aspect of the traumatic event.</p>
<p>C. Patient currently avoids or prefers to avoid circumstances that resemble or are related to the stressor that were not present prior to exposure to the stressor.</p>	<p>C. Persistent avoidance of trauma-related stimuli after the traumatic event, as manifested by one or both of the following:            C1. Avoiding or trying to avoid distressing memories, thoughts or feelings about or closely related to the traumatic event(s).            C2. Avoiding or attempting to avoid external stimuli reminiscent of the event (people, places, conversations, activities, objects, situations) that evoke distressing memories, thoughts or feelings about or closely related to the traumatic event(s).</p>



<p>D. Any of the following is present: 1) Partial or complete inability to reconstruct certain important circumstances of the encounter with the stressor.</p>	<p>D. Negative cognitive and emotional changes that occurred or worsened after the traumatic event(s), as manifested by at least two of the following symptoms: D1. Inability to recall important aspects of the traumatic event(s) (usually related to dissociative amnesia rather than head injury, alcohol or drug use). D2. Perpetuated and exaggerated negative beliefs about self, other people, or the world (e.g., "I am a bad person," "no one can be trusted," "the world is absolutely dangerous," or "my nervous system is completely ruined"). D3. A fixed and distorted way of thinking about the causes or consequences of the traumatic event(s) that leads to blaming yourself or others. D4. Persistent negative emotional state (e.g. fear, horror, anger, guilt or shame). D5. Markedly limited interest or participation in important activities. D6. Feeling distant from other people or alienated. D7. Persistent inability to experience positive feelings (e.g. inability to feel happy, content, or loved).</p>
<p>2) Persistent symptoms of heightened psychological sensitivity and arousal state (not present prior to exposure to the stressor) as any two of the following: a) difficulty falling asleep or staying asleep, b) irritability or outbursts of anger, c) difficulty concentrating, d) excessive vigilance, e) enhanced startle reaction.</p>	<p>E. Marked changes in arousal and reactivity related to the traumatic event(s) that started or worsened after the event(s), such as at least two of the following: E1. Irritability or outbursts of anger. E2. Risk-taking or self-destructive behavior. E3. Increased vigilance. E4. Excessively strong reaction to unexpected stimuli. E5. Difficulty concentrating. E6. Difficulty falling or staying asleep.</p>

Source: 3rd American Psychiatric Association (2013), *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*. 5th ed., Washington, D.C.; World Health Organization (WHO) (1998), *ICD-10 Classification of Mental and Behavioral Disorders. Research Diagnostic Criteria*, Kraków: Vesalius University Medical Publishing House, Institute of Psychiatry and Neurology.

Assuming that the experience of the COVID-19 pandemic may result in the development of PTSD symptoms of varying intensity, which may persist over time and intensify especially in the face of confrontation with the consequences of the constant activity of the COVID-19 virus, this article attempts to assess the occurrence of post-traumatic stress symptoms in the examined group of employees.

## Methodology of the research

The survey was conducted in a group of polish employees working in the IT industry in March-April 2023. The survey was conducted online. The criterion for selecting employees for the study was minimum 3 years of work experience and holding a position requiring a stationary form of work. Among the employees who consented to the study, 46 people (26 men and 20 women) aged 28 to 49 (M=33.98; SD=5.45) returned the completed forms. Detailed characteristics of the study group are presented in Table 2.

**Table 2. Characteristics of the study group**

		<b>n</b>	<b>%</b>
Employees	female	20	43.5
	males	26	56.5
Education	university	27	58.7
	higher	19	41.3
		<b>M</b>	<b>SD</b>
Age (years)		33.98	5.45

Source: Own study

The *Impact of Event Scale - Reviser* (IES-R) was used in the study. This scale, adapted to Polish conditions by Juczyński and Ogińska-Bulik, consists of 22 items and is intended mainly to measure PTSD symptoms, enabling the indication of the overall severity of PTSD symptoms and the severity of symptoms of individual dimensions of PTSD (intrusion, avoidance and arousal) (Juczyński, Ogińska-Bulik, 2009). The examined person evaluates the frequency of symptoms on a five-point scale (0-not at all, 1-slightly, 2-moderately, 3-to a considerable extent, 4-definitely yes) by referring them to a specific traumatic event.

The overall score is calculated by summing up all the points, and the scores for each subscale - by adding up the points from the questions assigned to each subscale. It is also possible to calculate averages for the total score and subscales. The threshold value for the clinical severity of symptoms is the average score of 1.5 points, referring to both the individual dimensions and the general index of severity of post-traumatic stress symptoms. Scores exceeding 1.5 points in each of the three dimensions of the scale make the diagnosis credible. The internal consistency coefficient for the entire scale of the Polish version of IES-R is 0.92, while for the subscale of intrusion it is 0.89, arousal - 0.85, and avoidance - 0.78. In turn, the values of internal stability coefficients for the entire scale and for the subscales: intrusion, arousal and avoidance are: 0.75, 0.79, 0.76, 0.68, respectively. For the purposes of this study, the manual was modified so that the subjects assessed the occurrence of post-traumatic stress symptoms in relation to the COVID-19 pandemic.

In addition, the study used an original questionnaire taking into account the following data: gender and age of the respondent, education, position held in the company, form of work and the number of weekly working hours, length of service in the examined company.

## Results

Table 3 presents the results of the study of the severity of post-traumatic stress symptoms measured with the IES-R scale (general score and results in three dimensions of post-traumatic stress) based on the obtained raw scores.

*Table 3. The level of symptoms of post-traumatic stress disorder in the surveyed group of employees*

PTSD scores on the IES-R scale	M	SD
intrusion	7.9	5.2
avoidance	6.1	5.3
arousal	9.3	5.3
overall score	23.5	14.3

M – mean, SD – standard deviation

Source: Own study

In order to check the percentage of clinical values (above the cut-off point) for PTSD symptoms in the surveyed group of employees, the average in individual post-traumatic stress dimensions and the average for the overall score were calculated, and then those results that reach a value above the adopted cut-off point (> 1.5) were compiled. The data obtained are presented in Table 4.

*Table 4. Clinical values (above the cut-off point) of post-traumatic stress symptoms obtained in the study group of employees*

intrusion		avoidance		arousal		overall score	
n	%	n	%	n	%	n	%
6	13	4	8.6	10	21.7	7	15.2

Source: Own study

15.2% of the surveyed employees obtained a clinical value for the general index of PTSD. On the other hand, more restrictive guidelines for diagnosis require obtaining a value above the cut-off point simultaneously in all three dimensions of PTSD (Juczyński, Ogińska-Bulik, 2009). In this study, such a result was obtained by 8.6% of the respondents (n=4). The highest scores of clinical intensity were obtained in the dimension of arousal symptoms (21.7%), and the lowest in the dimension of avoidance (8.6%).

## Discussion

The results obtained based on the study of IT industry employees indicate the presence of clinical exacerbation of symptoms in terms of the general PTSD index in 15.2% of the respondents, while taking into account a more rigorous diagnostic approach (where all three PTSD dimensions must simultaneously reach a value above the cut-off point) - in 8.6% of respondents. These results are lower compared to the data reported in meta-analyses of studies on COVID-19-related PTSD in the general population (12-27.13%) (Qiu et al., 2021; Salehi et al., 2021; Yunitri et al., 2022). Similarly, compared to the results of studies taking into account employees of various industries; e.g. in a study with 181 social workers - 26.21% met the diagnostic criteria for PTSD (Holmes et al., 2021). In turn, in the study by Rosemberg- et al. (2021) with the participation of employees working in the food services, food retail, hospitality and industries, the probability of developing PTSD was estimated in 37% of respondents. Perhaps the spread of the PTSD indicator as a consequence of the COVID-19 pandemic is related to the time in which the measurement was made, because the further from the outbreak of the pandemic, this indicator may be lower (Shevlin et al., 2021). This study was conducted 3 years after the outbreak of the pandemic, which may explain the relatively lower rates of PTSD. It is worth emphasizing, however, that research in this area is carried out on various groups of employees, as well as with the use of various tools diagnosing PTSD symptoms, which may make reliable comparisons difficult - thus it is an incentive for further research. This does not change the fact that even a slight increase in PTSD symptoms in employees can affect functioning in the workplace. PTSD, Like other mental health problems, can increase absenteeism from work. Based on data from 24 countries, the average number of days out of role (when employees were totally unable to do their work or usual activities) due to PTSD was 42.7 annually (Alonso et al., 2013). Similarly, the negative impact of the discussed symptoms also applies to employee productivity, which translates further into organizational performance. A study conducted during the pandemic in a group of 169 employees revealed a weak but significant relationship between the overall PTSD index and PTSD dimensions and employee performance (Yilmaz & Karakuş, 2022). Post-traumatic stress symptoms may impair verbal memory (Johnsen, Asbjørnsen, 2008; Johnsen, Kanagaratnam, & Asbjørnsen, 2008), which may affect the learning process and impair the quality of tasks performed, especially where verbal material is used. Consequences may also manifest themselves in the area of interpersonal relations in the workplace. In conflict situations, employees with PTSD symptoms are more likely to experience anxiety and irritability (McFarlane & Bookless, 2001). This can result in distance and alienation in workplace relationships. Post-traumatic stress spectrum symptoms are also associated with employee burnout and its characteristic symptoms: emotional numbness, depersonalization, and a diminished sense of personal accomplishment (Whealin et al., 2007; Mather, Blom, Svedberg, 2014).

It is also noteworthy that the relatively high rates (21.7%) obtained in this study in terms of post-traumatic stress arousal symptoms. This means that in the surveyed employees, symptoms such as: difficulties with sleeping, concentrating attention, irritability, excessive vigilance or exaggerated reactions to unexpected stimuli occur more often compared to symptoms of avoidance and intrusion.

Symptoms of arousal can make it difficult to perform tasks at work, reduce their quality and promote errors and accidents at work. In general, problems with focusing on work and the related preoccupation with anxiety may affect professional activity in all its aspects, leading to a marked decrease in its quality. It is worth emphasizing, however, that the symptoms of the arousal dimension of PTSD are the central symptom not only for post-traumatic stress, but also for other anxiety disorders, which may make it difficult to draw clear conclusions about their origin (Brown, McNiff, 2009). Therefore, further research is needed to verify the cause-and-effect relationships in this regard.

## Conclusion

The emergence of the COVID-19 pandemic forced the implementation of many socio-economic changes. The consequences of these changes have often become the cause of serious difficulties, which are also visible in the sphere of mental functioning. As a result of the pandemic, the prevalence of various types of mental health disorders has increased, including anxiety, depression, or PTSD symptoms. The latter may have developed because events related to the pandemic may have been experienced as traumatic stressors.

The article presents the results of research on the occurrence of post-traumatic stress symptoms in a group of people working in the IT industry. The clinical value for the general level of post-traumatic stress was achieved by 15.2% of the respondents (8.6% taking into account a more rigorous diagnostic approach). In addition, the result in terms of the symptoms of the arousal dimension, which at the clinical level was achieved by the largest percentage of the respondents (compared to the other dimensions), turned out to be significant. The results of the overall PTSD level obtained in the study, although lower compared to the data from the beginning of the pandemic, suggest that, despite the passage of time, PTSD symptoms associated with the COVID-19 pandemic may still occur. For the work environment, this means the possibility of revealing the consequences of these problems in terms of the quality of the employee's functioning in the workplace. These consequences may concern various aspects, including: increased absenteeism at work, problems in performing tasks resulting from impaired concentration of attention and other cognitive functions, or difficulties in relations with colleagues and superiors. Deterioration of the quality of an employee's work and thus a decrease in his efficiency also means consequences for the entire organization, as it translates into organizational performance.

The presented research results emphasize the importance of raising awareness of the occurrence of PTSD symptoms, ways of manifesting these symptoms and, most importantly, methods of preventing the development of PTSD among working people and helping those who already experience this problem. In particular, the management staff should have appropriate theoretical knowledge and appropriate practical tools in this regard, which, if implemented early enough, will minimize risk factors, and in relation to employees already struggling with the problem, will effectively support the therapy process.

It is also worth mentioning the limitations of the study. One of the limitations of this study is the use of self-reported measurement tools, which are associated with the risk of measurement error resulting from consciously or unconsciously presenting themselves in a different light than in reality. In addition, the survey was conducted in a group of employees in one industry and on a relatively small sample size which creates some limitations in terms of generalization of the results. At the same time, this provides a reason to design similar studies in the future with the participation of employees from different sectors of the economy

## Literature

1. Alonso J., Petukhova M. V., Vilagut G., Bromet E. J., Hintov H., Karam E. G. (2013), *Days totally out of role associated with common mental and physical disorders*. (In:) J. Alonso, S. Chatterji, Y. He (Eds.), *The Burdens of Mental Disorders: Global Perspectives from the WHO World Mental Health Surveys*, Cambridge, UK: Cambridge University Press, pp. 137–148.
2. American Psychiatric Association (2013), *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, 5th ed., Washington, DC.
3. Bridgland, V.M.E., Moeck, E.K., Green, D.M. (2021), *Why the COVID-19 pandemic is a traumatic stressor*, „PLoS ONE”, 16.
4. Brown T.A., McNiff J. (2009), *Specificity of autonomic arousal to DSM-IV panic disorder and posttraumatic stress disorder*, „Behaviour Research Therapy”, 47, 6, 487–493.
5. Chao M., Xue D., Liu T., Yang H., Hall B.J. (2020), *Media use and acute psychological outcomes during COVID-19 outbreak in China*, „J Anxiety Disord.”, 74:102248.
6. Heitzman J. (2020), *Wpływ pandemii COVID-19 na zdrowie psychiczne*, „Psychiatria Polska”, 54(2), s. 187–198.
7. Holmes M. R., Rentrop C. R., Korsch-Williams A., King J. A. (2021), *Impact of COVID-19 pandemic on posttraumatic stress, grief, burnout, and secondary trauma of social workers in the United States*, „Clinical Social Work Journal”, 49, 4, 495-504.
8. Johnsen G. E., Asbjørnsen A. E. (2008), *Consistent impaired verbal memory in PTSD: A meta-analysis*, „Journal of Affective Disorders”, 111(1), 74–82.
9. Johnsen G. E., Kanagaratnam P., Asbjørnsen A. E. (2008), *Memory impairments in posttraumatic stress disorder are related to depression*, „Journal of Anxiety Disorders”, 22(3), 464–474.
10. Juczyński Z., Ogińska-Bulik N. (2009), *Pomiar zaburzeń po stresie traumatycznym – polska wersja Zrewidowanej Skali Wpływu Zdarzeń*, *Psychiatria*, 6, 1, 15-25.
11. Li, Z., Ge, J., Yang, M., Feng, J., Qiao, M., Jiang, R., et al. (2020), *Vicarious traumatization in the general public, members, and non-members of medical teams aiding in COVID-19 control*, „Brain Behav Immun”, 916–9.
12. Łaskawiec D., Grajek M., Szlacheta P., Korzonek-Szlacheta I. (2022), *Post-pandemic stress disorder as an effect of the epidemiological situation related to the COVID-19 pandemic*, „Healthcare”, 10(6), 975.
13. Mather L., Blom V., Svedberg P. (2014), *Stressful and traumatic life events are associated with burnout—A cross-sectional twin study*, „International Journal of Behavioral Medicine”, 21(6), 899–907.
14. McFarlane A. C., Bookless C. (2001), *The effect of PTSD on interpersonal relationships: Issues for emergency service workers*, „Sexual and Relationship Therapy”, 16(3), 261–267.
15. Mertens G., Gerritsen, L., Duijndam S., Salemink E., Engelhard I. (2020), *Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020*, „J Anxiety Disord.”, 10;102258.
16. Nilamadhab K., Kar B., Karc S. (2021), *Stress and coping during COVID-19 pandemic: Result of an online survey*, „Psychiatry Res.”, 295, 113598.
17. Norrholm S. D., Zalta A., Zoellner L., Powers A., Tull M. T., Reist C., Schnurr P. P., Weathers F., Friedman M. J. (2021), *Does COVID-19 count?: Defining Criterion A trauma for diagnosing PTSD during a global crisis*, „Depression Anxiety”, 38, 882-885.
18. Rosemberg M. S., Adams M., Polick C., Li W. V., Dang J., Tsai J. H. (2021), *COVID-19 and mental health of food retail, food service, and hospitality workers*, „Journal of occupational and environmental hygiene”, 18 (4-5), 169–179.
19. Salehi M., Amanat M., Mohammadi M., Salmanian M., Rezaei N., Saghadzadeh A., Garakani A. (2021), *The prevalence of post-traumatic stress disorder related symptoms in coronavirus outbreaks: a systematic-review and meta-analysis*, „J. Affect. Disord.”, 282, 527-538.
20. Santomauro, D.F. i in. (2021), *Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic*, „Lancet”, 398, 1700–1712.
21. Shevlin M., Butter S., McBride O., Murphy J., Gibson-Miller J., Hartman T.K., Levita L., Mason L., Martinez A.P., McKay R., Stocks T.V.A., Bennett K., Hyland K., Bentall R.P. (2021), *Modelling Changes in Anxiety-Depression and Traumatic Stress During the First Wave of the COVID-19 Pandemic in the UK: Evidence for Population Heterogeneity in Longitudinal Change*, [Available at SSRN: <https://ssrn.com/abstract=3749211> or <http://dx.doi.org/10.2139/ssrn.3749211>]





22. Światowa Organizacja Zdrowia (WHO) (1998), *Klasyfikacja zaburzeń psychicznych i zaburzeń zachowania w ICD-10. Badawcze kryteria diagnostyczne*, Kraków: Uniwersyteckie Wydawnictwo Medyczne „Vesalius”, Instytut Psychiatrii i Neurologii.
23. Talevi D., Socci V., Carai M., Carnaghi G., Faleri S., Trebbi E., di Bernardo A., Capelli F., Pacitti F. (2020), *Mental health outcomes of the CoViD-19 pandemic*, „Riv. Psichiatr.”, 55, 137–144.
24. Whealin J. M., Batzer W. B., Morgan C. A. III, Detwiler H. F. Jr, Schnurr P. P., Friedman M. J. (2007), *Cohesion, burnout, and past trauma in tri-service medical and support personnel*. “Military Medicine”, 172(3), 266–272.
25. Qiu D., Li Y., Li L., He J., Ouyang F., Xiao S. (2021), *Prevalence of post-traumatic stress symptoms among people influenced by COVID-19 outbreak: a meta-analysis*, „Eur. Psychiatry”, 1-42.
26. Yilmaz F. K., Karakuş S. (2022), *Post-traumatic Stress, Work Performance and Employee Satisfaction Among Health Care Workers during the COVID-19 Pandemic*, „Pakistan Journal of Medical & Health Sciences”, 16, 5, 887-893.
27. Yunitri N., Chu H., Kang X.L., Jen H.-J., Pien L.-C., Tsai H.-T., Kamil A.R., Chou K.-R. (2022), *Global prevalence and associated risk factors of posttraumatic stress disorder during COVID-19 pandemic: a meta-analysis*, „Int. J. Nurs. Stud.”, 126, 104136.

## EMPLOYEE SATISFACTION IN OPEN OFFICE ENVIRONMENT

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**Abstract:** The research was made for exploring employee satisfaction in new open office environment at a multinational company, after the decision of the management about the refurbishment of the European offices. As a result, the Hungarian office should have been transformed into an open office area. The goal of the research was to measure employee satisfaction in the new work environment and to make a proposal for management team for further office investments. For exploring the situation, a primary research was conducted among Hungarian and Czech employees of the company, if they are satisfied with the realized new work environment. The survey was done by in-depth interviews using an interview questionnaire. As a result of the research it may be stated that employees are generally satisfied with their working environment. They reported their needs regarding wider space and extended own work environment and about more meeting rooms and rest zones. Respondents noticed excessive noise and direct and rapid communication between each other during operation.

**Key words:** employee, human resource, organizational behaviour, personnel management

### Introduction

Human resource is essential asset in achieving goals of any companies, therefore the well-being and satisfaction of employees play a key role in the successful performance. Our research was made on measurement of employee satisfaction in new open office environment at NCH Company based on a management decision about the refurbishment of European offices. Thus, the Hungarian office must also be transformed into an open office area. The goal of the research is to measure employee satisfaction in the new work environment and make a proposal for management team for further office investments.

### Literature review

From the end of the 19th century, during the Industrial Revolution, society and the economy underwent a huge reformation thanks to the technological explosion, which separated the office in its present sense from the production line. This period saw the beginning of the construction of office buildings and with it the concept of the "open office", which meant huge halls without any internal boundaries, serving as a space for the employees, crowded with desks. Managers had their own offices, located on a higher floor of the building. Cost efficiency was a key design consideration, and the large open space made it easy to control the large number of subordinates (Klein, 2018).

After the World War in Germany, the "Bürolandschaft" style of office space appeared and was soon introduced in the USA. The new image is a combination of private offices and "open office", called "office landscape", decorated with dividing walls and plants. The office space was divided according to schedules and tasks, with a more optimal distribution of space. The "home office", i.e. working from home, was also introduced and became widespread during the COVID-19 pandemic.

There are both advantages and disadvantages to open office. Basically, communication is faster and more efficient. An open office is more transparent, more welcoming and allows for an interactive exchange of information between colleagues. Interaction has been shown to be more frequent between colleagues who do not have a direct task relationship (De Croon et al. 2005). The constant sense of community that results from open spaces strengthens the team, fostering a sense of belonging to a team. Regardless of position, a sense of approachability contributes to a more cohesive yet relaxed working environment, and the more direct contact among colleagues within and outside the organisation can also provide an effective platform for creative ideas that can make project-based working more effective

(Bernstein, Turban 2018). Communication within the organisation is the biggest part of a manager's job. Meetings, meetings with partners, communication with employees, correspondence and the preparation of various reports (Baker 2015).

An open office is more transparent and more economical to maintain. In addition to the cost-effective use of space and the possibility of flexible rearrangement, renting an open office is more cost-effective than having a separate office for each employee. The complex corporate strategy includes communication channels, which are strongly influenced by the distribution of the office (Fehérvári, Szeles 2001).

Aesthetic and fashionable office space can be designed and furnished in a number of ways to best meet both employee and company expectations. In single-space offices, it is possible to decorate, create a relaxation zone or change the layout of desks. In order to maintain a peaceful and productive operation, it is important to take into account the needs of people in different positions with different responsibilities (Bernstein, Waber 2019). Privacy is essential even when work is essentially carried out in a single airspace. The impact on employees is positively enhanced if the working environment can be personalised and rearranged to suit the needs of the individual, leading to a commensurate increase in their attachment to the workplace and their commitment to the employer (Dúll, Tauszik 2006).

Another benefit of an open office is that team or functional managers working in the same room can more easily monitor the performance of colleagues in their immediate team. Many people are nervous about sitting too close together or seeing their screens. However, administrative staff doing monotonous work can perform better when they are in the same room as their colleagues (Triplett, 1981). However, it is a proven fact that when complex tasks requiring concentration need to be performed, a closed, quiet space is necessary to achieve the right level of performance in the optimum time (Csepele 2003). At the same time, others can be encouraged to perform better when they can work in the same room as their managers (James et al. 2021).

Effective communication, more frequent cooperation, rapid interactions and a working environment that provides a cohesive atmosphere in the fashionable "open office" can be highly motivating. A unique look that allows for an expressive interior design compared to the usual sterile and functional office spaces, through which the company can communicate its branding elements on demand, or create a higher quality working environment that shows more appreciation towards its employees (Reketye 2018).

Overall, people who like open offices tend to praise the positive atmosphere, environmental benefits and creative output of their staff. In open-plan offices, employees are free to roam, socialise, collaborate, communicate more intensively, and better meet the demands of the community and respond more quickly to changes in their environment. All of this, of course, has a positive impact on employee morale, not forgetting cost efficiency, which is also seen as a positive by the company (Digital Hungary 2019).

Nevertheless numerous disadvantages of open offices are mentioned in the international literature. Laurence et al. (2013) concluded that employees tend to be more dissatisfied with large open-plan offices compared to enclosed office spaces. A fair amount of research has been undertaken to explore how to make them more functional spaces and create a more positive impression on employees. Yildirim et al. (2007) found that among employees working in open-plan offices, colleagues sitting next to a window are significantly more satisfied. They were also found to have a more positive correlation with their perceived privacy and the quality of their working environment in general, due to the high separation elements. Workers showed a demonstrable preference for workstations with windows. Without windows, there is less natural light, even if this can be replaced by adequate lighting wattage, but there is still an inherent need to be in contact with nature (Yildirim et al., 2007).

Basically, the main problem is the lack of privacy. According to a research, privacy is absolutely necessary. It can be noisier and more disturbing to work together some feel insecure and unprotected. At the same time, they are exposed to too many stimuli in their daily lives. Lack of personal space can have a negative impact on productivity in both the short and long term (Dúll, Tauszik 2006).

Also, sound and noise spread more easily in large spaces. Research on noise shows that the rating increases proportionally as a function of the lower the noise level (Gensler Study, 2013).

Constant alertness can disturb concentration, leading to frustration and consequently increased tension. Crowdedness leads to higher turnover and lower performance. According to the overload theory, when a huge amount of information is showered on a worker and the relative distance between them is small, concentration difficulties can occur (Oldham, Fried, 1987).

To summarise the advantages and disadvantages of single-space offices. Privacy is declining, while the role of social communication and a collaborative approach is increasing. Information flows are increasing, while flexible work cultures are coming to the fore. Open office space is also cost-effective, as more staff can be accommodated in a smaller area. Or more staff can be accommodated in the same space. Workstations integrated into a single space result in significant cost savings, which also have a positive impact on greener, more environmentally friendly solutions. It is important to consider all the features of an open-plan office together, with its advantages and disadvantages, before it is implemented in an organisation. A high level of organisational, psychological, architectural and interior design knowledge is required to create the right design for the company.

## Methodology

The primary research investigates the "open office" working environment in the Hungarian organisation of NCH, with a focus on employee satisfaction. The research questions were the following: (1) Whether they are really satisfied with the new working environment implemented and thus with their employer, NCH Hungary Ltd., and (2) What factors influence their satisfaction and to what extent.

In order to answer these questions, in-depth interviews were conducted to investigate employee satisfaction. A total of 9 employees answered a total of 18 questions. All nine respondents are full-time NCH employees, working 8 hours a day, with duties performed in the office at their own workplace. All members of the surveyed group are "back office" employees, with different tasks in their assigned positions.

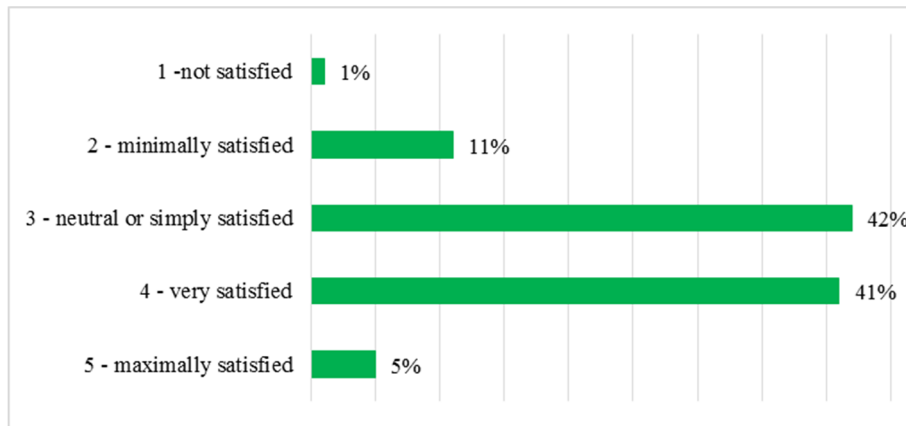
The total number of registered employees of the examined company is 20, of which 9 were interviewed in total, as they are part of the operational team. Their role is to support sales in Hungary. They work in the following positions: reception, purchasing, logistics, marketing, IT, HR, translation and order entry. The remaining 11 employees work in a management position or in field sales. The reason why exactly 9 employees are included in the survey is that they carry out their work on site, 8 hours a day in the office.

## Presentation of the results

Firstly, changes in employee satisfaction were discussed after introducing open office environment.

Compared to the original working environment (pre-refurbishment office), the renewed working environment has a different impact on the daily satisfaction of employees.

The results are summarised by Fig. 1, where it seems clearly that, indicating the level of satisfaction on a scale of 1 to 5, where 1- not satisfied, 2- minimally satisfied, 3- neutral or simply satisfied, 4-very satisfied, 5-maximum satisfied. A significant proportion of employees marked the satisfaction by neutral feelings or with strong satisfaction. It can also be stated that 88% of employees are satisfied with their current, new work environment.



*Figure 1. Satisfaction of the interviewed employees*

Source: own research

In terms of office furniture, employees are satisfied with their office furniture. Almost all NCH employees find the temperature, humidity and climate in the office satisfactory. The highest number of votes was for the fourth grade on a scale of 5, with the majority rating the office air as adequate.

Three categories of colours used in the office were reported by respondents. Two respondents said that blue, white and grey colours in the office were minimally acceptable, i.e. slightly acceptable. Four respondents stated that it was both adequate and not. In their opinion, the colouring of the environment is unanimous. The remaining three respondents consider the colours in the office to be significantly appropriate.

The clear statement of the employees is that the office design is clearly in line with the image of the company. More than two thirds of respondents say it is significantly or maximally consistent, both in design and composition. Employees expressed satisfaction with the design of the office. However, they made suggestions regarding the layout. In the previous office, they sat in a large circle, everyone could see each other, but now they sit in a row, so they have to walk to the two tables further away from each other to avoid communicating in a raised voice.

Of course, every office has advantages and disadvantages. Many people missed the large spaces and the more spacious private working environment of the old office. They also pointed to the noise level, which is often more than the permitted level. Especially when guests arrive or when additional managers enter the office from the area. They report that their work is often interrupted by the ringing of a telephone or simply distracted by loud background noise. They stressed the lack of rest zones. Indeed, there is only a small canteen available for a break from work or a private phone call. In addition, a storage area of a few square metres is used to organise office supplies.

## Conclusion

Overall, Hungarian NCH workers are satisfied with their working environment and consider their working conditions to be good. However, they think it has no impact on their work performance. They are clearly satisfied with the furniture and its functionality. After the renovation, they are satisfied with the air temperature, the ease of adjustment and the adequate ventilation. They are also satisfied with the lighting and the amount of natural light in the common areas and above their work area. Satisfaction with the colours used in the office varies from individual to individual. However, they agree that the company's values are faithfully conveyed by the combination of white and blue tones in the logo. The office is clean and tidy, neutral and smells good, which is particularly well looked after by the current supplier. The rest areas, including the kitchen and washrooms, are highly appreciated, as they have also



been renovated during the investment project, making them more functional spaces. Wellbeing is also very good in everyday life thanks to the renewed working environment. And only half of the employees think it has a positive impact on their health. They agree with the design of the current ergonomics and consider the composition to be appropriate.

## Literature

1. Dúll, A., Tauszik K. (2006), A munkahelyhez kötődés konstruktumának vizsgálata – elméleti megfontolások egy tranzakcionális helykutatáshoz. Akadémiai Kiadó, Budapest. 87–105., 90.
2. Baker, A.C. (2015), *Catalytic Conversations: Organizational Communication and Innovation*, Routledge, New York
3. De Croon, E., Sluiter, J., Kuijer, P. P. F. M., & Frings-Dresen, M. H. W. (2005), The effect of office concept on worker health and performance: A systematic review of the literature. *Ergonomics*, 48 (2), 119-134.
4. Fehérvári, Á., Szeles, P. (2001), A vállalat belső kommunikációja. *Munkaügyi Szemle*, 45. évf., 11. szám, pp. 17-21.
5. Csepeli, Gy. (2003), *Szociálpszichológia*. Osiris, Budapest.
6. Rekettye, G. (2018), *Értékteremtés 4.0* Akadémiai Kiadó. Budapest DOI: 10.1556/9789634542230
7. Triplett, N. (1981): A kísérleti társadalomlélektan főárama. Gondolat Könyvkiadó, Budapest.
8. DigitalHungary (2021), <https://www.digitalhungary.hu/e-volution/Az-open-office-aldas-vagy-atok-avagy-nyilt-legteru-vagy-zart-legyen-az-irodank/8626/>
9. Bernstein E., Waber, B. (2019), The Truth About Open Offices. *Harvard Business review*, November–December 2019 <https://hbr.org/2019/11/the-truth-about-open-offices>
10. Bernstein E. S., Turban S. (2018), The impact of the ‘open’ workspace on human collaboration „Philosophical Transactions of the Royal Society B”. B3732017023920170239 <http://doi.org/10.1098/rstb.2017.0239>
11. James, O., Delfabbro, P., & King, D. L. (2021), A Comparison of Psychological and Work Outcomes in Open-Plan and Cellular Office Designs: A Systematic Review. *SAGE Open*, 11(1). <https://doi.org/10.1177/2158244020988869>
12. Laurence, G. A., Fried, Y., Slowik, L. H. (2013), Moderated mediation model of the effect of architectural and experienced privacy and workspace personalization on emotional exhaustion at work. *Journal of Environmental Psychology*, 36, 144-152.
13. Gensler Study (2013), US Workplace Survey. <https://www.gensler.com/gri/the-2013-us-workplace-survey-1>
14. Yildirim, K., Akalin-Baskaya, A., Celebi, M. (2007), The effects of window proximity, partition height, and gender on perceptions of open-plan offices. *Journal of Environmental Psychology*, 27, 154-165.
15. Oldham, G. R., Fried, Y. (1987), Employee reactions to workplace characteristics. *Journal of Applied Psychology*, 72 (1), 75-85.
16. Klein, S. (2018): *Munkapszichológia a 21. században*. Budapest, EDGE 2000 Kft



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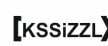
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## PERFORMANCE OF MAIN AGRICULTURAL SECTORS – STUDY CASE CENTRAL REGION, ROMANIA

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University of Alba Iulia

**Abstract:** Romanian agriculture is one of the sectors that needs significant structural changes in order to become competitive at international level. Integration into the EU increased competition for agrarian sector in the framework of single market and, considering it widely, of the global market. The research aims to analyse the comparative advantages recorded for main agriculture sector at Central Region level, compared with national level. The study underlines a specific regional development evolution in the case of Central Region, considering the framework in which this region does not record the tendency registered at national level. The evolution of commercial flows can validate, in an objective way, the competitive sectors. The analysis intends to show the strengths and opportunities for future development at regional level, underlining the fields that increased their specialization. All this information is important for the stakeholders, which should design and prepare the financial instruments used to support the regional development. The analyse developed in the article intends to design a concept that could be used as an instrument of regional development management. This instrument could be used in order to achieve national objectives settled at national level through strategic documents for European regions. The article is presenting this analyse for Central Region, Romania. The research is built on the analyse of comparative advantage determined for main agricultural sectors. The analysis shows the positive results obtained by the Central Region at national level, being in this way the first Romanian region which has recorded positive results, in the analysed period, for regional balance trade. The analyse points out a certain regional development tendency for Central Region. This tendency does not follow general trend recorded nationally. The authors' intention is to support, scientifically, the tendency shown by the evolution of comparative advantage for Central Region opposite with the tendency recorded at national level, validating in this manner an instrument which can be used to design regional development strategies. In this way, the competitive sectors become objectively determined, validated through the evolution of commercial flows.

**Key words:** regional development; comparative advantage; sector specialization.

### Introduction

European integration process, combined with the globalization process, generated changes for the Romanian economy and all its sectors. Romanian agriculture sectors reveal a reality of a highly fragmented sector, a large number of individual producers, a relatively reduce number of industrial processors and a low interest in cooperatives or producers' organizations representation. In the last decades, in many developing countries, agricultural production was based on activities carried out within the family farms, replaced in present with larger organizations that are more integrated in the agricultural production and distribution chain (see Boehlje, 2000, p. 53-60; Alboiu, 2018, p. 19-22). Romanian agricultural sectors need an integrated approach because the producer organization level is low, although there are areas in which agriculture can be competitive if it is supported with coherent policies integrated in regional development strategies. These challenges are showing the relevance of competitiveness determination, at regional level, for main groups of agricultural goods that can support de regional development policy and represent a basis for creating or adjusting financial instruments that can be used in order to increase regional performances for international trade activity.

### Literature review

Agriculture sector represents a strategic objective in economic and social terms for each country strategic development, which is the reason for de-signing support instruments in order to encourage, protect, promote and maintain agricultural activity (see Dunmore, 1986, p. 21-34; Klomp & Haan, 2013,



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p. 793-818; Arisoy, 2020, p. 286-295). The support of the agricultural sector is intended to offer protection against foreign competition using different instruments such as customs tariffs and quotas, subsidies, prohibitions, voluntary limitations and other criteria (see Moon & Pino, 2018, p. 119-129). On the common market these instruments are disturbing the competition and the chances for each producer to compete fairly. In the last decades, protective policies in agriculture were discussed and changed especially under the influence of World Trade Organization, founded in 1995 (see Russo et al., 2011, p. 1328-1340; Arisoy, 2020, p. 286-295). In the last years a few developments have been observed related to export subsidies, customs tariffs and domestic support, as instruments to support agricultural sector (see Moon & Pino, 2018, p. 119-129; Pawlak, 2018, p. 229–237; Fanelli, 2019; Horská et al., 2019; Berry et al., 2022).

So, the instruments designed at regional level to support and encourage agricultural activities should be developed according to the specific characteristics of each region in order to maximize its potential. Stimulating the development of the small agricultural producers and rural areas during time there have been developed a few models taking into consideration local context and several variables referring to local territories (see Singh et al., 2009, pp. 91-99). At national level, there are differences between characteristics and geographical potential of different regions, which leads to differences in contribution to the macroeconomic indicators at regional and national level.

The authors used for determining the competitiveness at regional level, the revealed Comparative advantage method. The analysis included the determination of relative export performance and also the relative import-export performance for the main groups of goods. The research is focused on the assessment of the revealed comparative advantages held by Central Region in Romania, compared with the other Romanian regions for four categories of agricultural goods recorded by statistics, both nationally and regionally.

## Regional comparative advantages – regional analysis background

Romania holds both, good and weak positions, in the European Competitiveness Report ranking, with an evident focus on strengths and weaknesses for the manufacturing and services areas. During the analyzed period, in 2016 there was recorded a trend of accentuation the current account deficit started in 2014, in the framework of deteriorating the balance of goods and primary incomes. Analyzing the groups of products from the Combined Nomenclature show deficits including for agrifood products, recording 710 million euros at national level. Considering the commercial partners from countries, the deficit in the balance of goods was the result of intra-community trade (97.6 percent), the extra-community trade influencing only with 2.4 percent (see Gavrilă-Paven, 2020, p. 618-625).

*Table 1. Evolution of trade balance for Romania and Central Region during 2011-2019 (EUR mil-lion)*

	2011		2012		2013		2014		2015		2016		2017		2018		2019	
Exports – Romania	45292	100%	45069	100%	45706	100%	56322	100%	54596	100%	57386	100%	62644	100%	67723	100%	69003	100%
Exports – Central Region	5800	2.81%	6037	3.39%	6343	3.88%	7913	4.05%	7662	4.03%	8489	4.79%	9043	4.43%	10840	6.00%	11327	6.41%
Imports – Romania	54952	100%	54703	100%	55317	100%	58522	100%	62962	100%	67344	100%	75604	100%	82840	100%	86285	100%
Imports – Central Region	5578	0.15%	5733	0.48%	5959	0.77%	6560	1.21%	6876	0.92%	7627	1.33%	8770	1.59%	9899	1.94%	9980	1.56%
Trade Balance – Romania	-9660	-7.25%	-9634	-7.22%	-9611	-6.66%	-2201	-1.46%	-8366	-5.23%	-9958	-5.84	-12960	-6.90%	15117	-	17282	-
Trade Balance – Central Region	222	1.52%	304	2.01%	383	2.40%	1353	8.22%	785	4.52%	861	4.46%	273	1.28%	941	-	1347	-

Source: INS Romania, Tempo Online Database, July 2020.



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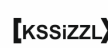
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The analysis of the data presented at national level and for Central Region, shows the negative evolution of the balance trade, as well as for the two elements, import and export. The diminishing of exports and imports was also determined by the slight appreciation of the national currency. Against this background, the positive element of the appreciation (instability) of the Romanian currency has a negative effect on exports. Many of the exporters have either tempered their business or, if they did not recorded losses, at most they had modest profits.

## Discussion

RSCA is a measure of specialization. It represents a way of transforming the RCA and measuring the relative performance of exports not the competitiveness. In our case, the values recorded are showing regardless of how weak or strong a region is acting, by definition the region usually are specialized in specific group of products, and will record high values for RCA and RSCA for some products groups and low values for others.

Vollrath (1991, p. 265-280) suggests the logarithm applied for RCA represents an objective solution to solve the asymmetry problem of the RCA index, but the adjusted index thus obtained is not defined in the case of a region with zero product in a sector. Because RSCA index, having similar properties to the logarithm solution, it can be defined in the case of zero product from a sector, we prefer this measure in our study.

**Table 2. Revealed Symmetric Comparative Advantage (RSCA) determined for Central Region compared with national level (2011 – 2019)**

Year	I.	II.	III.	IV.	VIII.
Average 2011	0.06	-0.87	0.14	0.70	0.89
Average 2012	0.07	-0.87	0.06	0.71	0.86
Average 2013	0.13	-0.89	0.12	0.66	0.85
Average 2014	0.17	-0.90	-0.03	0.67	0.88
Average 2015	0.10	-0.89	-0.23	0.75	0.89
Average 2016	0.04	-0.87	-0.32	0.78	0.86
Average 2017	-0.01	-0.82	-0.44	0.80	0.84
Average 2018	0.05	-0.90	-0.92	0.98	0.87
Average 2019	0.05	-0.89	-0.94	0.99	0.86

Source: own computation of authors. Note: I. Live animals and animal products; II. Vegetable products, III. Animal or vegetable fats; IV. Prepared foodstuffs, beverages and tobacco; VIII. Raw hides and skins and leather, furs and manufactures thereof.

This symmetric RSCA (Belassa 1965, p. 99-123; Belassa 1977, p. 327-344) index is used in analyzing persistence and specialization trends of trade patterns. The specialization trends are being tested using a regression equation developed and applied for our Central Region of Romania:

$$RSCA_i^t = \alpha_i + \beta_i RSCA_i^{t-1} + \varepsilon_i.$$

The superscripts  $t$  and  $t-1$  refer to two consecutive time periods, in our case two

## Conclusions

The analysis reveals the competitive categories of goods for Central Region determined based on the comparative advantage analyze using the methods presented above. Surprisingly, although for first two categories, I and II, Romanian economy is not competitive at international level, still for live animals and animal products, Central Region is competitive at national level (confirmed according all results determined for both indices). The analyze developed in this study shows that we have a reduction in specialization in Vegetable products field for the Central Region within this period, while the specialization in Live animals and animal products remains constant (according to Table no. 4), but

Central Region became more specialized in the other three fields: III, IV and VIII. For the last three categories it is an increasing of specialization, not a spectacular one, but an increasing that should be supported through regional development strategies designed at regional level.

In conclusion, the analysis conducted reveals the strengths and opportunities for future development for the analyzed region, underlining the fields that increased their specialization. This is an important information that should be considered by the stakeholders, which are designing and preparing the financial instruments development.

This analyze is proposing a new approach for the regional development management. The analysis presented could be used as an instrument based on the comparative advantage for the main agricultural sectors in order to determine the guiding lines for regional strategies. In this manner the financing programs could be focused on the agricultural sectors that bring added value at regional level and transform regions in competitive actors at European level. This instrument could be used in order to achieve national objectives settled at national level though strategic documents for European regions.

## Literature

1. Alboiu, C. (2018) *Romanian vegetable sector a study on its current development*. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development* 18(4), 19-22.
2. Arisoy, H. (2020) *Impact of agricultural supports on competitiveness of agricultural products*. *Agricultural Economics – Czech*, 66(6), 286–295. doi: 10.17221/416/2019-AGRICECON.
3. Balassa, B. (1977) *Revealed comparative advantage revisited: an analysis of relative export shares of the industrial countries, 1953–1971*. *Manchester School of Economics and Social Studies*, 45(4), 327-344.
4. Balassa, B. (1965). *Trade liberalization and revealed comparative advantage*. *Manchester School*, 33, 99-123.
5. Berry R., Vigani M. & Urquhart J. (2022): *Economic resilience of agriculture in England and Wales: a spatial analysis*, *Journal of Maps*, doi:10.1080/17445647.2022.2072242
6. Boehlje, M. (2000) *Farm policy in an industrialized agriculture*. *Journal of Agribusiness* 18(1), 53-60. doi: 10.22004/ag.econ.14708.
7. Dunmore, J.C. (1986) *Competitiveness and comparative advantage of U.S. agriculture*. *Proceedings 1986 National Public Policy Education Conference*, Denver, Colorado, Sept 16, 31, 21-34. doi: 10.22004/ag.econ.17548.
8. European Commission (2014) *European Competitiveness Report 2014*. Retrieved from [https://ec.europa.eu/growth/content/european-competitiveness-report\\_en](https://ec.europa.eu/growth/content/european-competitiveness-report_en) (18.02.2020).
9. Fanelli Rosa M. (2019) *A new classification of European Union regions: A decision support tool for policymakers*. *Spanish Journal of Agricultural Research*, 17 (1), e0102, doi.org/10.5424/sjar/2019171-13481.
10. Gavrilă-Paven, I. (2020) *Determining International Competitiveness Through Comparative Advantage at Regional Level – Instrument in Designing Regional Strategy. Study Case: Central Region, Romania*. In: R. Pamfilie, V. Dinu, L. Tăchiciu, D. Pleșea, C. Vasiliu eds. 6th BASIQ International Conference on New Trends in Sustainable Business and Consumption. Messina, Italy, 4-6 June 2020. Bucharest: ASE, 618-625.
11. Horská, E., Moroz, S., Poláková, Z., Nagyová, L., & Paska, I. (2019). *Evaluation of interaction between chosen indicators of development of regions in Ukraine*. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 14(2), 341–357. doi: 10.24136/eq.2019.016.
12. Klomp, J., & De Haan, J. (2020). *Conditional Election and Partisan Cycles in Government Support to the Agricultural Sector: An Empirical Analysis*. *American Journal of Agricultural Economics*, 95(4), 793-818. doi: 10.1093 /ajae/aat007.
13. Laursen, K. (2015) *Revealed comparative advantage and the alternatives as measures of international specialization*. *Eurasian Bus. Rev.*, 5, 99–115. doi: 10.1007/s40821-015-0017-1.
14. Moon, W., & Pino G. (2018) *Do U.S. citizens support government intervention in agriculture? Implications for the political economy of agricultural protection*. *Agricultural Economics*, 49, 119–129. doi: 10.1111/agec.12400.
15. Pawlak K. (2018) *Agricultural support policy as a determinant of international competitiveness evidence from the EU and US*. *Proceedings 2018 International Conference Economic Science for Rural Development No 47*, Jelgava, LLU ESAF, May 9–11, 229–237. doi: 10.22616/ESRD.2018.027.
16. Pouch, T. (2020) *When Economists Dealt with the Agrarian Question Back to a French Episode (1970-1980)* *Oeconomia-History Methodology Philosophy* 10(1), 115-142. doi: 10.4000/oeconomia.8026.
17. Russo, C., Goodhue, R.E., Sexton, R.J. (2011) *Agricultural support policies in imperfectly competitive markets: why market power matters in policy design*. *American Journal of Agricultural Economics*, 93, 1328–1340. doi: 10.1093/ajae/aar050.



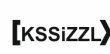
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18. Szczepaniak, I. (2018) *Comparative advantages in Polish export to the European Union - food products vs selected groups of non-food products*, *Oeconomia Copernicana*, 9(2), 287-308. doi: 0.24136/oc.2018.015.
19. Singh, R., Singh, H.P, Badal, P.S, Singh, O.P, Kushwaha, S, Sen, C. (2008-2009) *Problems and Prospects of Food-Retailing in the State of Uttar Pradesh (India)*, *Journal of Services Research*, 8(2), 91-99.
20. Vitunskiene, V., & Serva, E. (2015) *Shifts in Lithuania's Agri-food Industry Export Competitiveness: a Comparative Analysis Versus High- and Medium-high Technology Manufacturing Industries*, *Oeconomia Copernicana*, 6 (1), 1-37. doi: 10.12775/OeC.2015.001.
21. Vollrath, T. L.(1991) *A theoretical evaluation of alternative trade intensity measures of revealed comparative advantage*. *Weltwirtschaftliches Archiv*, 127, 265–280. doi: 10.1007/BF02707986.



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# THE IMPACT OF ECONOMIC UNCERTAINTY ON CORPORATE MANAGEMENT AND HR: IN LIGHT OF THE IMPACT OF COVID-19, PANDEMIC RECOVERY, AND THE WAR

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**Abstract:** Three major changes have influenced the management and HRM systems of businesses and organizations worldwide, including Hungary, over the last three years. Unlike previous crises and downturns, there was a need for unprecedented closures, which necessitated an unprecedented wave of actions. The pandemic hit Hungary's export-oriented economy hard, putting an end to a period of steady growth between 2016 and 2019. During this period, incomes were rising steadily, and unemployment had fallen to a 30-year low. However, not all businesses and organizations were equally affected by the global downturn. There were winners and losers alike. For instance, global tech and online trading businesses saw considerable profit increases in 2020, while the tourism and hospitality sectors suffered significant losses. In 2021, during the recovery from the pandemic, the Hungarian economy performed well, achieving a 7.1% GDP growth. This can also be attributed to the fact that a significant number of the Hungarian organizations surveyed saw the COVID-19 crisis not only as a problem but also as an opportunity. The era of an export-oriented economy with cheap labor has come to an end. Organizations now need new measures to survive and prioritize the physical and mental well-being of their employees. However, the first signs of recovery from COVID-19 are being overshadowed by a new crisis triggered by the Russo-Ukrainian War. The war in Europe has had a global economic impact over the past year, which is currently culminating in soaring inflation in Europe, as well as raw material shortages and increased uncertainty.

**Key words:** Difficult economic time, COVID-19, reopening, Russo-Ukrainian War, management and HR

## Introduction

A typical crisis consists of three phases: the “response phase”, during which companies address the immediate situation and strive to maintain continuity; the Recovery phase, where businesses learn and become stronger; and the Growth phase, where businesses prepare for and shape the next phase of normal operations (Deloitte 2020; McKinsey 2021b).

At the beginning of 2020, a new crisis caused by COVID-19 emerged, reminding managers of the vivid memories they had of the 2008 downturn and its impact on corporate operations. The short-term consequences were sudden and often severe: millions of people were laid off, and others had to quickly adapt to remote work as offices closed (PWC 2020). These trends continued to impact organizations and the labor market even into early 2022. The key socio-economic trends have been summarized in Table 1.

## Background, History, Review-of-Literature, Methodology of the research

The main features of our three research programs were as follows:

1. The first research program involved the KoronaHR surveys, which were initiated in June of the previous year. These surveys were conducted in collaboration with three sectoral NGOs, 15 universities, seven regional chambers of commerce, one municipality, one recruitment agency, and another research program. The research team has published separate research reports for each wave of the epidemic. A total of 1,785 respondents (including companies, institutions, and non-profit organizations) completed questionnaires during the three periods.
2. The second research program involved a survey conducted with the participation of ten universities in Hungary, one foreign university, and several Hungarian professional organizations. The primary research objective was to investigate the anticipated changes in management and business/organizational operations as a result of the recovery from the crisis in the previous year (2020). A total of 1,183 organizations participated in this survey.

3. Additionally, a survey was conducted between May 1 and June 25, 2022, aiming to explore the anticipated impacts on operation, management, and HR as organizations recover from the COVID-19 crisis over a two-year period and in light of the recent Russo-Ukrainian war. More than 1,000 organizations participated in this survey and completed the questionnaire.

**Table 1. GDP, unemployment and FDI figures during the previous waves of COVID-19 and today (2019-2022)**

GDP growth before COVID-19				Unemployment before COVID-19	
<ul style="list-style-type: none"> <li>• Developed world: 2%</li> <li>• Global: 3%</li> <li>• Eastern Europe 4%</li> <li>• Hungary 5%</li> <li>• Slovakia 2.5%</li> </ul>				<ul style="list-style-type: none"> <li>• Global 5.7% (ILO 2019)</li> <li>• Hungary 3.5% (2019)</li> </ul>	
GDP figures during COVID-19 and today				Unemployment during COVID-19 and today	
Regions	2020	2021	2022	<ul style="list-style-type: none"> <li>• Global: 8% of 3.5 billion on the labor market (ILO 2021)</li> <li>• Hungary 4.5% (today 3.5%)</li> </ul>	
Global	-4,80%	5,50%	3,60%		
USA	-4,20%	4,20%	3,10%		
China	2,60%	6,50%	3-3,7%		
EU-27	-7,50%	5%	2,70%		
EU-eurozone	-8%	5%	2,70%		
Hungary	-4.8%	7.1%	3,60%		
Slovakia	-4,80%	3%	2,30%		
Foreign Direct Investment (FDI)					
<ul style="list-style-type: none"> <li>• FDI: 1,500bn USD (Global - 2019)</li> </ul>				<ul style="list-style-type: none"> <li>• 837bn USD (Global, 2020)</li> <li>• 1,582bn USD (Global, 2021)</li> <li>• The growth rate in 2022 will likely to be lower than in 2021.</li> </ul>	

Source: Römisch 2020; IMF 2021; ILO 2021; UNCTAD 2019-2022; World Bank 2022, UPSVR 2022

## The impact of COVID-19

A significant portion of the respondents in the KoronaHR surveys were Hungarian private businesses (58.7%, 46.9%, and 51.7%). Approximately a quarter of them had foreign ownership or were in mixed ownership. In terms of headcount, the majority of responding organizations were small and medium-sized enterprises (SMEs), accounting for 72.1%, 63.6%, and 72.3% in the three research phases.

While a complete paradigm shift cannot be expected, the pandemic has necessitated the use of crisis management techniques, which will inevitably lead to partial changes in HR activities and methods. The KoronaHR surveys focused on mapping these anticipated HR tools and methods.

With the outbreak of the pandemic, organizations faced numerous challenges that required their management to directly address anomalies in their production processes. A key question was whether the pandemic was perceived as a problem, a challenge, or an opportunity. Based on our research findings, a significant proportion of businesses were unprepared for the changes during the first wave. However, as more knowledge about the virus and vaccines became available, the situation improved. Many businesses open to innovative solutions saw the crisis as an opportunity and identified market gaps and opportunities. Our research showed that 27.3% of organizations perceived the crisis as an opportunity during the first wave, followed by a significant drop in the second wave (16.4%), and a slight increase in the third survey period (18.2%). Internal communication systems saw the most significant development among all HR functions, with 56.3% of respondents indicating this in the first phase, 55.5% in the second phase, and 57.2% in the third phase. Occupational safety and health at the

workplace were also identified as areas requiring improvement. A significant proportion of organizations focused their HR strategy primarily on health and safety and prioritized these areas. Another positive outcome of the pandemic was that it highlighted critical HR points that needed strengthening. These challenges included improving internal communication, offering more training opportunities, and reducing employees' administrative burdens.

Key points to note are:

- HRM had to respond to the unexpected global health, social, and economic crisis of Covid-19.
- New HRM measures are necessary to ensure the survival of organizations and the physical and mental well-being of employees.
- Based on our research findings (2020-2021), organizations face similar problems to their global counterparts.
- HRM has become crucial in the crisis management process, particularly in terms of internal communication, atypical employment, and occupational safety measures.
- HR managers also need to develop new forward-looking measures for the post-Covid-19 period (Pató et al., 2021; Poór et al., 2022).

## Effects of the recovery

In the framework of the online questionnaire survey, we received valid and assessable responses from 1,183 organizations (businesses and institutions).

Before the pandemic, only a small percentage (0-5%) of employees in the responding organizations worked from home. However, during the pandemic, the number of employees working from home increased significantly. According to the survey, 35.2% of organizations had 0-5% of their employees working from home, while 21.8% had more than 50% of their staff in a home office setup. This raises the question of how prevalent remote work will become for jobs that are suitable for it and whether employees will be willing to embrace this form of work in the long term. In other words, the question is whether the pandemic has permanently facilitated the adoption of remote work.

## The impacts of the war

Researchers from the Hungarian University of Agriculture and Life Sciences (MATE) and from eight other Hungarian universities as well as from one Slovakian university, with a significant support from the Budapest Chamber of Commerce and Industry (BKIK) and in cooperation with several other sectoral organizations (National Association of Human Resource Professionals, Association of the Digital Economy, Hungarian Chamber of Agriculture, National Association of Change and Crisis Managers), conducted a survey between 1 May and 25 June 2022. The research aimed to find out what impacts our respondents (companies, institutions) were expecting in their operations, management and HR after recovering from the COVID-19 crisis for 2 years and due to the recent Russo-Ukrainian war. Over 1,000 organizations participated in the non-representative questionnaire survey. Our research focuses on how businesses and institutions adapt to crises in terms of their operations, management, and HR. In addition to the effects of the pandemic, our nationwide research team also examined the impact of the war. The key findings and conclusions of our research are summarized below.

## Discussion

In addition to teleworking, the pandemic has had a lasting impact on two areas that will significantly affect the labor force. The first area is the increased use of digital tools for transactions, consultations, and collaboration. The second area is the adoption of automation and AI technologies in the workplace. While these trends were already in motion before the pandemic, COVID-19 has accelerated and permanently transformed their development (McKinsey 2021).

The economic impact of the Russo-Ukrainian war on businesses operating in national economies not directly involved in the conflict is not necessarily negative. There may be an increase in demand for products from industries supporting the war effort. Competitors can also enter new markets to address the shortage of goods caused by the war, leading to higher revenues and market share. The trade and financial sectors may exploit the inflationary effect and volatile exchange rates during and after the conflict to maintain higher prices. Additionally, sectors facing labor shortages could potentially benefit from the availability of war refugees as a substantial and cost-effective labor force.

The surveyed organizations in Hungary anticipated a decline in sales during the first quarter of the Russo-Ukrainian war. As a result, most of them adopted cautious operating tactics without planning drastic measures. However, they sought ways to leverage the changes brought about by the war to a certain extent while maintaining ethical economic behavior (profiting from a crisis is not considered appropriate). Interestingly, 10% of respondents expect revenue growth this year.

Unfortunately, the initial signs of recovery from COVID-19 and the improvements achieved are being overshadowed by the impact of the Russo-Ukrainian War (Tooze 2022). This war in Europe has had a global economic impact, resulting in shrinking GDP growth and increasing inflation, as well as shortages of raw materials and heightened uncertainty both in Europe and globally.

## Conclusion

The Hungarian economy was experiencing strong performance before the COVID-19 pandemic, characterized by high GDP growth rates. Even during the recovery from the pandemic, prior to the Russo-Ukrainian war, the Hungarian economy continued to perform well. This can be attributed, in part, to the fact that a significant number of Hungarian organizations surveyed viewed the COVID-19 crisis as not just a problem, but also as an opportunity.

Throughout the pandemic, HR managers played a crucial role in crisis management and rapidly responding to maintain workforce productivity and adaptability, which were at risk due to the pandemic. Findings from the KoronaHR surveys indicated that respondents increasingly recognized the challenges posed by the pandemic, with nearly 57% reporting having an action plan during the third wave. The pandemic greatly accelerated digitalization, prompting businesses to develop innovative, adaptive, and secure solutions. Remote working, necessary to keep businesses operational, also made IT and information security a priority, requiring them to be strengthened.

Based on the findings of the three research programs, the following conclusions can be drawn:

- The chaotic and complex situation caused by the Covid-19 pandemic did not follow the course of the economic crisis, and it can be considered as a periodic economic downturn. Based on the responses, we concluded that human resource professionals initially focused on organizing healthcare, communication, and implementing remote work. In the second and third waves of the pandemic, job security and retention became increasingly important in the work of HR professionals.
- During the period of reopening and economic recovery, most economies did not achieve the expected Jánossy trend line due to factors such as inflation, material shortages, and a lack of spare parts.
- In the third quarter of 2022, amid the Russo-Ukrainian war, most organizations adopted a cautious business strategy and were not inclined to implement drastic change management measures. Nevertheless, they remained open to exploring opportunities presented by market changes resulting from the war.

**Acknowledgment:** Hereby we would like to thank all scholars who participated in “HR Covid-KoronaHR”, “Reopening” and “Difficult economic time” research groups’ assignments. The Authors gratefully acknowledge the contribution of the Scientific Grant Agency of the Slovak Republic under the VEGA grant 1/0688/21.



## Literature

1. IMF (2021a). *The IMF's Response to COVID-19*. <https://www.imf.org/en/About/FAQ/imf-response-to-covid-19> (Access date: 10.07.2021)
2. ILO (2021). *COVID-19 and the world of work*. Updated estimates and analysis. ILO Monitor, 7th edition, 1-31.
3. McKinsey Global Institute (2021). *The post pandemic economy-The future of work after COVID-19*. <https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-after-covid-19>. (Access date: 09.02.2022)
4. Pató G., Dajnoki K.K., Kórműves Zs., Grotte J., Szabó Sz., Kunos I., Metszősy G., Hegedűs H., Karácsony P., Poór J. (2021). *HR's Response to the Coronavirus Epidemic Challenges*. (In Hungarian). "Budapest Management Review". 52 (8-9), pp.2-17.
5. Poór J., Botond K., Varga E., Szeiner Zs., Kovács I. É., Kerekes K.- Tóth A., Pató Gáborné Sz. B., Kunos I., Dajnoki K. (eds.) (2022). *Coronavirus crisis challenges and HR responses in six countries of Central and Eastern Europe*. J. Selye University, Komárno (Slovakia).
6. PwC (2020). Overtime instead of forced rest, or who are the winners of COVID-19? (In Hungarian) [https://www.pwc.com/hu/hu/kiadvanyok/assets/pdf/Kenyyszerpiheno\\_helyett\\_tulorak\\_avagy\\_kik\\_a\\_COVID-19\\_nyertesei.pdf](https://www.pwc.com/hu/hu/kiadvanyok/assets/pdf/Kenyyszerpiheno_helyett_tulorak_avagy_kik_a_COVID-19_nyertesei.pdf). (Access date: 09.02.2022)
7. Römisch, R. (2020). *COVID-19 effects on Central Europe*. <https://www.interreg-central.eu/Content.Node/discover/COVID-19-effects-on-Central-Europe.pdf> (Access date: 26.03.2021)
8. Tooze A. (2022). *Ukraine's War Has Already Changed the World's Economy*. <https://foreignpolicy.com/2022/04/05/ukraine-russia-war-world-economy/> (Access date: 17.04.2022).
9. World Bank (2022). *Finance for an equitable recovery: A World Bank Group Flagship Report*. Washington: World Bank.



## **SOFT SKILLS AS A SIGNIFICANT FACTOR IN EFFECTIVE MANAGEMENT OF PEOPLE WITH DISABILITIES**

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**Abstract:** The professional activity of people with disabilities in the open labour market has been on the rise for more than a dozen years. The population of people with various types of disabilities, holding a disability document for employment purposes, has been growing steadily. For considerations concerning the employment of people with disabilities, it is key to develop not only a disability management strategy, but also the employees' and management's soft skills, which helps to raise individual awareness and introduce efficient solutions in an organisation, adapted to the abilities of people with disabilities.

**Key words:** soft skills, disability, organisation, employment of people with disabilities, disability management

### **Introduction**

People with disabilities entering the labour market are understood as people with a disability degree decision, obtained for employment purposes pursuant to the Act of 27 August 1997 on Vocational and Social Rehabilitation and Employment of Persons with Disabilities, taking up jobs. In 2021, 337,000 people with disabilities worked on the Polish open labour market, employed by 198,400 businesses (LFS Statistics Poland). At the same time, 61,000 people with disabilities were registered as unemployed. The professional activity of people with disabilities in Poland remains low compared to the figures of other EU countries.

### **The concept of skills in literature**

The term "soft skills" covers a group of social abilities determining the development of interpersonal relationships, bonds, and social adaptation. It can be understood as the ability to reach self-actualisation (Zukiewicz 2009, p. 5). In the broad sense, it is understood as an individual's potential to adapt, allowing them to optimally adjust themselves to the situation and the environment, and a potential to transgress where the environment is conducive to change and creative shift of behaviour (Męczkowska 2003, pp. 693-694). The behaviourist perspective defines skills as an aptitude to act through practical or cognitive activities. In this sense, the knowledge and abilities one has are of primary importance, whereas motivation may improve effects of one's efforts. In the transgressive approach, the dominant view is that skills are a sort of deep cognitive structure which integrates an individual's relationships with others. One's actions are effects of a dynamic interpretation arising from the social and cultural context as well as model cultural activities (*ibidem*, p. 695). The concept of skills may also be understood as abilities necessary to influence other people in social situations (Argyle 2001, p. 133). The way in which these abilities are used is determined based not only on knowledge, but on competence and capabilities. Activity skills are understood as initiatory abilities, supporting an individual's mechanisms of conduct (Urbaniak-Zajac 2003, p. 55). A. Kanios (2008, pp. 320-321) divides skill definitions into three groups:

- the scope of the first group covers innate abilities and learned attitudes – it is based on an individual's social and cognitive capabilities;
- the second group concerns assessments and expectations – it is based on emotional and motivational factors;
- the third group involves a comprehensive approach – it comprises abilities, attitudes, knowledge, emotions and motivation.

The structure of social skills includes cognitive elements (knowledge, ability to assess and understand, empathy), emotional elements (the level and type of emotions, ability to maintain emotional balance), and behavioural elements (specific patterns of behaviours and reactions). The purpose of social skills is not only to influence others, but also to use them efficiently, as related to an individual's experiences (Argyle pp. 134-139). Social skills have a significant role of making activities feel satisfying in difficult and problematic situations (Byra 2008, p. 50). Żukiewicz (2009, pp. 8-9) suggests adopting a social and pedagogical perspective, interpreting skills as an internalised ability to understand processes and activities, the objective of which is joint action, cooperation, joint responsibility, and interdependence. Skills thus conceived are an integral part of interpersonal dependences in social contexts (environments) and situations. For the purpose of this paper, one may assume they are also the basis for the mutual nature of relationships in a work environment, contributing to not only their quality but also an individual's standard of living and professional fulfilment. Optimal social skills allow establishing, sustaining and maintaining an elevated level of social relationships (Byra 2008, p. 48). As they evolve, interpersonal relationships cause the social environment to be immersed in the processes of looking for, discovering and improving values (Ruman 2017, p. 89).

Within the context of management, the concept of skills may refer to the efforts of both the organisation and the individual. For organisations, an important skill is satisfying diverse needs, whereas for individuals, one may talk about decision-making or decision-enforcing skills. Management literature distinguishes between the behavioural and the functional approach. Within the behavioural approach, skills are interpreted as specific and desired behaviours in the work environment. The functional approach accounts for competency, understood as specific persons providing work, performing duties and holding roles (Walkowiak 2007, pp. 17-18). Skills are linked just as well to abilities, talents and capabilities, as they are to education. They may be used to solve problems. Walkowiak (2007, pp. 19-20), in analysing approaches to definitions, pays attention to the components of skills, and suggests they include the employees' knowledge, abilities, personality traits, attitudes and behaviours, the essence of which is efficient and practical action. The interpretation of skill features allows one to notice their unique aspect – variety, constant development, subjectivity and interdependence. Fundamental skill-classifying orientations may include creative, social, and technical orientations. Creative orientation is set towards creative solutions based on self-improvement, self-awareness, training and knowledge. The direction of social orientation is interpersonal factors, such as communication, motivation, team leadership, team building, needs identification, and interpersonal decision-making. In turn, technical orientation is understood as the use of digital technologies and the ability to harness them in education and work. In turn, this provides an environment for an in-depth interpretation of skill potential (qualitatively and quantitatively) on all management levels. Social skills in management seem to be key, as managers directly manage teams of employees and are responsible for leading the organisation (*ibidem*, p. 25).

### **Skills and disability management in an organisation**

The skills management process is dynamic, procedural, and subject to constant changes, which is why one may talk about continuously improving it and striving for balance. Literature on the subject shows that this relationship may consist in skills being totally disparate, balanced, misaligned, as well as undeveloped or excessive. Balanced skills are most beneficial, as they contribute to satisfying needs and fulfilling the standards of management, but with respect to day-to-day situations (Walkowiak 2007, p. 32). In turn, the situational context may favour creative exploration and solutions, and initiate adaptation to changes, attempts to adjust to the situation. New challenges may lead to innovative approaches, interpretations and changes to introducing regulations and solutions adjusted to the needs and expectations of people with disabilities. The entry of people with disabilities on the labour market may, within the framework of this interpretation, be understood as the creation of a new reality based on extensive, multi-directional relationships, cooperation, and understanding.

Disability, as a sort of an impediment to professional adaptation, may be viewed within the personal and the social context. Taking legislation into account, we may distinguish between three degrees of disability for employment purposes – mild, moderate and severe – as well as twelve groups of potential causes of disability (Polish Journal of Laws of 2023, item 100, p. 5, Article 3 & 4; Polish Journal of Laws of 2021 item 857, p. 16, §32). Some of the above involve a highly complex context, and influence the barriers and stereotypes related to professional activation and employment.

Managing disability in a workplace has been defined by the International Labour Organisation as a process designed to facilitate the employment of persons with a disability through any effort to secure and satisfy individual needs, work environment, enterprise needs and legal responsibilities (ILO 2013, p. 4; Uścińska 2015, p. 8). Specific guidance stipulates that a disability management strategy should be linked to a workplace policy at the level of individual feeling of safety through eliminating risk and threats, adjusting the workplace and duties to an individual's abilities, and providing employees with disabilities (also acquired while in employment) with an opportunity of early intervention, rehabilitation, as well as referral to treatment. A mission thus understood should be an integral part of the national social policy, but also of an organisation's success and development strategy. The principle at the heart of a disability management strategy is a policy of equal employment opportunities, including in recruitment and job retention (Giermanowska 2009, p. 86). In her interviews with employers, Giermanowska showed that organisations with a more open policy towards disability understand the meaning of knowledge in breaking social stereotypes and prejudices. They also notice that building an organisation's positive image is related to the employment of people with disabilities (*ibidem*, p. 94). Disability management should be coordinated by persons trained in issues which arise from the specific nature of disability, or by those who keep in contact with specialists. Consultations and systematic assistance to employers at both the national and the international level support and shape the aforementioned strategies. What is also an integral part of a conscious workplace policy, is third-party institutions granting and arranging specialist assistance to employees with disabilities. The way in which the issue of disability is presented and discussed directly translates to the attitude that all employees have towards the understanding of the issues. If employers give rise to and arrange situations which help to acquire reliable and accessible knowledge, this contributes not only to developing a positive approach in employees and management to the issue of disability, but creates mature attitudes. Procedures which concern the employment of people with disabilities should be an inseparable part of human resource management. Investment in human capital is a key element of policies for employing people with disabilities (Chodkowski 2019, p. 123; Lipińska-Grobelny, Wolan-Nowakowska 2017, p. 59). Modern concepts found in the literature on the subject define diversity management as noticing the differences between the employees within the organisation and outside of it. These may depend on individual traits of identity which decide the direction and conduct of socialisation, and the way in which social roles are held. The purpose of this strategy is to prevent discrimination as well as to buttress equal rights and the harnessing of an employee's potential (Mazur-Wierzbička, Wieczorek-Szymańska, Leoński 2022, p. 40). This is not possible without identifying differences between employees based on a solid analysis and knowledge that is free from stereotypes or prejudices. Comprehensive diversity management requires rational, emotional, and operational action.

Research shows that the professional situation of people with disabilities depends on the type and degree of their disability (Kukulak-Dolata, Poliwczak 2015, p. 8; Giermanowska 2016, p. 74). The level of professional activity is highest in people with mild disabilities, and lowest in individuals with severe disabilities. Lacking disability management strategies may result from ambiguous legal regulation, as well as inexistent support for employers and initiatives promoting the employment of this group of employees (Maciejewski, Maciejewska 2017, pp. 109-110; Giermanowska 2016, p. 87; Barczyński 2006, p. 83; Mazur-Mitrowska 2018, p. 88). Legal regulations concerning the employment of people with disabilities should be made more specific, and in particular those provisions which strengthen and reinforce stereotypes and prejudices should be eliminated. What may have a vital role in promoting

a strategy, is an assessment of the system of institutional support provided to employees. Here, certain dilemmas arise, as the support is assessed as complicated, difficult to understand, and dispersed (Rudnicki 2014, p. 52). However, the employers themselves have a direct impact on shaping the policy on the employment of people with disabilities. Their knowledge, attitudes and behaviours with respect to the issue of disability have an effect on the level of employment. Corporate social responsibility is also a prominent issue, contributing to the fulfilment of certain standards concerning relationships with people with disabilities by avoiding discrimination against them in employment and allowing them to grow professionally (Sobczak 2006, p. 120). Barriers which may influence the level of employment of people with disabilities may be mental (fear of employment), qualifications-related, infrastructural and systemic (Giermanowska 2016, p. 91; Wasilewska, Nosal 2016, pp. 151-152, Mazur-Mitrowska 2018, p. 97). Changes in attitudes and awareness, and most of all in the understanding of the issues of disability, seem to be key, because they shape a corporate culture sensitive to the problems of integration and social exclusion. If we are to assume that professional adaptation involves establishing bonds with the employees and the organisation, then it may be harnessed for integration if work is oriented towards corporate objectives. The function of integration sustains the dynamics of the system, because it prevents destabilisation and disintegration – in this sense, it serves the individual and the organisation itself, in particular in terms of building an image and generating financial profit. Fear of employment concerns people with disabilities themselves, but also their colleagues and employers. It may be grounded in social attitudes towards the needs and abilities of people with disabilities, misunderstandings on the part of colleagues and employers, as well as in reluctance to cooperate (Chodkowski 2019, pp. 115, 119). It is worth noting that these factors may be overt and covert, as there is a difference between declaration and practice observed in research (Lizoń-Szłapowska 2012, pp. 293-295). In EU regulations, there has been a change involving not only attitude towards disability of an individual, but also the interpretation of the concept itself. It is currently understood as an impediment, barrier, and a difficulty to and in social functioning.

## Summary

The functioning of people with disabilities on the open labour market evidences complex contexts which require regulation. For over a dozen years, there has been decisive progress made in best practices, but it is worth noting that the human aspect comes first, because it is oriented towards the development of a socially sensitive perception of the issue of disability discussed. It combines, in its own peculiar way, people with disabilities, employees and management; constitutes an area of a social and professional agreement; initiates change. Employers' investments in improving personal skills and those of the organisation – based on not only knowledge, but also behaviours, attitudes, and integration with others, are a starting point for an organisation to succeed. This shows the importance of the attitude towards the issue and its authentic understanding, resulting from a deep personal, intellectual and emotional reflection. In light of the fact that soft skills shape the ability to act jointly and cooperate, one may conclude that they should be a priority in disability management. The diversity we are now experiencing goes beyond the issues of disability and constitutes a challenge, because it creates a social environment which demands attention, reaction, and action. Given the issues of disability, one may state there is no shortcut to skills improvement. This apparent truism allows us to see, however, that working through difficult and ambiguous challenges requires continuous reaction, reflection, action, and problem-solving. This type of skills not only draws and integrates together the employees in an organisation, but also produces an environment which contributes to developing a professional community and responsibility for colleagues. Creative but also reflexive disability management in the social and professional environment allows self-understanding and self-improvement in terms of the personal, professional, and social sphere of all employees. Beneficial practices and solutions may be an inspiration for creative management of diverse human resources.

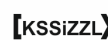


## References

1. Argyle M. (2001), *Psychologia stosunków międzyludzkich*, Wydawnictwo PWN, Warszawa.
2. Barczyński A. (2006), *Wpływ sposobu samostanowienia prawa na sprawność funkcjonowania systemu aktywizacji zawodowej osób niepełnosprawnych*, [in]: Ochonczenko H., Paszkowicz M.A. (ed.), *Potrzeby osób niepełnosprawnych w warunkach globalnych przemian społeczno-gospodarczych, Vol. 2*, pp. 71-91, Oficyna Wydawnicza Impuls, Kraków.
3. Byra S. (2008), *Kompetencje społeczne studentów z ograniczoną sprawnością*, "Niepełnosprawność i Rehabilitacja", no. 2, pp. 46-65.
4. Chodkowski Z. (2019), „Znaczenie” adaptacji zawodowej w rehabilitacji osób z niepełnosprawnościami, "Kultura i Edukacja", no. 1, pp. 108-125.
5. Giermanowska E. (2009), *Postrzeganie niepełnosprawnych pracowników i uwarunkowania ich zatrudnienia a zarządzanie personelem w organizacjach*, [in]: Gąciarz B., Giermanowska E. (ed.), *Zatrudnianie niepełnosprawnych. Wiedza opinie i doświadczenia pracodawców*, pp. 62-100, Wydawca Instytut Spraw Publicznych, Warszawa.
6. Giermanowska E. (2016), *Niepełnosprawny jako pracownik i pracodawca*, [in]: Zakrzewska-Manterys E., Niedbalski J. (ed.), *Samodzielni zaradni niezależni. Ludzie niepełnosprawni w systemie polityki, pracy i edukacji*, pp. 67-98, Wydawnictwo Uniwersytetu Łódzkiego, Łódź.
7. Statistics Poland, Labour Force Survey, <http://www.niepelnosprawni.gov.pl/niepelnosprawnosc-w-liczbach/-bael/> (date of access: 26 April 2023).
8. Kanios A. (2008), *Spoleczne kompetencje studentów do pracy w wolontariacie*, Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej, Lublin.
9. Kukulak-Dolata I., Poliwczyk I. (2015), *Profile społeczno-demograficzne osób niepełnosprawnych a ich aktywność zawodowa*, "Polityka Społeczna", no. 3, pp. 5-12.
10. Lipińska-Grobelny A., Wolan-Nowakowska M. (2017), *Zarządzanie różnorodnością w miejscu pracy a niepełnosprawność*, [in]: Wolan-Nowakowska M., Trochimiak B. (ed.), *Zatrudnianie wspomagane szansą na samodzielność osób z niepełnosprawnościami*, pp. 51-62, Wydawnictwo Akademii Pedagogiki Specjalnej, Warszawa.
11. Lizoń-Szłapowska D. (2012), *Postawy i opinie studentów studiów podyplomowych na temat aktywizacji zawodowej osób z niepełnosprawnością intelektualną*, [in]: Sekułowicz M., Oleniacz M. (ed.), *Niesamodzielność. Studia z pedagogiki specjalnej*, pp. 285-299, Wydawnictwo Naukowe Dolnośląskiej Szkoły Wyższej, Wrocław.
12. Maciejewski S., Maciejewska R. (2017), *Zarządzanie niepełnosprawnością w organizacji*, [in]: Garbat M., Paszkowicz M.A. (ed.), *Osoby z niepełnosprawnościami w polityce społecznej*, pp. 107-120, Oficyna Wydawnicza Uniwersytetu Zielonogórskiego, Zielona Góra.
13. Mazur-Mitrowska M. (2018), *Sposoby poszukiwania pracy przez osoby niepełnosprawne*, "Edukacja Ustawiczna Dorosłych", no. 1, pp. 88-98.
14. Mazur-Wierzbicka E., Wieczorek-Szymańska A., Leoński W. (2022), *Zarządzanie zasobami ludzkimi wrażliwe na różnorodność*, Wydawca CeDeWu, Warszawa.
15. Męczkowska A. (2003), *Kompetencja*, [in]: Pilch T. (ed.), *Encyklopedia pedagogiczna XXI wieku, Vol. 2*, Wydawnictwo Żak, Warszawa, pp. 693-696.
16. International Labour Organisation (2013), *Zarządzanie niepełnosprawnością w miejscu pracy*, Ministry of Labour and Social Policy, Office of the Government Plenipotentiary for Disabled People, Warszawa.
17. Regulation of the Ministry of Economy, Labour and Social Policy of 15 July 2003 on disability and disability degree decisions, as amended.
18. Rudnicki S. (2014), *Niepełnosprawność i złożoność*, "Studia Socjologiczne", no. 2, pp. 43-61.
19. Ruman N.M. (2017), *Podnoszenie jakości życia i kwalifikacji zawodowych dorosłych z niepełnosprawnością - refleksja andragogiczna*, "Człowiek-Niepełnosprawność-Społeczeństwo", no. 4, pp. 89-101.
20. Sobczak W. (2006), *Udział pozarządowych organizacji biznesowych w rozwiązywaniu problemów osób niepełnosprawnych w Polsce na przykładzie Krajowej Izby Gospodarczo-Rehabilitacyjnej*, [in]: Ochonczenko H., Paszkowicz M.A. (ed.), *Potrzeby osób niepełnosprawnych w warunkach globalnych przemian społeczno-gospodarczych, Vol. 2*, pp. 115-130, Oficyna Wydawnicza Impuls, Kraków.
21. Urbaniak-Zajac D. (2003), *Obiektywna hermeneutyka jako metoda rekonstrukcyjnych badań empirycznych*, [in]: Urbaniak-Zajac D., Piekarski J. (ed.), *Jakościowe orientacje w badaniach pedagogicznych. Studia i materiały*, pp. 52-64, Wydawnictwo Uniwersytetu Łódzkiego, Łódź.
22. The Act of 27 August 1997 on Vocational and Social Rehabilitation and Employment of People with Disabilities, as amended.



23. Uścińska G. (2015), *Rehabilitacja zawodowa osób niepełnosprawnych w Polsce. Propozycje zmiany obecnych zasad*, "Polityka Społeczna" no. 10, pp. 8-14.
24. Walkowiak R. (2007), *Zarządzanie zasobami ludzkimi. Kompetencje, nowe trendy, efektywność*, Wydawnictwo "Dom organizatora", Toruń.
25. Wasilewska N., Nosal P. (2016), *Niepełnosprawny jako pracujący w systemie ekonomii społecznej*, [in]: Zakrzewska-Manterys E., Niedbalski J. (ed.), *Samodzielni zaradni niezależni. Ludzie niepełnosprawni w systemie polityki, pracy i edukacji*, pp. 147-176, Wydawnictwo Uniwersytetu Łódzkiego, Łódź.
26. Żukiewicz A. (2009), *Kompetencje społeczne i relacje międzyludzkie w przestrzeni życia codziennego*, "Praca Socjalna", no. 4, pp. 3-17.



## UNIVERSITY BRAND GOVERNANCE - WHAT IS ALL ABOUT?

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**Abstract:** The topic of brand management in the field of education has become an object of scientific research relatively recently in the 80s of XX century. Competition among universities goes on constantly - for financial flows or sympathy among rating agencies and analysts, for talented students and experienced teachers, for the attention of national and international media, political, economic and scientific organisations in their country and in the world. A strong brand is a guarantee of the successful development of the university. There are already many studies proving that a strong brand is a real competitive advantage and a source of value creation for institutions. The university brand development strategy and increasing the competitiveness of the university ensures its sustainable and progressive development. Branding is communication aimed at target audiences in order to communicate unique competitive advantages. The analysis of Western experience in the formation of the university brand has shown that branding is quite actively used in Western educational institutions as an effective mechanism for forming and improving the competitiveness of an educational institution, creating a strong reputation that strengthens the trust of employees and consumers. The formation of a successful brand and its effective management solves a number of tasks assigned to the university. In this article, the author explores issues related to the governance of the university brand in postnormal times.

**Key words:** Higher Education, management, university brand governance, effective management, postnormal times

### Introduction

Education is an integral part of human life, and is constantly in demand among the general public. In the modern world, getting a first-class education is prestigious and one of the most important components for creating a successful career, as well as for self-development and self-improvement. High-quality education has always been of great value, both for the individual and for the development of society as a whole (Skokova 2017). Only a good education can improve the quality of managerial, technological, design, engineering tasks, on the solution of which the development of mankind depends. Education and science are what create competitiveness and labour productivity. The specificity of higher education at the present stage is that it sets the standard of competitiveness, readiness to generate and introduce innovations in various spheres of life (Anichkin i in. 2015a). Radical transformations are taking place in the higher education systems of economically developed countries, associated with the crucial importance of universities for innovative development and economic growth and, as a result, leading to the prosperity of states and the growth of people's well-being. A modern university is not only a higher professional school focused exclusively on the development of science and vocational training; it is the core of society, the most important channel for the transfer of technology and knowledge; playing the role of innovation hubs within the national innovation system of the country (Atoyán & Kazakova 2002). This is an institution of society, the so-called University 3.0, which plays the role of an innovation centre in the economy of the state. From the very beginning of its existence, the university has been a significant, and currently the main social institution of society, therefore, in each socio-historical period there is its own socio-cultural model of the university, thanks to which its institutional significance for economic, political, social and spiritual development is preserved. Changes in the society of the XXI century have necessitated the search for new paradigms of university education that could meet the increased needs of industrial society. The development of higher education at the turn of the century indicates significant structural and institutional changes. Modern universities face a difficult task to preserve the role of the vanguard of knowledge dissemination; a new one is added to their traditional functions close connection with industry, business and government structures, technology



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transfer, innovative enterprises and entire industries. This is how universities become educational and research centres that integrate new knowledge and innovative technologies that affect economic growth and increase the competitiveness of countries at the global level. This role of universities objectively takes them beyond the national framework. Current trends in higher education should be considered precisely in the context of globalisation and internationalisation of modern international life of society. Globalisation and internationalisation are two interrelated processes that lead to the transformation of universities into new forms of social practice (Anichkin i in. 2015b). In modern conditions, education is gaining more and more economic value, becoming a driving force for improving the efficiency and competitiveness of the national economy and a strategic resource for the development of the state. The educational policy of Uzbekistan is aimed at providing innovative quality education on the basis of preserving its foundational entity in accordance with the needs of the individual, society and the country.

In the last two decades, the governments of many countries, in particular the CIS have been chasing the creation of world-class universities. For many, the definition of "world-class university" is synonymous with the word "elite Western". In the late 90s, the term "world-class university" became an attractive phrase, not just denoting the improvement of the quality of education and research, but also, more importantly, the development of the ability to compete in the global market of educational services, through the acquisition, adaptation and creation of advanced knowledge. Students are currently striving to enrol in the best educational institutions economically available to them, and governments are interested in maximising the return on their investments in universities. In this regard, the recognition of an educational institution at the global level becomes a matter of concern for universities around the world (Williams and Van Dyke 2007). A university cannot proclaim itself a world-class university; elite status must be confirmed by the outside world on the basis of international recognition (Salmi 2009). According to Altbach's precise and concise observation, the paradox of a world-class university is that "everyone wants to create such a university, however, no one knows what it is, and no one knows how to get it" (Altbach 2004). It is not a mystery anymore, since to create a world-class University, the following key ingredients are needed: qualified teaching staff, academically talented students, superiority in research, high-quality international teaching standards, high level of funding and well equipped conditions (Tayeb 2016). In other words, to create a world-class university of high standards, a leader in the market of educational services, a conqueror of consumers, it is necessary to use marketing competently, create and govern a brand of a university, which should have a human-oriented approach, that are stakeholders. Competent-proper use of branding will help the university become a leading university with a competitive advantage. The topic of marketing educational services, not to mention branding of higher education institutions, is relatively new and undisclosed for Uzbekistan.

## Literature Review

According to the American Marketing Association (AMA): A brand is a name, term, sign, symbol or design, or a combination thereof, designed to identify the goods and services of one seller or group of sellers and to distinguish them from other sellers. The word "brand" means, on the one hand, the object through which a certain impression is formed, and on the other hand, the process of forming this impression (Ellwood, 2002). A brand is a set of associations that arise in the minds of consumers that add perceived value to a product or service (Keller 1998). Keegan (2002) defines brand as an indicator for the value of an organisation that might be a product or service, companies, persons, or even countries. Whereas Kapferer (2007) states that a brand is not a product, but it gives it a meaning and defines its distinctive features. Brands are not just products they now represent lifestyle (The Economist, Sept. 8, 2001). Brands have advanced over the years in an array of significant ways. Contemporary, refined branding is about progressively with a brand's Gestalt, with compiling and sustaining a blend of tangible and intangible values, which are related to consumers and characterise a brand from the other one meaningfully and appropriately (Room 1998). A brand in the modern sense is an image in the consumer's

mind, a set of impressions and associations, and this image allows the consumer to distinguish and choose a particular product. A brand is the embodiment in iconic and other forms of the key components of a stable positive image of an enterprise and/or products formed by market participants and a set of ideas, consumer expectations regarding this “branded” product (Meldebekova 2015). The key task of branding is to skilfully manage marketing communications to achieve the maximum coincidence of the designed and perceived brand images. If there are discrepancies between the planned image of the brand and its current perception, it is necessary to eliminate the causes of this gap. The company must coordinate its actions in order to either reduce the discrepancies between its own perception of the brand and its perception by consumers, or to pay special attention to those aspects of the brand that are most significant for the target audience (Chernatony 2007). Importance of brands is in the ability to communicate meaning which allow people to imbue their actions with a sense of added significance (Knowels 2001). Branding is a powerful marketing concept that does not just focus on one element of the marketing mix, but represents the result of a carefully comprehended range of activities which are difficult for competitors to emulate. A strategic perspective on branding has emerged, with firms beginning to recognise that they are sitting on valuable assets that need careful attention (Chernatony & McDonald 2000). Blackett (2003, p.23) has developed five keys, guidelines to good brand management: “protecting brand (elements of brand); honouring stakeholders (meeting customers' and employees' expectations); treating brand as an investment not as a cost (investing in advertising and marketing as well as new product development); exploiting the financial potential of brand (looking for opportunities of co-branding, licensing and franchising) and understanding that successful brand management nowadays is a complex task”. Sadly, the power of a brand is not recognized to a certain extent. “Whereas brands determine the price, liberate the company to create values for internal, external and investor customers, indicate a value of the firm's products and services. Thus, it is important to use, build and protect brands. It is the brand that will enable the company to avoid commodity-like trap” (Keegan 2002, p.24).

Branding substantially differs in the service sector. Here, the consumer often occupies a special place in the service company itself, in contrast to product branding, which does not know who the manufacturer of a particular brand is. In this regard, such a concept as a corporate brand plays an important role. The brand for the educational environment and its ecosystem is pivotal and plays a significant role, through the prism of the system of values, traditions, norms of an educational institution, provides maximum useful information, guaranteeing stable quality and a range of educational services to gain the trust and loyalty of consumers by creating stable, long-term, positive relationships with them (Narimanova 2021). In the field of service, it can be noted that the brand is mainly the reputation of the manufacturer. “It is formed on the basis of trust, which, in turn, is based on the satisfaction of the quality of service that exceeds the expectations of the consumer” (Lowrie 2018). Marketing experts say that if more than 20% of consumers positively evaluate a product, it can be called a brand. In other words, a brand is a personalised trademark that has been fixed in the minds of a significant part of the target audience. A brand is an image in the mind of a consumer, which is based on a product or service. And branding, respectively, is the process of designing this image. The point is to identify the unmet needs of customers and find a solution to this. This is how the values and advantages of the future brand are determined. A strong brand is an asset that is based on the relationship between the company and customers. Therefore, creating a brand is just as time-consuming and laborious as creating and maintaining relationships. Brand management is an activity that consists in constant analysis and search for means to improve the brand. The brand of the university is based on a variety of related phenomena such as the history of the university, key educational programs and their quality, the teaching staff, its traditions and scientific schools; students, its educational level and creative potential; the quality of management and management models. The brand of the university becomes strong due to the common values and identity shared by the university community; developed corporate culture; impeccable academic and corporate reputation; high standards of the educational process and



management; fame; high-quality communication system. The goals of building a strong brand of the university at the same time can be: increasing the competitiveness of the university in the local and international market educational space; increasing attractiveness for applicants; improving the image in the eyes of the authorities and partners; attracting additional sources of resources; improving the image of the university as an employer, which will contribute to the influx of the best professors, researchers, practitioners and experts. The key trends in university branding are: digital identity as the basis of the brand of a modern university; involvement of university community leaders, including students, in the development of branding programmes (Chechulin 2020, pp. 97-104).

If a university wants to meet the requirements of world standards and meet the demand of an international consumer, it is necessary to use marketing competently, create a brand of the university and, accordingly, effectively manage it. People-oriented right branding will ensure that a higher educational institution becomes a leading university with a competitive advantage not only in the local market, but also in the international educational arena.

## Methodology

The experience of marketing activities and brand promotion of a number of public, private, local and foreign universities was studied through personal interviews with heads of universities, heads of marketing departments, analysis of available official strategies for promoting universities, as well as Internet resources of universities. The purpose of the study is to explore the significance of university brand governance in the context of increased competition in the educational services market, intensified under the influence of the pandemic, and attempts to be flexible in post-normal times to achieve success in the long term. Scientific research methods such as general analysis and comparative methods were used in the work. The object of the study was the activities of local and international universities.

## Discussion

University Brand Management is the process that focuses on advancing the reputation of a University and reinforcing its holistic positive image via creation, development and promotion of the brand in the education market. *What about university brand governance?* and *What is the difference between university brand management and university brand governance?*

University brand management and university brand governance are related concepts but have distinct focuses and responsibilities. **University Brand Management** refers to the activities and strategies involved in actively managing and promoting a university's brand. It encompasses the day-to-day tasks and initiatives aimed at building, maintaining, and enhancing the university's brand reputation. This includes activities such as marketing campaigns, advertising, social media management, public relations, and other communication efforts. Brand management focuses on the tactical implementation of the brand strategy to create awareness, attract stakeholders, and shape the perception of the university. **University Brand Governance**, on the other hand, refers to the strategic oversight and management of a university's brand. It involves establishing policies, guidelines, and frameworks to ensure consistency, coherence, and alignment with the institution's values and goals. Brand governance focuses on the long-term management and protection of the brand, ensuring that it is effectively communicated and represented across all touch points. It involves setting brand standards, monitoring brand usage, training stakeholders, and making strategic decisions to safeguard and enhance the university's brand reputation. Here are some examples to illustrate the difference between university brand management and university brand governance Table 1.

*Table 1. Difference between university brand management and university brand governance*

University Brand Management:	University Brand Governance:
1. Developing and executing a marketing campaign to promote a new programme or initiative.	1. Establishing brand guidelines that outline the proper usage of the university's logo, colours, typography, and other visual elements.
2. Creating engaging content for social media platforms to increase brand visibility and engagement.	2. Conducting regular brand audits to ensure consistency and compliance with brand standards across all university departments and units.
3. Designing and producing promotional materials, such as brochures, flyers, and banners, to showcase the university's offerings.	3. Developing a brand messaging framework that articulates the university's mission, values, and unique selling points.
4. Conducting market research and competitor analysis to identify target audiences and develop targeted messaging.	4. Providing brand training and resources to faculty, staff, and student ambassadors to ensure consistent brand representation.
5. Collaborating with external partners, such as advertising agencies or media outlets, to amplify the university's brand reach.	5. Monitoring and enforcing brand usage to prevent unauthorised or inconsistent use of the university's brand assets.

Source: Own work

Briefly, university brand management is concerned with the day-to-day implementation and promotion of the brand, while university brand governance is focused on the strategic management, oversight, and protection of the brand to ensure consistency, alignment with the institution's values and goals, and long-term success. Both aspects are important for building and maintaining a strong university brand.

### **Bolt from the blue ... Black Swan or Black Elephant**

The COVID-19 pandemic disrupted the flow of everyday life, causing the largest disruption of the educational process in history and had an almost universal impact on students and teachers around the world and on the work of educational institutions of all types, from preschool institutions to universities and advanced training centres (UN Indonesia 2020). In the field of higher education, where distance learning, in most cases, has taken the form of broadcasting recorded lectures and working with online platforms, some universities have suspended their work indefinitely due to the lack of information technology infrastructure for both students and teachers. The pandemic X-rayed all the flaws lurking in the higher education system. The balloon, which had been filled with problems for years, could not withstand the onslaught of the pandemic and burst revealing the unwillingness of either universities or teachers or students to make such changes. Almost total Information Technology illiteracy not only of teachers, but also of students, despite the fact that the latter are children of the 21st century, “born with phones in their hands”.

Apart from psychological difficulties that were common for all, there were other issues exposed by the pandemic that not all universities have successfully overcome, because not all were ready for it either technologically or methodically. Only those universities that strategically thought about their future and implemented modern educational technologies related to individual training sessions, project training and a modular system long before the pandemic found themselves in a more advantageous situation. COVID-19 practically forced everyone and everything to use and implement information technologies. Universities had to react in a state of “shock” and solve problems in order to fulfil their responsibilities

simply to continue their “existence”. Communication, work and just being online have become the norm. The world had changed overnight and people had to cope with new realities. The COVID-19 pandemic for all was like a bolt from the blue, so unexpected and crushing that seemed it was impossible to prepare for. Therefore when COVID-19 “unexpectedly” descended, initially some scientists put forward a verdict that the pandemic was a black swan (Arsenyev 2020). The term "black swan" came from the Latin expression *rara avis in terris, nigroque simillima cygno* - "a rare bird on earth like a black swan". This expression was used to characterise a rare or almost impossible event, until the end of the XVII century it was believed that swans are exclusively white (Idioms in five languages, n.d.). The term "black swan" entered the lexicon of risk management specialists in 2007, when Nassim Taleb's book (2007) of the same name was published, who used the image of a "Black Swan" as a metaphor for the fact that seemingly impossible events that no one, nothing, could ever even think of suddenly occur. This event, which appeared suddenly, had a great effect and was a surprise to experts. Yet, there were also those who believed that the pandemic was a Black Elephant (Big Ideas, n.d.). This is an event that is extremely likely and widely predicted by experts, either no one sees the black elephant, or they prefer to ignore it, when it finally happens, people try to pass it off as a black swan (DOUGALD HINE, May 1, 2010). Despite the divergent opinions of scientists in choosing a representative of the menagerie, for our part, we initially believed that the pandemic, at least in Uzbekistan, was originally a Black Elephant, which was caused by being ignored for a long time, not taken seriously, these were issues that had been accumulating for years, were brewing in the form of problems and when the time came, everything was highlighted, came out as it was. Regardless, the labels “Black Swan” or “Black elephant” COVID became a life changing reformer that no one “expected”.

Not only in Uzbekistan, but all over the world, even the most notorious world-class universities were not ready for the pandemic and its challenges, for a full transition to online education. Online education in Uzbekistan was surely a “Black elephant” that no one noticed or did not want to notice. Although there were who were proactive by creating a platform for online sessions, years and even a decade earlier. COVID forced educational systems not only to rethink their teaching methods, but also to start figuring out how they could start using technology in the best way, deal with IT illiteracy of teachers as well as students worldwide. In the modern world, it is more important than ever to have knowledge and competencies that will help to be effective and successful in an era of constant changes. Since University Brand Governance is about strategic long term development it also covers agility, how University can proactively evolve or promptly react and settle the possible issues and obstacles. In Uzbek we have a saying “*Bir xor bo'lgan, bir aziz bo'ladi*”, which means *once humiliated, will be appreciated once*. It totally suits online education which used to utterly not be popular in Uzbekistan. Many universities undoubtedly did know about the online approach, but did not pay attention, and strenuously ignored it without seeing the point. Despite the anti-online attitude, there were pioneers who were thinking about the future. If the institution is human-oriented, then intentionally or sometimes without realising the significance of their decisions, it can become a leader and a pioneer in its own way. In 2012, the Singapore Institute of Management Development in Tashkent became the first university in Uzbekistan that successfully organised and implemented online admission. Among the local universities, the Tashkent University of Information Technologies became the first to undertake its admission in online format in Uzbekistan. Their pilot document submission service was launched on the unified portal of interactive public services of Uzbekistan in 2016 (Gazeta.uz, June 28, 2016). To attract more applicants from all over Uzbekistan, increase their number, by providing them conditions for submitting documents remotely that would help applicants save time and money on travel expenses The Charitable Foundation of Education named after the first President of Uzbekistan in 2017 introduced to their target audience online admission as an option. The human-oriented approach, which was expressed in hybrid admission, gave its positive yields and entailed an increase of a number of applicants by 200%. As it was mentioned earlier, advanced educational institutions, which began using their own digital platform long before the

pandemic, were able to overcome this problem relatively easily. In 2015, the Academy of Public Administration of the Republic of Uzbekistan created its online platform for remote lectures. The only problem during the pandemic was the low and sometimes unstable Internet level in Uzbekistan. On the other hand, many universities were puzzled by the issue of distance learning “caused” by the pandemic and quarantine restrictions, but thanks to Zoom and Microsoft Teams platforms the issue of conducting classes and just communication was solved - education was “saved”. Although how well and quickly people, teachers or students were able to adapt as well as skillfully use these programmes was another issue. It is worth noting that there have been cases of lessons in the form of messages via WhatsApp messenger, as well as Telegram. Moreover, this phenomenon was usual and had been observed in both developing and developed countries (University World News, Nov. 14, 2020).

## Summary

Universities play a major role in the transformation of knowledge into human capital, participate in scientific research and the creation of innovations (Danchenko & Simchenko 2018). Historically, universities were an individual process of evolution and formation of a personality, a human. In the XX century, what we call the mass production and marketisation of education took place. This happened largely due to the growing demand for education, which, as a result, has become a conveyor belt. Today, training is still a production line, but already taking into account personal settings. This means that education strives to personify the educational process in the conditions of the mass character of the phenomenon itself. The attitude to higher education has changed a long time ago, a modern student needs flexibility, a broad outlook, hard and soft skills, a lot of things that lie beyond the first class or second class degree. In a rapidly changing world, people who foresee and are able to solve problems in conditions of turbulence while being able to maintain psycho-emotional stability will be needed. It should be taken into account that educational services are seasonal and long-term in nature, have a high level of uncertainty i.e. intangible, are characterised by the impossibility of resale and cannot be preserved i.e. perishable, are volatile in quality i.e. heterogeneous simply variable and cannot be separated from the providers i.e. inseparable (Regan 1963).

University brand management involves the day-to-day activities and initiatives aimed at promoting the brand, while university brand governance focuses on the strategic management, guidelines, and oversight to ensure consistency and alignment with the institution's values and goals.

Thanks to the Reformer-COVID-19, the world will never be the same again. The changes have affected all industries, the education system is also being rebuilt, the process has been launched. In order to prolong their existence and fully effective functioning, universities should draw conclusions and intensively implement changes. The first is to change the focus and make it human-oriented. Here we are talking not only about consumers-students, but also teachers and other employees of an educational institution, who are key pillars in the work of a university. The status and quality of a university will be based and shaped by the work of a faculty and administration of the university. One can't try to make a respectable, world class university without valuing, supporting and creating conditions for one's staff. Because unhappy and unvalued personnel will leave for the place where they will be appreciated and respected accordingly.

The number of universities in Uzbekistan is growing annually, thereby expanding the choice of higher education opportunities for potential consumer students. The growth in the number of universities has its advantages as well as disadvantages. If a growing number of universities met high quality benchmarks, it would promote growth and revolutionise the entire educational scenario in Uzbekistan. Yet, alas, due to the lack of universities meeting the expected norms, these new universities mostly have low standards. This is what leads to the destruction of any further prospects that could be expected from these universities. When the simple making money becomes on the agenda, leaving aside any goals of providing students with a standard quality education, an increase in the number of educational



institutions increases the cost of inconveniences. On the other hand, a competition should lead universities in the market to improve the quality of their educational programmes as well as their services, quality of management procedures and in general the efficiency of their universities in the pursuit of consumers. These all require competent governance. A qualified manager with the help of a holistic application of brand governance will be able to cope not only with the consequences of the pandemic, but also make a university positively popular, occupying high positions in the world rankings of higher education institutions. But most importantly, thanks to competent management, the university will train qualified specialists in demand for an era of instability and agility.

## Literature

1. Altbach P. G. (2004), *Globalisation and the university: Myths and realities in an unequal world. Tertiary Education and Management*, 10(1), 3–25. doi: 10.1023/B:TEAM.0000012239. 55136.4b
2. American Marketing Association. (n.d.). *Branding archives*. <https://www.ama.org/topics/branding/> (access: 21.04.2023)
3. Anichkin E. S., Kostenko M. A., Dolzhikov A.V. et al. (2015), *International educational cooperation: the experience of a cross-border university*. Monograph. Zemlyukova S. (ed.). Barnaul: Altai State University Publishing House. ISBN 978-5-7904-2014-6
4. Arsenyev P. (2020, March 23), *Why experts called the coronavirus a “black swan”?* Rossiyskaya Gazeta. <https://rg.ru/2020/03/23/pochemu-eksperty-nazvali-koronavirus-chernym-lebedem.html> (access: 07.06.2023)
5. Atoyan V., Kazakova N. (2002), *University complexes: International cooperation*. Higher education in Russia. No 6. pp. 3-8
6. Blackett T. (2003), *What is a brand?* in: Clifton R. & Simmons J. (eds.) *Brands & Branding*. Princeton, NJ: Bloomberg, p.23
7. *Black Elephants & Skull Jackets: A conversation with Vinay Gupta*. (2010, May 1). DOUGALD HINE. <https://dougald.nu/black-elephants-skull-jackets-a-conversation-with-vinay-gupta/> (access: 12.06.2023)
8. *Branding*. PAR Marketing Services. <http://parmarketingservices.com/Docs/Branding%20White%20Paper.pdf> (access: 21.04.2023)
9. Chechulin A.V. (2020), *Branding in the management system of a modern Russian university. Vocational education and the labour market*. No. 4. pp.97–104. DOI 10.24411/2307-4264-2020-10412.
10. Danchenko S., Simchenko E. (2018), *Managing universities in the conditions of an innovative economy: analysis of foreign experience*. Vesti BSPU. Series 2. 2018. No. 1. pp. 108-112
11. de Chernatony L. (2007), *From Brand Vision to Brand Evaluation*. 2nd edition. Moscow, IDT group, p.43
12. de Chernatony L. and McDonald M. (2000), *Creating Powerful Brands in consumer, service and industrial markets*. Butterworth Heinemann Oxford, 2<sup>nd</sup> edition
13. Ellwood I. (2002), *Essential Brand Book*. Over 100 techniques to increase brand value. Fair-Press, p.24
14. Gupta V. on Black Elephants. URL: <http://vinay.howtolivewiki.com/blog/flu/on-blackelephants-1450> (access: 27.04.2009) in Sardar Z. (Ed.). (2019), *The Postnormal Times Reader. International Institute of Islamic Thought*. p.124 <https://www.jstor.org/stable/j.ctv10kmcqv.7> (access: 12.06.2023)
15. [http://lst-iiiep.iiep-unesco.org/cgi-bin/wwwi32.exe/\[in=epidoc1.in\]/?t2000=027226/\(100\).](http://lst-iiiep.iiep-unesco.org/cgi-bin/wwwi32.exe/[in=epidoc1.in]/?t2000=027226/(100).) 10.1596/978-0-8213-7865-6.
16. Kapferer J.N. (2007), *The New Strategic Brand Management. Creating and Sustaining Brand Equity Long Term*. Translated from English by E. V. Vinogradova; edited by V. N. Domnin. Moscow: Vershina.p.20
17. Keegan W.J. (2002), *Global Marketing Management*. 7<sup>th</sup> edition, Prentice Hall, p.24; p.239
18. Keller K. L. (1998), *Strategic Brand Management*, Prentice Hall
19. Knowles J. (2001), *The role of brands in business*. Chapter 2, pp.21-89 from the book “*Brands: Visions and Values*” edited by Goodchild J. & Callow C. New York: John Wiley and Sons, Ltd.
20. Lowrie A. (2018), *Understanding Branding in Higher Education. Marketing Identities*. Palgrave Macmillan US., pp. 63–85
21. Meldebekova A.A. (2015), *Brand in the marketing system*. *Journal Bulletin of KazNPU*. <https://articlekz.com/article/18864> (access: 25.12.2022)
22. Narimanova U. K. (2021), *Brand Management of the University in the era of Information Technology*. Modern innovative technologies and problems of sustainable development in the digital economy. Collection of articles of the XV International Scientific & Practical Conference. (Minsk, June 24, 2021). Minsk Branch of Plekhanov Russian University of Economics; editors: Eliseev A. B., Mankovsky I. A. (editor-in-chief) [and others]. Minsk: BGATU, 2021. page 157 – ISBN 978-985-25-0126-2.



Ministry of Education and Science  
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23. *Policy Brief: Education during COVID-19 and beyond* (August, 2020), United Nations Indonesia. [https://indonesia.un.org/sites/default/files/2020-09/sg\\_policy\\_brief\\_covid-19\\_and\\_education\\_august\\_2020%20%281%29.pdf](https://indonesia.un.org/sites/default/files/2020-09/sg_policy_brief_covid-19_and_education_august_2020%20%281%29.pdf) (access: 10.06.2023)
24. *Rara Avis - Idioms with translation and interpretation*. (n.d.). <http://polyidioms.narod.ru/index/0-194> (access: 07.06.2023)
25. Room A. (1998), *The Names Society. History of branding*. Chapter 2, p.13 from the book “*Brands the New wealth creators*” edited by Hart, S. and Murphy, J. Interbrand, Macmillan Business
26. Salmi J. (2009), *The Challenge of Establishing World-Class Universities*. Washington: The World Bank.
27. Skokova N. A. (2017), *Promotion of educational services in the online and offline environment (using the example of EQuator-Training LLC)*. St. Petersburg State University. Institute “Higher School of Journalism and Mass Communications”.
28. Taleb N. N. (2007), *The Black Swan: The Impact of the Highly Improbable*. New York: Random House
29. Tayeb O. (2016), *Roadmap to Become a World-Class University*. In: Tayeb, O., Zahed, A., Ritzen, J. (eds) *Becoming a World-Class University*. Springer, Cham. [https://doi.org/10.1007/978-3-319-26380-9\\_1](https://doi.org/10.1007/978-3-319-26380-9_1)
30. *TUIT was the first to start accepting documents online*. (June 28, 2016), *Gazeta.uz*. <https://www.gazeta.uz/ru/2016/06/28/tuit/> (access: 20.04.2023)
31. University leaders say “*We were not ready for COVID-19*”. (2020, November 14). *University World News*. <https://www.universityworldnews.com/post.php?story=20201114101555634> (access: 20.04.2023)
32. “*Watch out, black elephant!*”: *what to do with a disaster that no one wants to think about*. (n.d.). *Big Ideas*. <https://big-i.ru/management/strategiya/839220> (access: 07.06.2023)
33. *Why brands are good for you* (2001, September 8). *The Economist*. <https://www.economist.com/leaders/2001/09/06/the-case-for-brands> (access: 25.12.2022)
34. Williams R & Van Dyke N. (2007), *Measuring the international standing of universities with an application to Australian universities*, *Higher Education*, 53(6), pp. 819-841
35. Regan W.J. (1963), “*The Service Revolution*”, *Journal of Marketing*, 47, pp. 57-62



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# THE IMPACT OF THE COVID-19 PANDEMIC ON THE CAPITAL STRUCTURE AND OTHER FINANCIAL CHARACTERISTICS OF HUNGARIAN HOSPITALITY SMES

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**Abstract:** The hospitality sector is one of the sectors that has suffered extremely high losses as a result of pandemic COVID-19. The outbreak of the coronavirus and the associated restrictive measures caused a sharp decline in almost all segments of the hospitality sector for much of 2020. As a result, gross value added in the hospitality sector fell by 32% in 2020 compared to the previous year. The uniqueness of our research on the financing of Hungarian micro, small and medium-sized enterprises in this sector and the determination of the optimal debt ratio - covering the period 2015-2021 - is that we examined the lower-level sectors of the hospitality sector taking into account the differences in the size of enterprises and their statistical region (spatial location), and then used the results to conduct a comparative analysis of the trends observed before the pandemic and the changes during the pandemic. We have explored how the evolution of the capital structure has affected the profitability and liquidity of firms, and we have also determined the relationship between profitability and liquidity. We find that there are significant differences in the capital structure of firms classified by size and geographical location, and that the strength and direction of the relationship between capital structure, profitability and liquidity depend on the size and geographical location of the firm.

**Key words:** capital structure analysis, profitability, business strategy, financing decisions

## Introduction, goals

Research dealing with the capital structure examines the factors affecting own capital and foreign capital, as well as the relationships between the performance and market value achieved by the established capital structure. The main questions are aimed at the optimal equity rate, the method of financing investments, and the sequence of financing options. Since the capital structure of enterprises may differ by industry, in order to avoid a distorting effect and to achieve a correct result, it is justified to examine the capital structure and liquidity indicators and their correlations by industry. Accordingly, and due to scope limitations, in my present research, I limited the area on the basis of which I conducted the analysis exclusively to the enterprises operating continuously between 2019-2021, conducting double bookkeeping in the Hungarian and Slovak SME sector, and operating in the Hospitality sector.

The economic shutdown due to epidemic restrictions created a completely different situation compared to previous crises, which could be explained by the functioning of economies in recent decades. Furthermore, one of the most decisive economic factors in connection with COVID-19 was uncertainty, which could be observed to a significant extent in the life of businesses even in the post-pandemic period. (Baker et al, 2020)

## Literature review

The financing of the enterprise therefore means the creation of the financial resources necessary to ensure the value-creating process of the enterprise and its operation, thus creating the financing process of the sustainable enterprise. (Pataki, 2003) Improving access to financial services can have a positive

impact on the economy and the SME sector in many areas. It can contribute to economic growth by facilitating the financial activity of businesses, enabling businesses to engage in more sustainable and environmentally friendly business practices, and increasing financial efficiency. (Nasir et al., 2022)

There are different forms of financing. One of the possible aspects of the grouping is where the capital used as a resource comes to the enterprise. According to the source of financing, we distinguish between internal and external, and based on the related rights, own and foreign sources. (Bhide, 1992) Own resources typically mean internal resources that ensure the capital needs of enterprises by using the profit generated during profitable management and by making more intensive use of existing resources (Béza et al., 2013), but they can also be made available to the enterprise from outside the enterprise, for example in the form of a capital increase.

We distinguish three cases of internal financing, which typically use assets previously produced by the company to raise the funds needed for investments. (Retention of profit, Amortization, Asset sale) External funds are funds provided from outside the company, which, based on the fact that they embody property or debt, can also be own and foreign funds, in other words equity and debt funds. (Debt resources, Capital resources)

From the point of view of a business, the most favourable option for obtaining external funds is a commercial loan, because in this case the company is not burdened with the obligation to pay interest until the payment deadline and the stronger the market position of an economic organization, the more it can use this opportunity to obtain funds. (Carter & Van Auken, 2005) Obtaining such funds is not smooth in all cases, especially for enterprises belonging to the SME sector, which generally have limited own funds due to their lack of capital. (Gál, 2013)

The cost of capital can be approached from the side of those who provide the funds and from the side of the company that uses the capital. From the investors' side, the cost of capital is the return they expect for the investment, and from the company's side, it is the price of obtaining the necessary funds. (Pratt – Grabowski, 2010) In a business, the available funds can come from the owners or creditors. The composition of these sources is called the capital structure, which actually reflects the company's ownership structure (Tripathi, 2019) and is one of the company's capabilities that is key to meeting the needs of various stakeholders. (Yildirim et al., 2018) The capital structure, as the rate of the company's foreign and own funds, gives an answer to the combination of funds behind the financing of the investment in real assets. (Bélyácz, 2009)

## **Situation picture of the SME sector and the examined sector**

The SME sector is the backbone of the European Union's economy. In the European Union, 99 percent of enterprises are made up of the SME sector, they provided job opportunities for nearly two-thirds of the employed and contributed to slightly more than half of the gross added value. These rates have not changed or changed little since the beginning of the 2000s. As a result, economic growth, innovation and job creation also depend on the ability of the SME sector to develop. (Holicza, 2016) The financial resources of SMEs are usually based on the owner's wealth, which greatly limits their growth opportunities. This is also confirmed by the fact that micro-enterprises employ roughly the same number of people as organizations not belonging to the SME sector, which shows that the corporate sector is fragmenting. (Hegedűs, 2019)

The impact of the Covid-19 epidemic was felt in all sectors in 2020, of which tourism and hospitality were among the biggest losers. (Md Billal et al., 2022) This economic sector also lost its foreign and domestic markets with the closure of borders and restrictions on people's movement. The coronavirus epidemic and the related restrictive measures caused a significant decline in almost all areas of the hospitality industry for much of 2020.

## Material and method

During the analysis of the relationship between capital structure and liquidity indicators, I relied on the balance sheet and income statement data of double-entry bookkeeping companies subject to corporate tax, taking into account the territorial location of the companies. The data of the SME sector report for 2019-2021 required for the capital structure analysis was provided by the Crefoport database. The database contains 3526 lines of unique data. The sample was narrowed down exclusively to enterprises in the 56: Hospitality sectors. The majority of the analysed sample is made up of companies that are not required to be audited, so unaudited data is examined, but regardless of this, I primarily assumed that the majority of their activities were based on their main activity and that they kept their books in accordance with national legislation and thus the published reports provide a reliable and true overview. In order to make the data comparable, it was selected from the enterprises operating between 2019-2021 and belonging to the SME sector during the entire period. During the query, state and local government enterprises, social cooperatives, and enterprises with consolidated accounts were excluded. The companies that had zero sales or zero receivables and liabilities, as well as those that did not comply with the mandatory requirements of the Accounting Act in the data of the published report, were also deleted from the data set.

The regulations for accounting reports may contain special regulations for enterprises in the SME sector, therefore, in the case of micro businesses, comparability is only ensured for the main lines of the report. It is not in the interest of businesses to give external stakeholders a fully analyzable picture of their activities, therefore the accounting reports do not contain detailed data for an analysis, they only strive to comply with the mandatory regulations by keeping accounting records containing consolidated data. The accounting data refer to a specific time in the past, so the general indicators or information formed from the reporting data are also historical and static. Monthly or quarterly data are needed to generate dynamic indicators, but such regular data provision is not particularly typical for enterprises in the SME sector.

*Table 1: Distribution of the examined enterprises by year and by area*

Count		Year			Total
		2019	2020	2021	
Country	HU	882	1009	350	2241
	SK	470	404	411	1285
Total		1352	1413	761	3526

Source: own compilation based on Crefoport database.

According to the territorial grouping, I distinguished the enterprises operating in Hungary and Slovakia, which I took into account in all background calculations of the analysis. The analysis, were also broken down according to levels 2 and 4 of the NACE grouping.

I determined the correlation between capital structure and profitability indicators using correlation analysis. Correlation analysis demonstrates the existence and strength of a linear relationship, and it answers the question of whether there is a relationship between two or more quantitative variables, and if so, how strong it is. The combined change of the indicators is characterized by the Pearson's correlation coefficient, the sign of which is:  $r$ .

*Table 2: Range of the indicators included in the analysis*

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
EQR	3526	3,60	-1,48	2,12	,3960	,49697
ROA	3526	1,64	-,88	,75	,0105	,29233
ROS	3526	1,31	-,74	,57	-,0274	,21431
LIK	3526	15,94	-5,40	10,55	2,6311	2,52165
Valid N (listwise)	3526					

Source: own compilation based on Crefoport database.

*Table 3: Evaluation of correlation coefficient*

Correlation coefficient (r) value	Level of connection
0,00	there is no linear connection
0,00 - 0,20	weak, negligible connection
0,20 - 0,40	sure but weak connection
0,40 - 0,70	medium correlation, significant connection
0,70 - 0,90	high correlation, strong connection
0,90 - 1,00	an extremely strong, dependent connection

Source: Guilford, 1953.

## Results

The objective of my research is to determine (using statistical methods), whether there is a significant difference between the capital structure, profitability, and liquidity of the Hungarian and Slovak SME sector. I performed the correlation calculation taking into account the countries and summarized the results in the following tables. When analysing the computed correlation matrix, I focus particularly on those items that are not direct consequences of their mode of formation.

*Table 4: Indicators included in the analysis and their calculation methods*

Jel	Mutatószám	Számítási mód
EQR	Equity ratio	Equity / Equity and liabilities
ROA	ROA – Return on assets	Profit before tax / Equity and liabilities
ROS	ROS – Return on sales	Profit before tax / Net sales
LIQ	Liquidity ratio	Current assets / Short-term liabilities

Source: own compilation.

Based on Table 5, it can be seen that for both Hungarian and Slovak companies, the equity ratio and both profitability indicators showed a positive correlation every year, which means that it is statistically proven that profitability increases together with the growth of equity. In the case of Hungarian and Slovak companies, the correlation coefficients of the equity ratio and the profitability indicators indicated a significant, sure, but weak connection almost every year. The stronger correlation in the case of Hungarian companies suggests that the change in equity is more likely to be associated with an increase in profitability. When examining the correlation between liabilities and profitability, data with opposite directions but similar strength emerged in the correlation coefficients of both countries, compared to equity.

In terms of liquidity indicators, Hungarian companies have a higher average liquidity rate in the period under review, a difference that is also reflected in the cash rate indicator. At the same time, based on the fact that the return on current assets is generally lower than the return on fixed assets, an excessively high liquidity rate reduces the average return on assets. As a result, the benefit of keeping too large a stock of cash is high due to lost interest income, while too little stock of cash entails the risk



of insolvency. (Orr, 1974) As a result, high liquidity is generally associated with a decrease in profitability, which is characterized by a negative correlation relationship in the literature. However, in certain service industries where the ratio of fixed assets is low, it may occur that the return-generating capacity of current assets is higher than that of invested assets. In the analysis of liquidity and profitability of such sectors, a positive correlation coefficient appears.

**Table 5: Correlation coefficients of equity ratio and profitability indicators**

			Correlations					
			ROA			ROS		
Country			2019	2020	2021	2019	2020	2021
HU	EQR	Pearson Correlation	,404	,322	,625	,350	,293	,497
		Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001
		N	882	1009	350	882	1009	350
SK	EQR	Pearson Correlation	,270	,245	,274	,284	,194	,371
		Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001
		N	470	404	411	470	404	411

Source: own compilation based on Crefoport database.

Based on Table 6, it can be seen that in the case of Hungarian and Slovak companies, the liquidity ratio and both profitability indicators showed a positive correlation every year, which means that profitability increases as the liquidity ratio increases. In the case of Hungarian and Slovak companies, the correlation coefficients of the liquidity ratio and the profitability indicators indicated a significant, sure, but weak connection almost every year. The stronger correlation in the case of Hungarian companies suggests that the change in liquidity is more likely to be associated with an increase in profitability.

**Table 6: Correlation coefficients of liquidity ratio and profitability indicators**

			Correlations					
			ROA			ROS		
Country			2019	2020	2021	2019	2020	2021
HU	LIQ	Pearson Correlation	,248	,260	,394	,215	,221	,524
		Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001
		N	882	1009	350	882	1009	350
SK	LIQ	Pearson Correlation	,226	,211	,240	,248	,172	,273
		Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	<,001
		N	470	404	411	470	404	411

Source: own compilation based on Crefoport database.

## Summary

The primary motivation for preparing my analysis was the continuation and international expansion of capital structure studies in Hungary. In the course of my research, I examined the capital structure and liquidity of the enterprises operating in the information technology service sector and their territorial connections based on indicators compiled from the reporting data of Hungarian and Slovak enterprises belonging to the SME sector. The main goal of the research is to use statistical methods to determine whether there is a significant difference between the capital structure, profitability and liquidity of enterprises belonging to the Hungarian and Slovak SME sector.

I started the research by studying and processing the literature related to the topic, then I briefly presented the characteristics and main statistical data of the SME sector and the Hospitality sector in the European Union, as well as defined the limitations of the results of the analysis. After narrowing down the database, I determined the indicators included in the study from the set of data, which I further narrowed down using the truncation method in order to ensure that the data were not distorted. I processed the final data set with descriptive statistical data analysis and correlation analysis. Based on the descriptive statistical data, it was observed that compared to Slovak enterprises, Hungarian enterprises have higher equity capital, lower liabilities and better liquidity, but at the same time, the share of their long-term liabilities was minimal, similar to Slovak enterprises. In the case of Hungarian and Slovak companies, the correlation coefficients of the equity ratio and the profitability indicators indicated a significant, sure, but weak connection almost every year. The stronger correlation in the case of Hungarian companies suggests that the change in equity is more likely to be associated with an increase in profitability. In the case of Hungarian and Slovak companies, the correlation coefficients of the liquidity ratio and the profitability indicators indicated a significant, sure, but weak connection almost every year. The stronger correlation in the case of Hungarian companies suggests that the change in liquidity is more likely to be associated with an increase in profitability. A weak correlation indicates that other micro and macroeconomic factors greatly influence the relationship between the growth of equity, liquidity and profitability.

In my background calculations, there were no outstanding differences in the results even in the lower-level grouping of the Hospitality sector, however, I did not represent these data due to scope limitations. Based on the results of the correlation analysis, it can be stated that it can also be verified statistically that significant differences can be observed in the capital structure and liquidity of the examined Hungarian and Slovak enterprises.

## Literature

- 1 Baker S., Bloom N., Davis S.J., Terry S.J (2020): COVID Induced Economic Uncertainty, in nber working paper series
- 2 Bélyácz, I. (2009): Befektetési döntések megalapozása; Aula Kiadó; Budapest
- 3 Béza D., Csákiné Filep J., Csapó K., Csabák T. K., Farkas Sz., Szerb L. (2013): Kisvállalkozások finanszírozása. [H.n.] Perfekt Kiadó
- 4 Bhide, A. (1992), „Bootstrap Finance: The Art of Start-ups”, Harvard Business Review, 70 6, pp. 109-17
- 5 Carter, R. B., Van Auken, H. (2005), „Bootstrap financing and owners' perceptions of their business constraints and opportunities”, Entrepreneurship & Regional Development, 17 1, pp. 129-44
- 6 Gál V. (2013): A magyar kis- és középvállalkozások tőkeszerkezetének sajátosságai. Ph.D értekezés. KE Gazdaságtudományi Kar
- 7 Hegedűs M. (2019): A versenyképességi problémák Magyarországon 2019-ben
- 8 Holicza, P. (2016): A magyar KKV szektor helyzete nemzeti és nemzetközi szinten Vállalkozásfejlesztés a XXI. században VI. pp. 147–162. Óbuda University, Budapest.
- 9., Hosain Md Billal; Wicaksono, Tutur, Md Nor Khalil; Dunay Anna; Illés Bálint Csaba (2022): E-commerce Adoption of Small and medium-Sized Enterprises During Covid-12 Pandemic Evidence from South Asian Countries. Journal of Asian Finance Economics and Business. 9 : 1 pp. 291-298.
- 10 Nasir Khan, Mahwish Zafar, Abiodun Funso Okunlola, Zeman Zoltan, Magda Robert (2022): Effects of Financial Inclusion on Economic Growth, Poverty, Sustainability, and Financial Efficiency: Evidence from the G20 Countries SUSTAINABILITY 14 : 19 Paper: 12688 , 20 p.
- 11 Orr, D. (1974). Review: Cash Management and the Demand for Money: A Comment on Robert J. Barro's Version by Daniel Orr. Journal of Money, Credit and Banking Vol. 6, No. 1.
- 12 Pataki, L. (2003): A tőkeellátás és a tőkeszerkezet változása és annak hatása a heves megyei agrárvállalkozások gazdálkodására (1992-2000), Gödöllő
- 13 Pratt, S. P. – Grabowski, R. J. (2010): Cost of Capital. New Jersey: John Wiley & Sohns, Inc. p. 4.
- 14 Tripathi, V. (2019): Agency theory, ownership structure and capital structure: an empirical investigation in the Indian automobile industry. In. Asia-Pacific Management Accounting Journal, 14 (2) 1-20. p.
- 15 Yildirim, R – Masih, M. – Bacha, O. I. (2018): Determinants of capital structure: evidence from Shari'ah compliant and non-compliant firms. In: Pacific-Basin Finance Journal, 51 () 198-219. p.
- 16 Guilford Joy P. (1953): The Correlation of an Item With a Composite of the Remaining Items in a Test, Educational and Psychological Measurement v13



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# **ANALYTICAL APPROACHES FOR ASSESSING BUSINESS PERSPECTIVES IN THE AUTOMOTIVE INDUSTRY OF UKRAINE**

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**Abstract:** The study examines the state and development trends of the automotive industry of Ukraine for the period 2016-2021. The trends of the labor market in Ukraine have been identified, the state of migration processes, the level of unemployment in the regions of Ukraine have been assessed. The results of a comparative analysis of the level of the minimum wage in Ukraine in terms of regions, categories and positions are presented. The standard salary of back-office workers and management in the automotive sector was studied. The evolution of the regulatory and legal provision of state regulation of the development of the automobile industry in Ukraine is traced. Radical changes in the state policy of the development of the automotive industry of Ukraine were revealed: from constant support of car manufacturers and stimulation of car production to bureaucratic barriers, obstacles and existing risks and threats. It is stated that since 2014, Russia's armed aggression against Ukraine has led to a significant decline in the car industry. Proximity to the border with the EU, cheap labor and sufficient raw materials make the western oblasts of Ukraine especially attractive for partnership with European auto giants.

**Key words:** automotive industry, development trends, dynamics of car manufacturing, the state support policy, labor market.

## **Introduction**

The automotive industry of Ukraine is a term that covers a wide range of companies and organizations involved in the design, development, manufacture, marketing and sale of cars, commercial vehicles, trucks and buses, trailers, motorcycles, mopeds, special and military vehicles, machinery, spare parts and components for motorcycles and mopeds. The automotive industry was a rapidly evolving field in Ukraine, and there could be further developments if not the war. Since 2014, Russia's armed aggression against Ukraine has led to a significant decline in the car industry. The military conflict between Ukraine and Russia has led to the severance of economic ties with the countries, and as a result, the cessation of car production. The current war as unprovoked and unjustified military aggression of Russia against Ukraine started in February 2022. This not only negatively affected the domestic automotive industry, but also negatively affected the forecasts of the world production of passenger cars (Wayland M., 2022).

Development of the Ukrainian automotive industry and its state support in the historical context, the problems of optimizing the activities of automotive enterprises using modern technologies and assessing the level of their competitiveness were the subject of study in the works of many Ukrainian scientists. Among prior studies, which emphasize the importance of the current study, are works of M. Dmytrychenko, M. Kyzym, O. Kryvokon, M. Mishchenko, G. Pasov, A. Redzyuk, V. Chupryna, I. Shevchenko, and O. Yazvinska. Particularly, in the monograph (I. Shevchenko, 2019), the author proposed a systemic view on progress of the automobile industry as well as developed a methodology for assessing competitiveness and a concept of the state program for the growth of industry until 2025. The issues of transformation of Ukrainian Automotive Industry based on introduction of electric vehicle production were considered among priorities (Y. Savelyev, V. Kuryliak, K. Darvidou, M. Lyzun, I. Lishchynskyy, 2021). However, the rapid change in business conditions and global challenges affects the development trends of the automotive industry not only in Ukraine, but also throughout the world, which requires updating such research.

## Research Results

The given study is focused on three main aspects in the automotive industry of Ukraine, namely on labor market, development tendencies and state regulation procedures during 2016-2021. A characteristic feature of the labor market is the presence of disparities between supply and demand, which are expressed in professional qualifications, gender, age, industry and territorial (regional) aspects. These imbalances in practice lead to a significant outflow of labor abroad. The main reason for the labor migration of Ukrainians abroad is the difficulty in finding decently paid work at home. Over the past five years, the economic factors of migration have intensified politically and security-wise, leading to a rapid increase in migration sentiment and the intensity of migration.

According to the UNHCR data, as of 15 November 2022, 7.6 million Ukrainian citizens remained abroad because of the war. That said, around 3 million people stayed in Russia and Belarus, including those due to their forced deportation to Russia (Tucha O., Spivak I., Bondarenko O., Pogarska O., 2022, p.2). Therefore, approximately 4.5 million Ukrainians stayed in other European countries, including 1.6 million in Poland as of May 22, 2023.

Considering the level of employment, unemployment and its dynamics, it should be noted that there was a slight increase in the employment rate, but in total due to the unstable political situation and the conflict in the East the number of economically active population was constantly declining and the unemployment rate was rising, especially in the eastern regions of Ukraine. Thus, the biggest increase in load of registered unemployed per vacancy by regions were in Zaporizhzhya, Donetsk and Luhansk Oblasts.

Considering the salary proposals for different categories of employees offered by different employment sites, we observe significant differences and fluctuations. Thus, the average salary of a production line operator fluctuated on average at \$ 400-450. The highest average salaries were offered in Zaporizhzhia, Poltava, Lviv and Dnipropetrovsk regions, amounting to \$500-560 in 2020-2021 (Fig.1). Kyiv City has the highest size of average wage for positions of sales manager, accountant and chief accountant. The lowest indicators in four positions of six are in Luhansk Oblast. It means that Kyiv as the capital is the place with the highest concentration of officially registered offices with a special need in personal, concentration of capital etc.

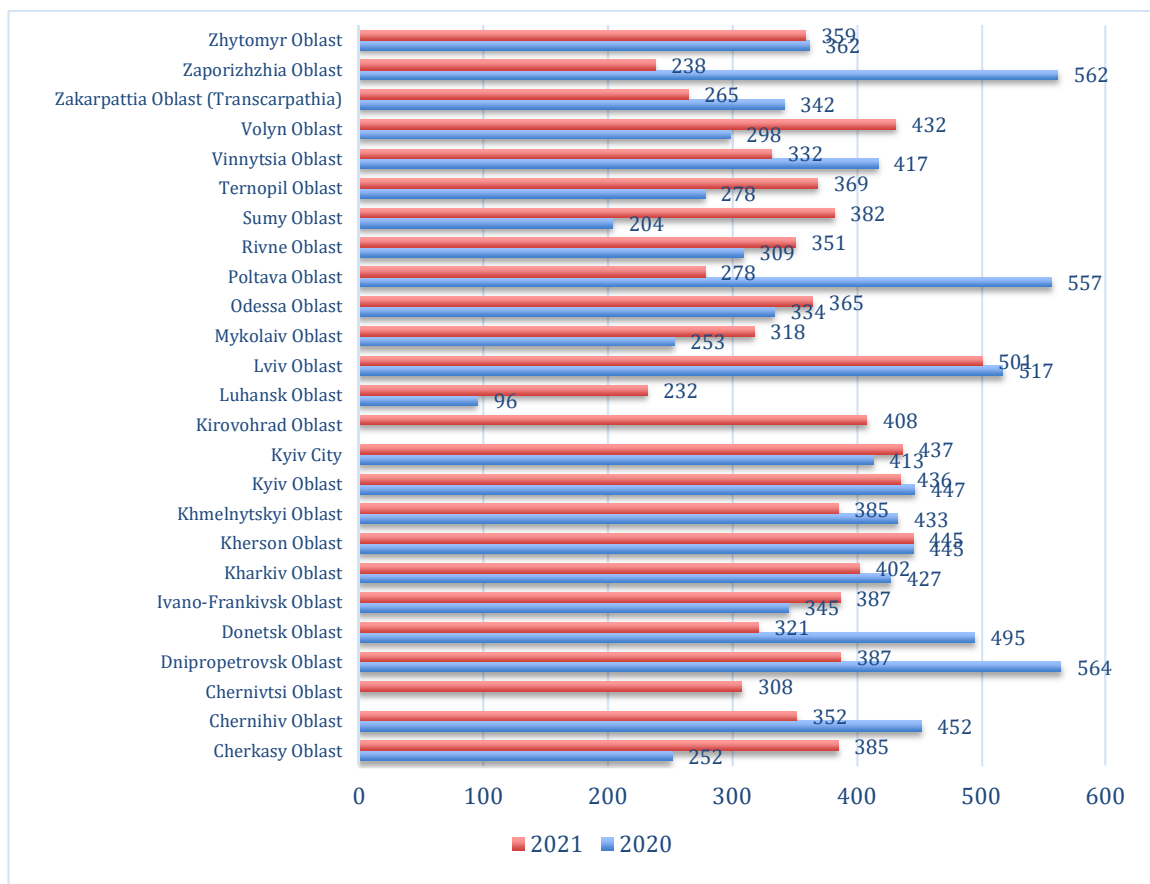
Moreover, the structure of employment has changed due to quarantine, the corresponding economic downturn and at last the war. Although companies abstained from layoffs during the 2020 pandemic, declining economic activity has led to staff reductions.

In recent years, with the exception of the pandemic period, the "lack of qualified personnel" factor has been steadily gaining weight in business surveys as one of the reasons for holding back corporate profits. During the corona crisis, the impact of this factor decreased due to reduced economic activity. However, since the beginning of 2021, the shortage of quality staff has increased again, which has affected the growth of wages.

Due to the war an increase in labor force and Ukrainian migrants' spending abroad are positive for the economies of host countries, although a large wave of migration created a number of challenges, including for state finances. At the same time, the net fiscal effect will be positive for Europe in the long run, as Ukrainians are actively integrating into the European labor market and are paying taxes. According to calculations of NBU Ukrainians' expenses abroad more than tripled in 2022 compared to the previous year, reaching USD 2 billion per month. Spending on Ukrainian migrants also spurs government consumption, particularly on housing infrastructure, healthcare, and education (taking into account the large percentage of children, which ranges from 28% to 44% in various countries).

When analyzing development industry trends we focused on two aspects - trade and manufacturing infrastructures. Starting from 2016, there is a growing trend in the number of new cars sold in Ukraine. The increase in market capacity was due to actions that facilitated the preferential import of cars to the secondary market, namely a special law came into force that introduced a reduction in the excise tax rate on the import of used vehicles. Since 2017 the import and registration of used cars in Ukraine has

intensified and their market share has increased from 24% in 2016 to 81% in 2020. Simultaneously, the share of imported new cars decreased by market from 71% to 18% in 2020.



**Figure 1. The average amount of the offered salary to the production line operators by regions of Ukraine for 2020-2021, USD**

Source: calculated by the authors based on International Organization of Motor Vehicle Manufacturers [5].

In 2021, the total number of new cars sold on the Ukrainian market amounted to 103,650 units, which is 22% more than in 2020. This is the highest figure since 2013, although a record for the last 8 years, is small compared to EU countries. For example, in Poland in 2021 new cars were sold four times more.

Ukraine has been a member of the WTO since 2008 and has an expanded free trade area with the EU, Canada and a number of other countries. With the acquisition of full membership in the WTO, Ukraine has received additional rights to use a set of measures to protect the internal market. However, these rights have not been fully exercised in relation to the national automotive industry. On the contrary, by signing the Agreement on Accession to the World Trade Organization (WTO), Ukraine reduced the import duty on imports of cars by 2.5 times, which negatively affected the domestic automotive industry and fully opened the market for imports of foreign cars to Ukraine. And for the period 2008-2012, the vehicle market has halved, and the share of foreign cars has increased from 50 to 89%. Production of Ukrainian cars and buses decreased 5.5 times.

Domestic manufacturers were negatively affected by the lack of state support, as well as the presence of serious pressure from the expansion of foreign cars. In addition, the conditions caused by the signing of the Association Agreement with the EU and accession to the WTO were clearly losing to the domestic



engineering industry, and as a result, preferences for domestic vehicle manufacturers were abolished. In addition, there was a lack of consistent and active government action to prevent the crisis in the automotive industry.

Given the set of factors, influencing the automotive industry of Ukraine in the study conducted a SWOT-analysis, which provided a comprehensive understanding of the processes taking place in the industry. Based on it, there have distinguished such necessary measures as attracting foreign investment in the automotive industry through the formation of a favorable investment climate; activation and stabilization of state support for the industry; improving product quality by modernizing production, as well as through the introduction of new technologies.

## Summary

Investigating current state and development trends of the automotive market in Ukraine, authors highlighted the most important trends in this market for 2016-2021, assessed the state of the automotive industry in Ukraine. Proximity to the border with the EU, cheap labor and sufficient raw materials make Western oblasts of Ukraine attractive to partners of European auto giants. In Ukraine, small parts are made for almost all European cars, including premium brands. These are mostly parts that require a lot of manual work, such as laying cable networks or sewing car seats. That's why Zakarpattia (Transcarpathia), Lviv and Volyn regions are the most attractive for production capacity placement and the volume of revenue turnover and number of employees there are bigger compare to other regions.

Although there is currently no automotive cluster in Ukraine, there are prerequisites for its creation in the Transcarpathian region on the basis of PJSC "Eurocar", which according to the integrated assessment has the highest innovation and investment potential among Ukrainian automakers.

Prospects for the creation of such a cluster in the Transcarpathian region were discussed in May 2018 at the Round Table, organized by the Federation of Employers of Ukraine and Eurocar with the assistance of the German-Ukrainian Chamber of Commerce. The participants of the meeting noted that the precondition for the cluster development in Transcarpathia could be the already formed pool of large car players - Eurocar, Jabil Circuit, Yazaki, Grocklin-Karpaty, Ungweier, Tochprilad, Flex, Fischer, Forscher, Gentherm Incorporated. Currently, a large number of companies operating in the Transcarpathian region produce products for the automotive industry. Therefore, the region in practice is a center of cluster initiative and a pioneer in the development of the cluster of the automotive industry and other high-precision industries. Thus, the further scientific investigations may focus on opportunities for creating an automotive cluster in Ukraine in collaboration with leading European partners. Taking into account the instability of oil product markets, the existence of the need to increase the level of environmental friendliness, there is a need to focus attention on the production of electric vehicles as well.

## Literature

1. Shevchenko I. Yu. (2019) *Rehuliuвання розвитку avtomobilebuduvannya Ukrainy: monohrafiia* (Regulation of automobile development of Ukraine: monograph). Kharkiv: KhNADU. 556 p.
2. Savelyev Y., Kuryliak V., Darvidou K., Lyzun M., Lishchynskyy I. (2021) Transformation of Ukrainian Automotive Industry in the Context of Electromobility: Applying the Experience of Visegrad States. *IV International Scientific Congress "Society of Ambient Intelligence – 2021" (ISCSAI 2021)*. SHS Web Conf., Volume 100. <https://doi.org/10.1051/shsconf/202110001018>
3. Wayland M. (2022). Russia's invasion of Ukraine will lower car production by millions of units over two years, S&P says. <https://www.cnbc.com/2022/03/16/russian-ukraine-war-to-lower-car-production-by-millions-of-units.html> (accessed 29.06.2023)
4. Tucha O., Spivak I., Bondarenko O., Pogarska O. (2022). Impact of Ukrainian Migrants on Economies of Recipient Countries. [https://bank.gov.ua/admin\\_uploads/article/Migration\\_impact\\_2022-12-15\\_eng.pdf?v=4](https://bank.gov.ua/admin_uploads/article/Migration_impact_2022-12-15_eng.pdf?v=4) (accessed 29.06.2023)
5. International Organization of Motor Vehicle Manufacturers. Production statistic. <https://www.oica.net/production-statistics/> (last accessed: 26.06.2023)



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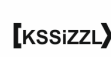
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## **EMPLOYEE WELL-BEING VERSUS REMOTE WORK – OPINIONS OF THE GENERATION Z EMPLOYEES**

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**Abstract:** The objective of this article is to present the opinions of Generation Z representatives on selected factors shaping the well-being of employees doing remote work. The empirical part of the study is based on the results of a survey carried out in 2022 among employees who are representatives of Generation Z. The results of the survey indicate that, according to young people from this generation, remote work provides a sense of comfort, reduces stress and enables greater independence at work. Furthermore, according to the respondents, remote work allows for a work-life balance. The results of the study show that young people from Gen Z do not perceive any threats to the well-being of employees doing remote work among the factors analysed.

**Keywords:** employee well-being, Generation Z, remote work, work-life balance

### **Introduction**

Employee well-being generally understood, refers to the employee's satisfaction, well-being, sense of comfort in both work and non-work activities (Marcinkowski 2017, p. 42). The idea of developing employee well-being is linked to the primary objective of human resource management, which is to provide the company with staff with the right skills and predispositions to work effectively and to create working conditions that encourage employees to stay with the organisation. An implementation of this idea in management covers corporate wellness programmes treated as long-term organisational activities that support the physical, mental and social well-being of employees (Lichwa 2008, p. 39; Burke, Richardsen 2014, p. 8). The issue of work-life balance is closely linked to employees' sense of well-being. Shaping work-life balance (WLB) is about employees having an impact in how much time, when and where they spend on work-related tasks and activities relating to their non-work life (Greenhaus, Collins, Show 2003, pp. 510-531). Particularly for Gen Z employees, the ability to exercise a kind of autonomy in this area relates not only to quality of work but also to quality of life in general.

The objective of this article is to present the opinions of Generation Z representatives on selected factors shaping the well-being of employees doing remote work. The empirical part of the study presents the results of a survey conducted among young people representing Generation Z. The survey was carried out using quantitative research methods, employing a survey technique. The study conducted posed the following research problem: How do the representatives of Gen Z perceive the impact of remote work on shaping employee well-being? In the study, a number of specific problem questions about employee well-being, including work-life balance, in relation to remote work were asked.

### **Employees' well-being – basics of the research issue**

Well-being in the context of work is defined as a situation in which the balance of emotions felt by the employee is positive and when the employee's own work (in a given organisation, with a given employer) is felt to be satisfying (Boniwell, Henry 2007, pp. 3-18). The key factors regarding employee well-being are related to:

- matching the people employed, in terms of their competences and personality traits, to the nature of the work they do and the tasks assigned to them;
- working conditions and the ability of employees to set goals, make decisions and solve problems (Syper-Jędrzejak 2019, pp. 21-22).



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Applying the idea of wellness in human resource management is based on the premise that an employee's psycho-physical state translates into his or her effectiveness and commitment at work. In this context, corporate wellness is understood as a healthy lifestyle for employees, leading to well-being and psycho-physical harmony and thus ensuring maximum efficiency at work.

According to Syper-Jędrzejak (2019, pp. 10-11) employee well-being can be analysed in relation to its two pillars - physical well-being and the broadly-defined balance of employees. Physical well-being consists of: ergonomics of the workplace and work organisation, as well as the health protection of employees, and a health-promoting lifestyle. On the other hand, employee balance in a broad sense includes: taking care of internal balance and stress prevention, and shaping work-life balance, as well as supporting the development of non-work interests.

The emphasis on employee balance in the broadest sense is linked to the belief that, in addition to physical health, an employee's mental and social well-being is also important, enabling them to establish satisfying relationships and solve problems constructively (Strykowska 2009, p. 187). As the issue of work-life reconciliation affects every working person, regardless of their age, the result is that there is a wide variety of attitudes to the problem (Chen, Powell, Greenhaus 2009, pp. 510-531).

The method in which individuals from a given generation approach work-life balance issues is influenced by a number of factors, including: technological development, economic, social and cultural changes, as well as the life experiences common to many individuals from a given generation. However, how the representatives of a particular generation perceive the work-life balance is crucially influenced by their attitudes towards work and the place that work, family and leisure occupy among the values they follow (Beutell, Witting-Berman 2008, pp.507-523; Robak 2017, pp. 569-584).

The relationship between work and non-work life is of particular importance for representatives of the youngest Generation Z on the labour market. Employees of this generation are perceived to place a high value on their private lives and, as a result, they expect freedom and flexibility at work to maintain a work-life balance (Singh, Dangmei 2016, pp. 1-5; Dolot 2018, pp. 44-50). Nowadays, managing the remote work of Generation Z employees is of particular importance, as these individuals are not only aware of their expectations in terms of professional and personal priorities, but are also able to defend the boundary between these two areas of life (Sanchez et al. 2021, pp. 67-100). A high degree of separation between time spent at work and time spent in private life is extremely important to these young workers and, as a result, they are willing to take advantage of the various work-life balance programmes offered by the company.

Shaping the well-being of employed people, including but not limited to dealing with work-life conflict, is supported by the proactive approach of companies that recognise that this has a major impact, not only on employee satisfaction and the atmosphere at work, but also on their motivation and the quality of their tasks (Dąbrowska 2014, pp. 41-53). Corporate wellness measures involve both education and competence development for employees in various areas (physical activity, healthy eating, work-life balance, stress management) so that they can use their full potential and feel satisfied at work and in life (Burke, Richardsen 2014, p. 8). By initiating measures to promote employee well-being, organisational relationships are shaped that foster employees' feelings of security, psychological well-being and opportunities for professional development, while at the same time building respect and trust in the employer. A corporate image, built by implementing initiatives that meet the needs of the people employed, not only makes it possible to attract and retain talented employees, but sustains their commitment at the desired level and allows them to use their personal resources effectively.

## Research methodology

The research results presented in this paper are part of a quantitative survey study entitled: "Managerial aspects of remote work management". The study was carried out by Fieldstat sp. z o.o., a specialised market research agency, using quantitative research methods, CATI (Computer Assisted

Telephone Interview 50% of respondents) and CAWI (Computer-Assisted Web Interview 50% of respondents). Ultimately, 387 correctly completed questionnaires were obtained. The survey was conducted in December 2022 among young people, working remotely, representing Generation Z.

The used research tool (questionnaire) was a proprietary survey and was prepared by a research team consisting of staff from the Department of Applied Sociology and Human Resource Management, Faculty of Management, Czestochowa University of Technology. The research tool used was a standardised questionnaire consisting of 57 closed statements and seven questions on the social and demographic characteristics of the respondents and their workplace variables. A five-point Likert scale was used for responses.

The excerpt from the survey results presented here relates to the respondents' views on the impact of remote work on employee well-being. The study conducted posed the following main research problem: How do Generation Z employees perceive the impact of remote work on employee well-being? The study also posed a number of specific problem questions:

- in the opinion of Generation Z, does remote work make the employee comfortable?
- in the opinion of Generation Z, is remote work conducive to stress-free working?
- in the opinion of Generation Z, does remote work allow for more freedom/independence at work?
- in the opinion of Generation Z, does remote work allow for work-life balance?
- in the opinion of Generation Z representatives, does remote work help to protect the boundary between work and private life?
- in the opinion of Generation Z representatives, does remote work disrupt the rhythm of the day and night?

## Results and discussion

A total of 387 people participated in the study, including 163 (42.12%) women and 224 (57.88%) men. The Generation Z employees participating in the study varied in terms of age. The least numerous were the youngest people: 76 (19.64%), between the ages of 15 and 24. The following age categories were represented by: 141 (36.43%) of people between 25 and 29 years of age, and 170 (43.93%) of people between 30 and 34 years of age. Employees with various levels of remote work experience took part in the survey. The majority of respondents - 296 people (76.49%) - held executive roles. The remaining respondents - 91 people (23.51%) were employed in managerial roles. Taking into consideration the size of the organisation where the respondents performed their remote work, micro organisations (with 1-9 employees) dominated with 182 (47.03%) indications, followed by small organisations (with 10 to 49 employees) with 86 (22.22%) indications, large organisations (more than 250 employees) with 64 (16.54%) indications, and medium organisations (50 to 249 employees) with 55 (14.21%) indications. Respondents also represented organisations that varied in terms of industry.

With regard to the issue under consideration, a number of indicators were selected from the entire research material to represent respondents' opinions regarding the impact of remote work on the employees' sense of well-being.

The question regarding the perception of Gen Z representatives of their sense of comfort when working remotely was directly linked to the key research problem. People who participated in the survey were mostly convinced that the employee was comfortable doing work remotely. As many as 65.12% of respondents agreed with this statement (including almost one in four respondents who strongly agreed, 24.03%). Only 11.89% of respondents presented the opposite opinion, and 23% did not give a clear answer. The survey participants were also asked whether remote work promotes stress-free working. By far, the largest number of respondents (64.08%) confirmed the positive impact of remote work on reducing the perception of work-related stress. The remaining respondents were divided between those opposed to this statement 10.34%, and those with no clear opinion on the issue 25.58%. Furthermore, when asked whether remote work allows for more freedom/independence, respondents

also had positive opinions in this regard. The majority of respondents, 66.41%, presented the view that remote work allows employees to feel a greater sense of independence when compared to office work (of which 47.79% strongly agreed with this statement). Only 11.63% of respondents presented the opposite opinion and 21.96% were undecided on the issue (see Table 1 for a detailed breakdown of respondents' answers).

*Table 1. Percentages of answers in the field of remote work*

Remote work	strongly disagree	mostly disagree	neither agree nor disagree	mostly agree	strongly agree
makes the employee feel comfortable	3,36%	8,53%	23,00%	41,09%	24,03%
conducive to stress-free work	3,10%	7,24%	25,58%	34,63%	29,46%
gives more freedom/independence at work	2,33%	9,30%	21,96%	42,38%	24,03%
allows to reconcile work and private life	4,91%	14,99%	26,10%	40,83%	13,18%
allows to protect the border between work and private life	5,17%	15,25%	25,58%	34,37%	19,64%
disturbs the rhythm of day and night	17,31%	30,75%	18,09%	25,58%	8,27%

Source: own study

Questions regarding the work-life balance possibilities of remote workers were also related to the research problem under consideration. As can be seen from the data obtained, the majority of Generation Z employees surveyed, stated (54.01% of indications) that remote work allows for a work-life balance. Of these, 40.82% tended to agree with the statement and 13.18% completely agreed. Only 19.9% of respondents presented the opposite view and 26.1% gave no clear answer on this issue.

Additional light is shed on the assessment of the impact of remote work on work-life relations by respondents' answers regarding other factors impacting the formation of work-life balance. When asked whether remote work supports the protection of the work-life boundary, respondents were mostly (54.01%) positive about such a statement. Only 20.41% of respondents perceived a disadvantageous impact of this form of work, and one in four respondents (25.58%) did not express a clear opinion on this issue. In addition, respondents were critical of the statement indicating that remote work disrupts the rhythm of day and night (blurring the boundaries between different times of day and the behaviours attributed to them). However, this opinion was expressed by fewer respondents (48.06%) - relative to the other issues analysed. As many as 33.85% of those surveyed were of the opposite opinion and 18.09% were undecided on the issue (Table 1). This situation means that, while Generation Z employees have a positive perception of the relationship between remote work and work-life balance, their opinions are more divided regarding the impact of remote work on maintaining day and night rhythms.

The information obtained from the survey corresponds to research conducted by various authors on employee well-being and, in particular, on factors affecting work-life balance, as described in the literature on this subject. The respondents' reported assessments of the impact of remote work on feelings of independence and work-life balance relate positively to other studies on the subject. The beneficial impact of work autonomy on the development of work-life balance has been confirmed in numerous studies (Haar et al. 2019, pp. 261-282). However, as research analyses indicate, remote work can cause both positive and negative consequences on work-life balance (Stankeviciute, Kunskaia 2022, pp. 221-235).

## Conclusions

The research carried out indicates that representatives of Generation Z have a positive view of remote work in relation to the analysed factors shaping employee well-being. Those who participated in the survey were mostly convinced that the employee was comfortable doing the work remotely. Additionally, young respondents representing Gen Z were of the opinion that remote work enables employees to feel more



independent when compared to office work. It is also noteworthy that respondents emphasised the positive impact of remote work in reducing the perception of work-related stress.

According to an analysis of the data obtained from the survey, the representatives of Generation Z mostly believed that remote work allows for a work-life balance. Furthermore, respondents were of the opinion that remote work helps to retain the boundary between work and private life. Nevertheless, it should be noted, that the respondents also presented some critical views of remote work and pointed out its potentially dangerous aspects in terms of disrupting day and night rhythms – and thus disrupting the boundaries between different times of day and the behaviours attributed to them.

By presenting the opinions of young people from Generation Z, the results of this research provide a better understanding of their needs in terms of shaping their well-being and, in particular, the right work-life balance in the context of remote work. Thus, they can serve as a basis for reflection and managers taking actions to improve both the effectiveness in performing professional tasks by these young employees and the quality of their private lives. In this context, however, the crucial importance of good continuous communication with superiors and co-workers should be emphasised, which enables support in problems related to building the right work-life relationship and, moreover, develops a sense of employee well-being, which is so important for Generation Z employees.

## References

1. Beutell N., Witting-Berman U. (2008), *Work-family conflict and work-family synergy for generation X, baby boomers, and matures*, "Journal of Managerial Psychology", Vol. 23, Issue 5, pp.507-523.
2. Boniwell I., Henry J. (2007), *Developing conceptions of well-being: Advancing subjective, hedonic and eudaimonic theories*, "Social Psychology Review", No. 9(1), pp. 3-18.
3. Burke R., Richardsen A. (eds.) (2014), *Corporate Wellness Programs: Linking Employee and Organizational Health*, Edward Elgar Publishing, Cheltenham.
4. Chen Z., Powell G., Greenhaus J. (2009), *Work to family conflict, positive spillover, and boundary management: A person-environment fit approach*, "Journal of Vocational Behavior", Vol. 74, No. 1, pp. 82-93. <https://doi.org/10.1016/j.jvb.2008.10.009>.
5. Dolot A. (2018), *The characteristic of Generation Z*, „E-mentor”, Vol. 2,(74), pp. 44-50, <http://dx.doi.org/10.15219/em74.1351>.
6. Greenhaus J.H., Collins K.M., Show, J.D. (2003), *The relation between work-family balance and quality of life*, „Journal of Vocational Behavior”, No. 63(3), pp. 510-531, doi: [http://dx.doi.org/10.1016/S0001-8791\(02\)00042-8](http://dx.doi.org/10.1016/S0001-8791(02)00042-8).
7. Dąbrowska K. (2014), *Programy na rzecz równowagi życia zawodowego i rodzinnego*, „Annales. Ethics In Economic Life”, Vol. 17, No. 2, pp. 41-53.
8. Haar J.M., Sune A., Russo M., Ollier-Malaterre A. (2019), *Cross-national study on the antecedents of work-life balance from the fit and balance perspective*, „Social Indicators Research”, Vol.142(1), pp. 261-282. doi: 10.1007/s11205-018-1875-6.
9. Lichwa P. (2008), *Pod ochronnym parasolem*, „Personel i Zarządzanie”, No. 8, p. 39-41.
10. Marcinkowski J. (2017), *Rola edukacji z zakresu bezpiecznych warunków pracy w kształtowaniu dobrostanu pracowniczego*, „Zeszyty Naukowe Małopolskiej Wyższej Szkoły Ekonomicznej w Tarnowie”, T. 35, No. 3. pp. 42-51.
11. Robak E. (2017), *Expectations of generation Y connected with shaping the work-life balance. The case of Poland*, „Oeconomia Copernicana”, No. 8 (4), pp. 569-584.
12. Sanchez D.G., Parra N.G., Ozden C., Rijkers B., Viollaz M., Winkler H. (2021), *Who on Earth Can Work from Home?*, „The World Bank Research Observer”, Vol. 36, Issue 1, pp. 67–100, doi.org/10.1093/wbro/lkab002.
13. Singh A.P. Dangmei J. (2016), *Understanding the Generation Z: The Future Workforce*, “South-Asian Journal of Multidisciplinary Studies”, No. 3, pp. 1-5.
14. Stankeviciute Z. Kuskaja S. (2022), *Strengthening of work-life balance while working remotely in the context of COVID-19 pandemic*, „Human Systems Management”, No. 41, pp. 221-235. doi: 10.3233/HSM-211511.
15. Strykowska M. (2009), *Dobrostan pracowników a zarządzanie współczesnymi organizacjami*, „Ruch Prawniczy, Ekonomiczny i Socjologiczny”, No. 71, pp. 187-194.
16. Syper- Jędrzejak M. (2019), *Corporate wellness w organizacji. Uwarunkowania, model wymiarów działań, możliwości rozwoju*, Wydawnictwo Uniwersytetu Łódzkiego, Łódź.



## THE INCORPORATION OF OPEN DATA IN THE DEVELOPMENT OF THE SMART CITY

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**Abstract:** The development of technology and the progress of digitization have made smart cities a direction of development for many cities worldwide, including Poland. This concept refers to cities where innovative technologies and data are utilized to enhance the efficiency of city operations and improve the quality of life for residents. In this regard, open data from public administrations are one of the key elements of smart city development, which can be leveraged by programmers and other specialists to create applications and tools that help address urban challenges.

In this study, after providing a theoretical overview of the subject, an analysis of secondary data from reports will be conducted (Dane.gov.pl/..., 2020-2022). The focus was on diagnosing the "open data" processes in Polish public administrations. The aim of the undertaken study was to determine the state of public data availability for reuse in Poland, identifying the reasons behind the current level of data accessibility, and providing forecasts for the near future.

**Key words:** management, open data, smart city

### Introduction

In order to increase efficiency and improve the quality of life for residents through the utilization of modern technologies and data analysis, an increasing number of cities are now focusing on the development towards smart cities. One of the key elements in this process is open data from public administrations, which allow for a more precise and comprehensive approach to city development.

Open data refer to publicly available information that can be used by anyone without restrictions, forming the basis for creating innovative solutions. In the context of smart cities, open data from public administrations enable a thorough analysis of residents' needs and the identification of areas that require improvement. This allows for more efficient city management by delivering public services that are better tailored to the needs of residents.

Open data are also crucial in the context of developing new technological solutions. Access to public data enables a better understanding of how cities function, thereby facilitating the creation of more precise tools and applications that can help address various issues (e.g., optimizing traffic flow, reducing pollution and noise levels, creating queuing systems, etc.) (Tura, Ojanen, 2022; Sa'nchez-Corcuera et al., 2019, p. 9).

It is worth noting that open data bring benefits not only to the public sector but also to private companies and investors. Access to data allows for a better understanding of residents' needs and preferences, enabling the creation of more tailored products and services. Open data also encourage investment in the city, which has a positive impact on its sustainable economic development (Manimuthu, Dharshini, 2020, p. 1).

In Poland, since August 2021, there has been a law on open data in force, which imposes an obligation on public administration units to provide data on the Dane.gov.pl platform in a dynamic manner and through APIs. This is a milestone in the development of open data in Poland, which will help in utilizing them for building smart cities (Dz.U. 2021 poz. 1641).

However, the level of engagement of public administration units in providing so-called open data may vary, which is why the aim of this study will be to determine the current state of affairs in this matter and identify its causes and possible measures supporting the "open data" processes. To achieve these research objectives, secondary data analysis was conducted based on reports prepared by the "Data Management Department Expert Team of the Chancellery of the Prime Minister" regarding the reuse of public data in Poland. (Dane.gov.pl/..., 2020-2022).

## What are open data?

Open data are data that can be freely used, reused, and distributed by anyone, provided that the sources are attributed and the data are shared under the "share and rule" principle.

The data must be available in their entirety and should not exceed reasonable reproduction costs. Ideally, they should be provided in a convenient and modifiable format. Additionally, the data must be provided on terms that enable their reuse and redistribution, including blending with other datasets. No one should be discriminated against based on fields of activity or individuals or groups. Examples of open data include government statistics, weather data, and financial information. It is essential to be clear about the definition of open data to ensure interoperability, which is the ability of different systems and organizations to collaborate, allowing the integration of different datasets to develop more advanced products and services. Focusing on providing non-personal data that do not contain information about specific individuals is crucial. However, certain types of government data may be subject to restrictions related to national security (Open Data Handbook).

In Poland, open data are collected and provided by various institutions and organizations, both public and private. The most important ones include:

1. The Service of the Republic of Poland - <https://dane.gov.pl>
2. The Central Statistical Office - <https://stat.gov.pl>
3. The National Digital Archives - <https://www.nac.gov.pl>
4. The Bulletin of Public Information - <https://www.gov.pl/web/bip>
5. The Geoportal of Spatial Information Infrastructure - <https://www.geoportal.gov.pl>

When it comes to data provided by the Central Statistical Office (GUS), Poland holds a very high position in the Open Data Inventory (ODIN) ranking in terms of open data availability. In 2022, Poland once again ranked 2nd in the world out of 192 countries. This ranking takes into account the accessibility and openness of data published by national statistical offices (GUS, 2023).

## Legislation regarding open data in the public administration in Poland

EU law has been mandating the provision of open data in member states since the 1990s.

In 2019, the EU Council adopted the latest directive on open data and the reuse of public sector information, which replaces the previous directive from 2013 and introduces more stringent standards regarding openness and the reuse of public sector data (DIRECTIVE (EU) 2019/1024).

In Poland, the process of creating regulations governing the sharing and re-use of data in the public sector has been ongoing since the 1990s, as in the EU. Examples of such laws include the "Code of Practices for Accessible Intranet Offices" and the "Code of Practices for Tax Office Work".

In 2021, the latest laws on the reuse of public sector information (ISP) were adopted. These laws implement EU regulations on open data in Poland. The laws establish rules regarding the provision and reuse of public data and require public entities to create data provision plans. They also introduce the obligation for public entities to publish information about data that is not available in an open manner, along with an explanation of why this is the case. Additionally, the laws introduce new penalties for violations of provisions related to the provision and reuse of public data, such as financial fines or contractual penalties (Dz.U. 2021 poz. 1641).

The most important platform for presenting and sharing open data from administrative units in our country (Local Government Units – LGUs; abbreviation in Polish - JST) is the Republic of Poland Service (portal: Dane.gov.pl).

Data are made available here free of charge in a static manner: in the form of downloadable files with interactive tables, charts, and maps.

The website also enables dynamic data sharing through the use of an API (Application Programming Interface). This is a set of rules, protocols, and tools that enable programs to communicate with each other and exchange data (Standard API, [www.gov.pl/...](http://www.gov.pl/); Manimuthu et al., 2021).

Both EU and Polish legislation in this area aim to facilitate access to public information and increase the use of public data, which are important steps towards improving the quality of life for citizens and promoting a knowledge-based economy.

### The idea of a smart city

In Polish, the most commonly used translations are "intelligent city" or "wise" and the English adjective "smart" (Gotlib, Olszewski, 2016; Stawasz, Sikora-Fernandez, 2015). Research conducted in the United Kingdom has shown that only 4% of the surveyed residents were able to name a local initiative that meets the standards of a smart city (Ryba, 2017). The word "smart" in the context of devices is translated as "intelligent," but the concept of a smart city is not limited solely to the technological aspect (Kaur, Maheshwari, 2016, pp. 1-5). Using the original English adjective is justified because it is already widely used and has the potential to become part of the Polish language. With the above in mind, I propose translating the definition of a smart city into Polish as "a city tailored to fit" because the solutions implemented in it should be like a tailor-made suit, as not all IT, technical, and technological solutions are necessary or suitable for a particular city on various scales (ChuanTao et al., 2015, p. 4).

Open data are essential elements of the smart city concept, enabling the collection, analysis, and utilization of information about the city in an efficient and accessible manner for all interested parties. This allows city residents to better understand how their environment functions and identify the problems that need to be addressed (Jara, Genoud, Bocchi, 2014).

In the development of smart cities, various types of data are utilized, such as data on traffic flow, air quality, energy consumption, water consumption, and data on public services like public transportation, healthcare, and education. These data originate from different sources, including sensors, traffic management systems, air quality monitoring systems, as well as Internet of Things (IoT) devices such as smart energy meters and urban transportation-related devices (Azrour, Mabrouki, Guezzaz, Kanwal, 2021).

Sharing this information and data also has a positive impact on citizen participation in the city management process as it allows them to actively engage in decision-making and implementing changes. The openness of data also enables collaboration among different institutions, leading to better resource utilization and coordination of city-level actions (Nuaimi et al., 2015, p. 11).

### Research methodology

In this study, a secondary data analysis method was used based on data from three reports prepared by the "Expert Team of the Department of Data Management at the Chancellery of the Prime Minister" on the reuse of public data in Poland (Dane.gov.pl/..., 2020-2022).

Report No. 1 (N=84): A report on a study regarding the provision of dynamic data by cities through Application Programming Interfaces (APIs) - (the study was conducted in 2021 prior to the implementation of the Act on Open Data and Reuse of Public Sector Information - Dz.U. 2021 poz. 1641). The aim was to analyze the extent of dynamic data provision by Polish cities through Application Programming Interfaces (APIs) (Report No. 1, 2021);

Report No. 2 (N=96): Experiences of Local Government Units (LGUs) in data provision and utilization - a report on a study conducted in Local Government Units (carried out from October 3 to November 10, 2022, i.e., after the implementation of the Act). The aim of the study was to assess the level of advancement in the process of opening data in LGUs at the level of county offices and voivodeship assemblies (Report No. 2, 2022);

Report No. 3 (N=384): Evaluation of the Dane.gov.pl portal - a report on a study conducted among users of the portal. The online research was carried out from May 22, 2020, to January 18, 2022 (the survey was placed on the Dane.gov.pl portal) (Report No. 3, 2020-2022);



The purpose of this study is to indicate the state of availability of public data for reuse in Poland, to identify the reasons for the current levels of data availability, and to provide forecasts for the near future.

The state of availability and the dynamics of the data opening process, as well as the identification and description of actions taken in the area of sharing and reusing public data in Poland, will be determined by comparing the Research Reports before and after the implementation of the "Act of August 11, 2021 on Open Data and Reuse of Public Sector Information." On the other hand, the size of the market as well as the trends and preferences of users regarding the Dane.gov.pl portal will determine the path of forecasts for the future.

### Research analysis of Reports No. 1, 2, and 3

Based on the data presented in the reports from the research conducted on municipal public administration (regarding the provision of open data in API) and LGUs (provision in API and on the Dane.gov.pl portal, as well as dynamically), it can be concluded that:

- the majority of cities and LGUs do not provide their data through APIs: less frequently in cities (about 60%) and more frequently in LGUs (over 80%) when considering the combination of 53.1% 'no' responses and 29.2% of surveys with no responses;
- there is an observed trend that the larger the population served by the units, the more often they provide their public data through APIs (e.g., in cities with over 300,000 residents), 100% of units provide access; in cities with 40,000 to 299,999 residents, it ranges from 33.3% to 39%; whereas in LGUs, it is only 17.7%);
- in cities with a population of 40,000 residents or more, the most commonly provided data categories include: public transportation, air quality, address points, local spatial development plans, geodesy and cartography, environment, map services, tourism, and recreation. On the other hand, in LGUs, access is indicated for geodetic data (Geoportal), company teleaddress information (BIP), and queue management systems (kiosk-style ticket machines);
- in light of the new August 2021 Act on Open Data and Reuse of Public Sector Information, researchers from cities declare the following: 18.4% state that actions enabling the provision of dynamic data through APIs are already being implemented in their cities; 30.6% plan to take actions that will enable the provision of dynamic data in accordance with Article 24 of the Act; 40.8% express a desire to work towards the goal of data provision through APIs without specifying specific solutions; 10.2% do not have any planned actions; regarding the surveyed LGUs units that currently do not provide dynamic data: only one in twenty (5%) has taken actions towards providing dynamic data; 10.2% do not plan to take any actions to enable the provision of dynamic data through APIs (In the case of three cities, the reason was not specified);
- among the most frequently mentioned barriers (reasons) for non-provision of data by LGUs, the following are cited: lack of suitable tools, knowledge, and finances, as well as the demand for data. 90% of offices utilize their own data resources, while only about 10% of the surveyed units access data posted on the Dane.gov.pl portal;
- users of the Dane.gov.pl platform consider PDF as the most useful data format for them (47.7%), followed by: XLS, XLSX (38.3%), CSV (35.4%), JPEG, PNG format (26.6%), JSON (25%), XML (25%), and DOC, DOCX (23.4%). HTML (12%), RDF (5.7%), ODS (3.4%), while other formats received a combined 16.1%;
- 58.3% of users of the Dane.gov.pl portal consider access to data through APIs as significant; 14.4% of respondents find APIs less significant but still use them; and 27.3% do not consider APIs important as they do not utilize this method of data retrieval.



## Summary

The concept of a smart city initially referred to cities utilizing intelligent technology in urban services. This concept has been supplemented with additional dimensions, such as: Smart People or Citizens; Smart Governance; Smart Environment and Resource Management; Smart Homes, Buildings and Living; Smart Education; Smart Transportation, Parking and Traffic Lights; Smart Healthcare; Smart Grid and Energy; Emergency and Public Safety; Cybersecurity Management (Sarker, 2022). The implementation of smart products and services necessitates the development of additional dimensions.

Open data have the potential to support innovative technological solutions and increase citizen engagement in decision-making processes. Examples of smart cities show that they are cities with high mobility of residents, the adoption of solutions conducive to reducing carbon dioxide emissions and other pollutants, as well as green cities where people live healthier lives; in other places, by providing crime maps to the police, social engagement has contributed to a decrease in crime rates (Haarstad, Wathne, 2019).

The implementation of the smart city concept varies across different cities, influenced by a range of factors, including the availability and utilization of public data. However, it is worth noting that for the maximum benefit of residents from the development of smart cities, appropriate policies from authorities are necessary. To make data-driven decisions, authorities must move towards data sharing (Neves, de Castro Neto, Aparicio, 2020).

City managers, when selecting and deploying smart products and services, must think beyond inclusivity and avoid closing off their data to external businesses and individuals. Doing so would hinder their engagement in the development and life of these cities. Open data provide opportunities not only to respond to the needs of city residents and local businesses but also to facilitate the coordination of various activities, leading to cost reduction and profit maximization (Sarker, 2022, p. 6).

Even with limited financial resources, especially in smaller cities, local authorities should focus on implementing modern technology in urban products and services while considering long-term financial forecasts regarding available budgetary resources. An important tool for developing strategic city management for smart city development is access to public data. Obtaining information about the city, its population, and the functioning of public systems can support the development of more effective public policies and better organization of transportation and environmental protection (Bibri, 2018, pp. 2-3).

In conclusion, open data from public administrations play a crucial role in the development of smart cities. However, to effectively utilize this data, it is necessary for public administration entities to widely share it in accordance with applicable laws. Nevertheless, simply sharing data by public administrations is not sufficient for smart city development. Broad social engagement and collaboration among the public, private, and academic sectors are also required to maximize the efficient and beneficial use of this data for the well-being of city residents.

The implementation of an open data policy should be preceded by appropriate training for residents to understand the benefits and significance of data sharing. Additionally, adequate tools and processes should be provided to ensure the effective and ethical utilization of this data.

## Literature

1. Al Nuaimi et al. (2015), *Applications of big data to smart cities*, Journal of Internet Services and Applications, 6:25.
2. Azrou M., Mabrouki J., Guezzaz A., Kanwal A. (2021), *Internet of Things Security: Challenges and Key Issues*, Hindawi, Security and Communication Networks, Volume 2021, Article ID 5533843, 11 pages.
3. Bibri S.E. (2018), *Backcasting in futures studies: A synthesized scholarly and planning approach to strategic smart sustainable city development*, European Journal of Futures Research, 6(1), 13.
4. ChuanTao Y. et al. (2015), *A literature survey on smart cities*, Sciece China. Information Sciences, Vol. 58, 100102:4.
5. Dane.gov.pl... (2020-2022); <https://dane.gov.pl/pl/knowledgebase/useful-materials/raport-z-badania-wsrod-przedsiębiorcow-na-temat-wielkosci-i-charakterystyki-rynku-ponownego-wykorzystania-danych-publicznych-w-polsce> (access: 03.04.2023).



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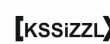


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6. DIRECTIVE (EU) 2019/1024; <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=>
7. CELEX:32019L1024 (access: 16.05.2023).
8. Dz.U. 2021 poz. 1641, Act of 11 August 2021 on Open Data and Reuse of Public Sector Information; This Act came into force on 8 December 2021; <https://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20210001641/U/D20211641Lj.pdf> (access: 03.04.2023).
9. Gotlib D., Olszewski R. (2016), *Smart City. Informacja przestrzenna w zarządzaniu inteligentnym miastem*, Wydawnictwo Naukowe PWN, Warszawa.
10. GUS (2023); <https://stat.gov.pl/aktualnosci/polska-kolejny-raz-w-czolowce-rankingu-open-data-inventory,481,1.html> (access: 05.05.2023).
11. Haarstad H., Wathne M.W. (2019), *Are smart city projects catalyzing urban energy sustainability?*, Energy Policy, 129, 918–925; [http://g.ekspert.infor.pl/pl/\\_dane/](http://g.ekspert.infor.pl/pl/_dane/)
12. akty\_pdf/DZU/2022/117/902.pdf#zoom=90 (access: 03.04.2023).
13. Jara A.J., Genoud D., Bocchi Y. (2014), *Big data in smart cities: from Poisson to human dynamics*, [in:] Proceedings of 28th International Conference on Advanced Information Networking and Applications Workshops, Victoria, 785–790.
14. Kaur M.J., Maheshwari P. (2016), *Building smart cities applications using IoT and cloud-based architectures*, [in:] 2016 International Conference on industrial informatics and computer systems (CIICS), IEEE, p. 1–5.
15. Manimuthu A., Dharshini V. (2020), *Framework for load power consumption in Han using machine learning and IoT assistance*, IEEE Design Test, pp. 1–1.
16. Manimuthu A., Dharshini V., Zografopoulos I., Priyan M.K., Konstantinou Ch. (2021), *Contactless Technologies for Smart Cities: Big Data, IoT, and Cloud Infrastructures*, SN Computer Science, 2:334, p. 5.
17. Neves F.T., de Castro Neto M., Aparicio M. (2020), *The impacts of open data initiatives on smart cities: A framework for evaluation and monitoring*, Cities, 106, Article 102860.
18. Open Data Handbook - a free online guide to open data and how to use it; <https://opendatahandbook.org/> (access: 24.04.2023).
19. Report No. 1 (2021); [https://cms.dane.gov.pl/documents/63/Raport\\_dane\\_dynamiczne\\_w\\_m](https://cms.dane.gov.pl/documents/63/Raport_dane_dynamiczne_w_m)
20. iastach.docx (access: 03.04.2023).
21. Report No. 2 (2022); [https://cms.dane.gov.pl/documents/117/JST\\_2022\\_Raport\\_z\\_badania\\_](https://cms.dane.gov.pl/documents/117/JST_2022_Raport_z_badania_)
22. final.docx (access: 03.04.2023).
23. Report No. 3 (2020-2022); [https://cms.dane.gov.pl/documents/103/Ocena\\_portalu\\_Dane.gov.pl\\_raport\\_z\\_badania.DOCX](https://cms.dane.gov.pl/documents/103/Ocena_portalu_Dane.gov.pl_raport_z_badania.DOCX) (access: 03.04.2023).
24. Ryba M. (2017), *What as A 'Smart City' Concept and How We Should Call It in Polish?*, Research Papers of Wrocław University of Economics, nr 467.
25. Sa´nchez-Corcuera R. et al. (2019), *Smart cities survey: Technologies, application domains and challenges for the cities of the future*, International Journal of Distributed Sensor Networks, Vol. 15(6), p. 9.
26. Sarker I.H. (2022), *Smart City Data Science: Towards data-driven smart cities with open research issues*, Internet of Things 19, 100528, pp. 8-10.
27. Standard API dla udostępniania danych; <https://www.gov.pl/web/popcwsparcie/standard-api-dla-udostepniania-danych> (access: 28.04.2023).
28. Stawasz D., Sikora-Fernandez D. (2015), *Zarządzanie w polskich miastach zgodnie z koncepcją smart city*, Wydawnictwo Placet, Warszawa.
29. Tura N., Ojanen V. (2022), *Sustainability-oriented innovations in smart cities: A systematic review and emerging themes*, Cities 126, 103716.



## THE IMPORTANCE OF WELLBEING ACTIVITIES IN THE PERSPECTIVE OF EMPLOYEES

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**Abstract:** The purpose of this document is to present the partial results of the research carried out by increasing wellbeing activities in Świętokrzyskie province companies and to evaluate their perception and importance by employees – the young engineers (24-35 years) the most desirable on the local, national and international labour market professions such as Informatics, Programming, Automatics and Robotics, Data engineering, Production Support and other based Wellness ‘can be defined as the state of an individual or group characterized by health, happiness and prosperity and wellness is at the heart of an organization’s responsibility towards its employees. It is believed and proven that healthy employees have a positive impact on their organizations and societies when they engage in meaningful activities for the greater good’. This is therefore crucial for companies and employees to undertake the activities that have the greatest influence on the wellbeing of general employees and on the balance and effectiveness of the company. The survey was conducted between January 2021 and April 2023 (and is still being conducted) using the CAPI online questionnaire. The main research questions referred to the awareness of employees of employers' activities and the individual evaluation of the perception and importance of social activities carried out in the company and their relations to the level of personal commitment (no later stage). The results allow us to conclude that in some cases the wellbeing solutions and implemented activities are rather time and money consumers and are then linked to real and desirable needs of employees.

**Key words:** activities, importance rate, recognitions rate, policy of wellbeing, wellbeing

### Introduction – Wellbeing Importance and Implementation in Surveys

Since 2018, the concept of wellbeing has been reported as the most important trend in human resources management. It is declared to be the most powerful factor of employee effectiveness and the most important factor in the engagement and professional experience of employees, ‘As the line between work and private life blurs, employees expect companies to expand their benefits offering with a range of programmes for mental health, physical health, spiritual development and financial wellbeing. To meet these expectations, employers invest in employee programs, which are also part of a corporate social responsibility and talent development strategy’ (Raport Trendy HR 2018). In 2019, the tendency to focus on the wellbeing of employees was still discussed as a need to build and improve the quality of employees' experiences based on the sense of the meaning of the work that was done (Raport Trendy HR 2019). Since the outbreak of the COVID-19 pandemic, welfare activities have gained maximum importance as new working conditions have emerged. The most commonly observed costs of pandemics are:

- a significant proportion (78%) of respondents admit that the outbreak caused employees in their organizations to temporarily or completely switch to remote work,
- one-quarter of respondents indicated that their companies had reduced their salaries,
- revenue reduction, delay in contract implementation, disruption of supply chain
- the fourth respondent doesn't know what to expect with regard to his or her work by the end of the year (Badania Report: Jak radziły sobie firmy w pandemii i czego obawiają się pracownicy),
- ‘stress epidemic’ - the most important risk factors affecting the performance of companies around the world are emotional well
- growing awareness of the importance and sense of wellbeing and mental wellbeing, determined as a subjective feeling of the function of the unit, the perception and balance of life (Keyes, 2006). This feeling is demonstrated in two main ways: to enjoy and use your potential (Raport: Wellbeing mentalny pracowników w Polsce, Mindy 2021).



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In 2018, 63% of respondents defined the level of programmes to support the construction of wellbeing provided by Polish companies as only basic. If companies seek more advanced solutions, they usually give employees the opportunity to work at a remote location (43%), offer flexible working hours (54%), and often declare fitness costs (65%) reimbursements (Raport: Trendy HR 2018). Despite the great interest and many statements made by employers and experts in the area that support wellbeing employees, 47.9 per cent of respondents said that the approach of employers to health and wellbeing problems has not changed, and 19.3 per cent did not in this area. According to 1200 employees of Polish companies in 2020, attitudes and participation of employers in the wellbeing activities have been deemed to be the most important areas of health and security (more than 40% of respondents), and the lowest participation of employers is in relation to physical activity, personal development, social relationships and financial security (less than 20% of respondents). However, the most average percent of respondents indicated that employers were neutral or had undertaken only a few individual actions in terms of health protection, physical activities, fine fettle, sense of security, personal development, social relations, financial security, mental state, ergonomics. Finally, the final note was 3,3 points on 5 (maximum) for the employer's approach to employees' health and wellbeing (at the beginning of the new COVID-19 pandemic situation).

The most common and important barriers to the implementation of wellbeing activities and the low effectiveness of welfare actions caused by experts are mainly:

1. Unfair working culture and lack of leadership participation
2. The lack of transparency and accountability
3. Limited resources for mental health
4. Sub-standard quality of third-party resources and poor implementation
5. Insufficient involvement and knowledge among the support teams (Na zdrowie, Jak zadbać o kondycję zdrowotną pracowników, Well HR report, PWC).

An organizational culture that promotes the wellbeing of employees is a source of benefit for the company. Firstly, they allow you to reduce the absences of illness, presentations and fluctuations affecting costs in each organization. Other employers; benefits are:

1. The opportunity to hire a valuable candidate,
2. Lower cost of recruitment and selection process,
3. Increased effectiveness and performance,
4. More attractive image of the employer,
5. Higher levels of employees' satisfaction and engagement.

Due to experts' conclusion implementation of wellbeing program results the 25% lower absence and 2.5 times return on investment of companies investing in employees' health. What is more important almost 80% of job candidates pay attention whether employer implemented wellbeing strategy or not (Na zdrowie, Jak zadbać o kondycję zdrowotną pracowników, Well HR Report, PWC). The AON report published in cooperation with IPSOS confirms the link between wellbeing and company performance. The 2021 Global Wellbeing Survey found that improving employee wellbeing has an impact on customer satisfaction and retention (Table 1). It turns out, however, that single and unrelated initiatives give negligible results - it is crucial to develop a wellbeing strategy that allows for synergy between individual elements.

**Table 1. Relationship between wellbeing and business outcomes (Raport Global Wellbeing 2021)**

Business area	Increase in wellbeing results	Increased business results
Customer satisfaction and retention	3%	1%
Employee satisfaction	3,5%	1%
Customer acquisition	4%	1%
Company profit	4%	1%
Commitment to innovation	5%	1%
Net Promoter Score (NPS)	5%	1%
Employee engagement	5%	1%
Decrease in employee turnover	4%	1%

Source: Raport Global Wellbeing 2021, <https://www.aon.com/poland/risk/publikacje/raport-global-wellbeing-2021.jsp>

Globally, 82 per cent of companies surveyed said employee wellbeing is important, 87 per cent had at least one initiative, but only 55 per cent had a strategy, and only 24 per cent fully integrated wellbeing into their business and talent strategy (Raport Global Wellbeing 2021).

## The Survey Results

As well as the widespread discussion, research and implementation of wellbeing activities and strategies as a result of the outbreak of the COVID-19 pandemic, the question arises as to the extent to which they are recognized and important for a relatively specific category of employees - young engineers working in the IT sector as the most employable and desirable group of employees in the modern labour market. The study was launched in 2021 and is still underway, but the preliminary results should be discussed. The main research interests focus on two issues:

1. recognition of wellbeing activities performed by employers,
2. recognition of the importance of employee wellbeing activities.

The wellbeing activities have been defined on the basis of the most frequently summoned wellbeing dimensions and factors that compose the general sense of wellbeing of employees. The study was based on an online questionnaire. The presentation describes the results obtained during the research period from January 2021 to April 2023. The innovative nature of the research is related to the perspective adopted by the surveyed employees (bottom-up methodology) and results from a deviation from the traditionally conducted research on the field of wellbeing - focusing on the analysis of the needs of employees or the analysis of wellbeing activities carried out by employers. The result of this approach is the achievement of results showing to what extent the company's activities in the field of general wellbeing are first noticed (effectiveness of organizational communication, ability to promote the employer's brand and image), and then how important they are in relation to the employee categories studied. This research method allows the evaluation of:

- the effectiveness, relevance, appropriateness and importance of the actions taken
- in addition, it is possible to define and specify a welfare strategy and the implementation of such measures, which, at least in principle, are considered important and potentially effective. The first part of the survey was about general wellbeing activities defined as clear and fair employment regulations (Table 2).

**Table 2. The recognition of wellbeing activities implemented in the company**

Wellbeing activities	Yes		No		Do not know	
	N-121	%	N-121	%	N=121	%
counteracting discrimination and mobbing in the workplace, particular in:						
at the stage of recruiting employees	6	4,96	3	2,48	112	92,56
by creating a clear and transparent system of access to training	102	84,30	7	5,79	12	9,92
by creating a clear and transparent system of access to promotions	14	11,57	26	21,49	81	66,94
by creating a clear and transparent employee appraisal system	26	21,49	34	28,10	62	51,24
by creating a clear and transparent system of remuneration and rewards	23	19,01	34	28,10	64	52,89

Source: own survey

The results presented show that the most recognized activity involves access to the training system (102 responses; 84,30%), while the other activities are almost invisible to the respondents, or are indifferent. Such results mean that companies employing respondents do not know the importance of



these activities or that employers do not carry out conscious and integrated communication with employees, provided they recognize whether the company has applied certain standards or not. The following group of questions refers to employment conditions (Table 3).

**Table 3 The wellbeing activities in the field of health protection and improvement of employee wellbeing are implemented in the company**

Which of the following activities in the field of health protection and improvement of employee wellbeing are implemented in the company	Yes		No		Do not know	
	N=121	%	N=121	%	N=121	%
improvement of physical working conditions and workplace equipment (noise elimination, temperature, etc., ergonomic stations)	19	15,70	58	39,67	54	44,63
proper organization of work - adaptation of duties and work standards to the abilities of employees, precise definition of the scope of duties and working time	67	55,37	12	9,92	42	34,71
participatory management model - employee involvement in creating working conditions in the company	18	55,37	89	9,92	14	34,71
employee training in the field of improving interpersonal competences, e.g., coping with stress, communication, negotiation, conflict resolution, delegation of powers, assertiveness, psychological support	14	11,57	89	73,55	18	14,88
health protection programs (e.g., facilitation for employees returning after longer sick leave, subsidizing active and healthy free time spending, programs facilitating women's return after maternity leave, programs for people in the pre-retirement age)	0	0,00	114	94,21	7	5,79
Employees' integration	83	68,60	8	6,61	30	24,79
creating friendly support groups	5	4,13	79	65,29	37	30,58
compliance with labour law	119	98,35	1	0,83	1	0,83
co-financing for health / medical insurance of a family member or partner of the employee	29	23,97	76	62,81	16	13,22

Source: own survey

In determining the knowledge on activities aimed at promoting the health and wellbeing of employees, it can be concluded that, in this regard, the most important factor is the regulatory body of labour law (119 "yes" answers; 98,35%), followed by the integration of employees (83 "yes" answers; 68,60%) and the proper organization of work (67 "yes" answers; 55,37%). We can estimate the recognition rate (Table 4) by dividing the given "yes" answer in a given area by N=121, so its value ranges from 0 (minimum) to 1 (maximum), and the indifference rate by dividing the given "do not know" answer in a given area by N=121, so its value ranges from 0 (maximum) to 1 (maximum).

**Table 4 The Matrix of Importance and Indifference rates**

Rates	Low recognition (0,00-0,35)	Medium recognition importance (0,36-0,65)	High recognition (0,66-1,00)
Low indifference (0,00-0,35)	1. participatory management model - employee involvement in creating working conditions in the company 2. employee training in the field of improving interpersonal competences, e.g., coping with stress, communication, negotiation, conflict resolution, delegation of powers, assertiveness, psychological support	1. proper organization of work - adaptation of duties and work standards to the abilities of employees, precise definition of the scope of duties and working time 2. employees' integration	1. compliance with labour law

	3.health protection programs (facilitation for employees returning after longer sick leave, subsidizing active and healthy free time spending, programs facilitating women's return after maternity leave, programs for people in the pre-retirement age) 4.co-financing for health / medical insurance of a family member or partner of the employee		
Medium indifference (0,36-0,65)	1.creating a clear and transparent employee appraisal system 2.creating a clear and transparent system of remuneration and rewards 3.improvement of physical working conditions and workplace equipment	1.creating friendly support groups,	-
High Indifference (0,67-1,00)	1.counteracting discrimination and mobbing in the workplace: -at the stage of recruiting employees -at the stage of creating a clear and transparent system of access to promotions	-	1.creating a clear and transparent system of access to training

Source: own survey

The results let us conclude on the level of communication between employers and employees where the employment and well-being standards are not the priority that the results that most respondents cannot even point to them (let us say that they are not in mind for both parts of employment relations). However, it can also be said that the high level of indifference indicates that the activities are not carried out or that the respondents are not interested in carrying out those activities or not. The evaluation of the level of indifference can be used to indicate to employers how the communication procedures and the communication context of accepted standards should be improved or, in some cases, implemented as a social welfare policy. The last part of the study is to assess the importance of employment regulation and conditions (Table 5).

**Table 5 The structure of importance rate of wellbeing activities in survey**

Employers' activities	Average per cent of responses
Very important	50,91
Important	24,85
Hard to say	18,51
Unimportant	3,80
Not at all important	1,93

Source: own survey

In general, the structure presented enables to determine that more than 50% of respondents think welfare activities are "very important" whether or not the company is implemented any, 24.85% of employees think they are important, 18.52% of employees have no clear view of welfare issues, 3.80% say the implementation of welfare standards is not important, and 1.93% say they are "nothing important at all".

In detailed results this part shows how important certain activities are for the young engineers who pay particular attention to the following: - establishment of a clear and transparent system of compensation and rewards - 76.03 % - improvement of physical working conditions and workplace equipment (noise removal, temperature, etc., ergonomic facilities) - 73.55% - compliance with labour law - 73.55% - creation of a clear and transparent system of access to training - 71,90% - combating discrimination and violence in the workplace - 61.98% and these activities. Next of importance activities are: clear and transparent system for gaining access to promotions – 61.16 per cent, clear and transparent employee evaluation system – 56.20 per cent, adequate work organization with respect to duties, work standards, working time – 56.68. Considered the least important, we can indicate activities such as: combating discrimination at the recruitment stage – 43,80%, creating friendly support groups – 42,98%, health co-financing – 35,94%, employee integration – 29,75%, management participation model – 28,10%, employee training in the field of interpersonal competence – 27,27%, health protection programmes – 23,14% of indicators.

## Discussion

In summary, the results can be assumed that the most important elements in the employees' survey category are the 'hard' elements of employment – training, promotion, reward and compliance with law; the least important components group includes most of the 'soft' elements – social relations, participation, integration and health aspects. The results of the survey are parallel and compatible to the assumptions of the two factors in Herzberg's theory - the external factors with the highest motivation clearly dominate in terms of importance, while the hygiene factors are considered to be the least important (Rymaniak, 2013; Kobyłka, 2016). The results obtained can also be directly related to the age of respondents beginning their professional careers, and only in the long term the factors mentioned in Seligman's theory of the welfare of the PERMA model, positive emotions, commitment, relationships, meaning, achievement/defense, become more important (Seligman, 2011a, 2011b). We can argue that the priority of company wellbeing and communication policies should be strengthened by a clear communication of existing standards, which are more accepted as silent assumptions, not as part of employee branding and the increasing attractiveness of employment. Not only is the most important indication of improving employee welfare policies, but it should first improve working conditions and employment conditions, focusing on creating motivational compensation and bonus systems, access to professional training and promotion, and then improving working conditions and creating a social working environment through integration, working in groups and the introduction of a model of participatory management, or combating discrimination, the last of the actions relates to employment "addresses" in the form of health promotion, soft skills training.

## Literature

1. Keyes, C. L. M. (2006). *Subjective wellbeing in mental health and human development research worldwide: An introduction*. Social Indicators Research, 77(1), pp. 1–10
2. Kobyłka A. (2016), *Źródła motywacji pokolenia Y w pracy zawodowej*, Studia Oeconomia Posnaniensia, Vol 4 Nr 6
3. *Na zdrowie, Jak zadbać o kondycję zdrowotną pracowników*, Well HR Report, PWC <https://well.hr/pl/article/32/na-zdrowie-darmowy-raport-pe-en-inspiracji-.html> (access date 15.04.2023)
4. *Pandemia wpływa na kondycję psychiczną pracowników*, <https://www.hays.pl/blog/insights/pandemia-wplywa-na-kondycje-psychiczna-pracownikow> (access date 15.04.2023)
5. *Promoting health and wellbeing at work*, <https://www.oecd.org/health/promoting-health-and-wellbeing-at-work-e179b2a5-en.htm> (access date 15.04.2023)
6. *Raport 2020, Przyszłość wellbeingu i benefitów pracowniczych*, NOWE PORZĄDKI, Activity, <https://raport.activity.app/> (access date 12.04.2023)
7. *Raport Global Wellbeing 2021*, <https://www.aon.com/poland/risk/publikacje/raport-global-wellbeing-2021.jsp> (access date 12.04.2023)

8. *Raport Trendy HR 2018*, <https://www2.deloitte.com/pl/pl/pages/human-capital/articles/raport-trendy-hr-2018.html>. (access date 11.04.2023)
9. *Raport Trendy HR 2019*, <https://www2.deloitte.com/pl/pl/pages/human-capital/articles/raport-trendy-hr-2019.html> (access date 23.04.2023)
10. *Raport Wellbeing mentalny pracowników w Polsce, Mindy 2022*, [https://activitylandingslxcontent.blob.core.windows.net/content-bike/Raport\\_Wellbeing\\_mentalny\\_pracownikow-Mindy\\_2021.pdf](https://activitylandingslxcontent.blob.core.windows.net/content-bike/Raport_Wellbeing_mentalny_pracownikow-Mindy_2021.pdf) (access date 24.04.2023)
11. *Raport z badania: Jak radziły sobie firmy w pandemii i czego obawiają się pracownicy*, <https://gfk.pl/raport-z-badania-jak-firmy-radzily-sobie-w-pandemii-i-czego-obawiaja-sie-pracownicy> (access date 26.04.2023)
12. Rymaniak J. (2013), *Właściwości pracy - ewolucja rozwiązań teoretycznych i zastosowań praktycznych*, Studia Oeconomia Posnaniensia, Vol 1 Nr 7
13. a/ Seligman M.E.P., (2011), *Happiness Is Not Enough*, [in:] *Authentic Happiness*, Penn University of Pennsylvania, <https://www.authentic-happiness.com/newsletters/flourish-newsletters/new-theory> (access date 21.06.2020);  
b/ Seligman M.E.P. (2011), *Pełnia życia. Nowe spojrzenie na kwestię szczęścia i dobrego życia*, Media Rodzina, Poznań, ss. 1-431, 221
14. *Wpływ epidemii COVID-19 na zmianę sposobu świadczenia pracy wśród studentów i osób z ich otoczenia wykonujących pracę zawodową*, [https://prawoiekonomia.ukw.edu.pl/download/58636/raport\\_z\\_bada%C5%84-COVID-19.pdf](https://prawoiekonomia.ukw.edu.pl/download/58636/raport_z_bada%C5%84-COVID-19.pdf) (access date 23.04.2023)



## THE ROLE OF THE QFD METHOD IN IMPROVING PRODUCT QUALITY: AN EXAMPLE

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**Abstract:** In this changeable market condition where each customer has a different opinion about product quality are continuous improvement and customer orientation strategic plans of any organization. In the present market, where supply exceeds demand and customer has many alternatives to compare, is important to focus on quality. The beverage industry faces various challenges, not just changing dietary choices towards healthy food patterns and lifestyles but as well increasing customers' requirements for quality products. Despite this knowledge, most beverage companies do not succeed in ensuring the quality of their products to consumers. The basis for the design and creation of new or modified products should be to examine customer preferences. In the evaluation and planning of product quality, producers use a different language than consumers, based on the above is the primary objective of this paper is to identify customer requirements on the orange juice quality and its subsequent transformation into technological characteristics, using the Quality Function Deployment- QFD method.

**Key words:** quality, quality management, product improvement, QFD method

### Introduction

Among fruits and fruit products, orange juice is one of the most popular soft drinks of perhaps every generation. The commercial value of orange juice is due to its sensory qualities and above all, to the high content of natural antioxidants, such as Vitamin C. One small glass (150 ml) of 100% orange juice contains more than 50% of the daily requirement of Vitamin C and helps ensure that the iron from fruit and vegetables is well-absorbed by our bodies (Rapisarda et al., 2001; Morand, et. al., 2011, Sicari et al., 2016). Other authors claim that orange juice is little more than a source of sugar, predisposing consumers to weight gain and obesity (Gillespie, 2008, Lustig, 2012). Nevertheless, for some, orange juice is an essential part of breakfast. However, because orange juice is traded and consumed worldwide, its quality is more than important. In the beverage industry, quality (level of excellence) can be defined as a product that achieves great rewards and performance. A quality beverage is defined as a product that meets the demands of the producer as well as the consumer in the sense of performance, quality standards, preferences, excellency, safety, and healthy (Aadil, et. al., 2019). Most juice quality depends on its raw material or ingredient quality, specifically fruits, water, sweeteners, additives, flavors, and preservatives (Ashurst et al., 2017).

The AIJN Market Report regarding 2018 shows that European juice consumption continues to decline. Total consumption of fruit juices (100% Juice content) in the EU-28 in 2018 was at the level of 5,900 mils. litres. Volume decreased by 0.90% compared to 2017. In 2018, private labels, ambient and juices from concentrate, also had a declining trend in terms of consumption in the EU-28. The largest market in terms of consumption in 2018 was Germany with a total consumption of 2,321 mils. liters. The largest market in terms of consumption in liters per capita in 2018 was Cyprus, with a total consumption of 30.9 liters per capita (Table 1).





**Table 1. The Fruit Juice Industry: Overall Fruit Juice Consumption in 2014 – 2018**

EU 28						
Fruit Juice (100 % Juice content) volume (million liters)						
	2014	2015	2016	2017	2018	The annual change 2017-2018 (%)
Total Fruit Juice	6,140	6,054	5,921	5,956	5,900	-0.90%
Branded	3,438	3,497	3,493	3,511	3,522	0.30%
Private Label	2,072	2,556	2,427	2,445	2,378	-2.70%
Ambient	4,783	4,675	4,522	4,465	4,365	-2.20%
From Concentrate	4,311	4,118	3,915	3,865	3,766	-2.60%
Not From Concentrate	1,829	1,935	2,005	2,091	2,134	2.10%
Chilled	1,357	1,379	1,399	1,492	1,535	2.90%
Largest EU Fruit Juice (100 % Juice content) market by volume consumption, 2018						
Country	Million Litres					
Germany	2,321					
France	1,359					
United Kingdom	1,060					
Largest EU Fruit Juice (100 % Juice content) market by capital consumption, 2018						
Country	Population (million)		Litres per person			
Cyprus	0.9		30.9			
Malta	0.4		29.4			
Germany	83.5		27.8			

Source: AIJN European Fruit Juice Association. (2019). AIJN LIQUID FRUIT MARKET REPORT 2019. Retrieved from <https://www.aijn2019report.com/ajn2019report/homepage>

The AIJN Market Report regarding 2018 shows that European juice consumption continues to decline. Total consumption of fruit juices (100% Juice content) in the EU-28 in 2018 was at the level of 5,900 mils. litres. Volume decreased by 0.90% compared to 2017. In 2018, private labels, ambient and juices from concentrate, also had a declining trend in terms of consumption in the EU-28. The largest market in terms of consumption in 2018 was Germany with a total consumption of 2,321 mils. litres. The largest market in terms of consumption in liters per capita in 2018 was Cyprus, with a total consumption of 30.9 liters per capita (Table 1). In 2021, the global market for non-alcoholic drinks was valued at 1.29 trillion U.S. dollars, a decrease of around 160 billion dollars since 2020. However, the Statista Consumer Market Outlook estimates that the revenue will continue to increase over the years by 2027 amounting to 1.78 trillion U.S. dollars.

**Table 2 Fruit Juice (100% Juice content) Consumption in the Slovak Republic in 2014 – 2018**

Slovak Republic						
Fruit Juice (100% Juice content) Volume in Million Litres						
	2014	2015	2016	2017	2018	The annual change 2017-2018 (%)
Total Fruit Juice	22	24	26	27	29	6.50%
Branded	15	16	17	19	21	9.70%
Private Label	8	9	9	8	8	-1.30%
Ambient	20	22	23	24	25	3.70%
Chilled	2	2	2	3	4	27.90%
From Concentrate	20	22	23	24	25	3.70%
Not From Concentrate	2	2	2	3	4	27.90%
Top 2 Brands of Fruit Juice (100% Juice content) with the highest market share in 2018						
Fruit Juice (100% Juice content)	Relax					4.8
Volume in Million Litres	Rio (McCarter)					4.4
Consumption of Fruit Juice (100% Juice content) per capita						
Country	Population (million)		Consumption (litres)			
Slovak Republic	5.4		5.3			

Source: AIJN European Fruit Juice Association. (2019). AIJN LIQUID FRUIT MARKET REPORT 2019. Retrieved from <https://www.aijn2019report.com/ajn2019report/homepage>

The total consumption of fruit juice (100% juice content) in Slovakia in 2018 was at the level of 29 mils. liters. Volume increased by up to 6.50% compared to 2017. The declining trend in terms of consumption in Slovakia can be seen only in private labels, by 1.30% compared to 2017. Relax with a total consumption of 4.8 mils. liters and Rio (McCarter) with a total consumption of 4.4 mils. liters are brands with the highest market share in Slovakia in 2018. Consumption per capita in the Slovak Republic in 2018 was 5.3 liters.

## Methodology

The quality plan identifies all customers, regulates the flow of processes that produce the specific desired results of customers, proposes the entry of suppliers into the process, ensures the organization's intuition regarding the evolution of customer requirements, monitors the progress of the implementation of individual activities and the achievement of objectives (Sony et al., 2020).

Currently, we know the following planning methods: QFD (Quality Function Deployment), product FMEA (Failure Modes and Effects Analysis), process FMEA, FTA analysis (FTA) (Fault Tree Analysis), design review, and new quality management tools (Chiarini, Kumar, 2021).

Although the QFD method was originally used in the automobile industry nowadays has wide application in different industries. One of these industries is the food and beverage industry. Every product developed aims to fill a specific customer need, but identifying what customers need is more difficult than it seems. The QFD method as a customer-oriented design method can be used to design new products and services and modify existing ones so that they satisfy (to the highest possible degree) the requirements specified by the customer (Wolniak, 2018). Traditionally, food product manufacturers have used methods such as market research and sensory characterization for product quality planning, but the latest research showed that usage of the quantitative tool such as the QFD method suits in tailored and integrated form for the development of the quality planning stage (Pable et al., 2010). In this paper, the quality function deployment method, QFD, was used as an effective tool to support pro-quality action.

The QFD method focuses on providing a clear framework for addressing customer needs, beginning with a matrix called the House of Quality (Waterworth, Eldridge, 2010). House of Quality is used by a team to understand customer requirements (What?) and to translate these requirements into technical specifications (How?). House of Quality matrix with related technical objectives in the "WHATs" rows and product/process parameters in "HOWs" columns (Xie et al., 2003, Pable et al., 2010). Quality Function Deployment (QFD) is one of the most commonly used methods in order to provide a customer-oriented product design (Karaşan, et al., 2022).

The planning matrix, commonly referred to as the "house of quality," is an essential component of Quality Function Deployment (QFD). It provides a visual representation of the relationship between customer needs and the technical characteristics of a product. Guidelines for using the House of Quality also known as QFD (Quality Function Deployment):

1. **Identify Customer Needs:** The first step in creating the planning matrix is to gather and document the various needs and requirements of the customers. In this paper, we conducted a questionnaire survey, which was held online in June 2022.
2. **Determine Importance:** Once the customer needs are identified, they need to be prioritized based on their significance to the customers. This is done by assigning relative weights or importance ratings to each need.
3. **Identify Technical Characteristics:** Technical characteristics are the specific features or attributes of a product that can influence its performance or meet the customer's needs. These characteristics should be measurable and clearly defined.
4. **Establish Relationships:** The next step is to establish the relationships between customer needs and technical characteristics. This is done by creating a matrix or grid where the customer needs are listed on one side, and the technical characteristics are listed on the other side. The matrix serves as a tool to visually connect the needs with the corresponding technical characteristics.

5. **Evaluate Interactions:** In the planning matrix, each intersection of a customer need and a technical characteristic represents the importance or degree of correlation between them. The strength of the relationship is evaluated using numerical ratings.
6. **Set Targets and Prioritize:** After evaluating the relationships, it's necessary to set targets or goals for each technical characteristic to fulfill the customer needs.
7. **Generate Improvement Actions:** Once the targets and priorities are determined, the planning matrix helps identify areas that require improvement.

By following these steps, the planning matrix, or the "house of quality," provides a structured framework to align customer needs with the technical characteristics of a product. It enables organizations to prioritize and focus their efforts on developing products that meet or exceed customer expectations.

## Results and Discussion

To present the applicability of the QFD method as a tool for customer needs analysis, orange juice was chosen from a diverse range of soft drinks in the beverage industry. It is not possible to fulfill each customer's desire, but we can approach most customer satisfaction using this method. In this paper, the QFD method was used as an effective tool for translating customer requirements into technical quality indicators.

To evaluate orange juices, the selected products had to comply with the following criteria:

- Orange juice;
- Made from concentrate;
- 100% Juice content;
- Pasteurized;
- Tetra Pak (1 liter) containers.

In accordance with the above criteria, we decided to evaluate the following products:

- Relax Juice 100% Orange (main product);
- BILLA Orange Fairtrade 100% (competitor A);
- Rauch happy day 100% Orange Vitamin C (competitor B);
- TESCO value 100% Orange Juice Pure fruit (competitor C);
- Solevita Orange Juice 100% Fruit Content Vitamin C (competitor D).

There are two types of sensory analysis such as subjective (by means of human senses) and objective (instrumental analysis) to measure the quality of any food product. In this paper, we decided to use the subjective sensory analysis. We used fresh orange juice packed in Tetra Pak (1 liter) containers.

The customer's quality requirements for 100% orange juice from concentrate and the customer's quantitative preferences, while the evaluation of their importance is from 1 - "low" to 5 - "high", are displayed in

Table 3 below.

*Table 3. Customer Requirements and Preferences*

Customer requirements	Importance
taste intensity	5
density	5
aroma	4
color	3
acidity	3
sweetness	3
bitterness	2

Source: Own processing based on questionnaire survey realized during June 2022



Ministry of Education and Science  
Republic of Poland



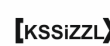
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Nauka**



Czestochowa  
University  
of Technology



Faculty  
of Management



Department of Applied Sociology  
and Human Resource Management

The customer's requirements are influenced by the following technical parameters, the improvement of which is expressed by the sign + resp. – (Table 4).

*Table 4. Technical parameters*

Technical parameters	Improvement +/-
fruit variety	+
degree of ripeness of the fruit at concentrations	+
recipe	+
technological process of concentration	-
technological process of pasteurization	-
method of storage	+

Source: Own processing

In the Quality Function Deployment (QFD) method, the direction of improvement refers to the process of identifying areas or aspects of a product that require enhancement in order to better meet customer needs and expectations. This step is a crucial part of the QFD process, as it helps prioritize improvement actions and guide product development efforts.

As part of the direction of improvement, we determined the importance of the influence of technical parameters on customer requirements, on a scale from 1 - "insignificant" to 5 - "significant" (Table 5).

In the roof of the quality house, we determined the correlations between the individual technical parameters, where the positive correlation is "+" when both characteristics improve at the same time, and the negative correlation is "-", when the characteristics act separately, which means that we change one technical parameter, the other one will not change.

The positive correlations were identified between:

- •Fruit variety and recipe
- •Fruit variety and degree of ripeness of the fruit in concentrations
- •The degree of ripeness of the fruit in concentration and recipe
- •Technological process of pasteurization and method of storage

*Table 5. Direction of improvement*

Direction of improvement		+	+	+	-	-	+
Technical requirements	Importance	Fruit Variety	Degree of ripeness of the fruit at concentrations	Recipe	Technological process of concentration	Technological process of pasteurization	Method of storage
Customer requirements							
Taste intensity	5	4	5	3	5		2
Density	5			2	4		
Aroma	4	3		2			
Color	3	3			3	4	2
Acidity	3	5	4	5			
Sweetness	3	5	3	5			
Bitterness	2	5	3	5			

Source: Own processing

In the planning matrix, we identified and appropriately quantified the individual products through a blind tasting test, on a scale from 1 - "unsatisfactory" to 5 - "satisfactory". Subsequently, we determined our goal - the best value among all evaluated products in terms of the relevant requirement. We also

determined the necessary improvement, the ratio between the value of the requirement of our product and the best-rated product and subsequently the point of sale - customer preference, potentially increased on the manufacturer's initiative.

From the above, it can be stated that in the blind tasting test, Rauch Happy Day 100% Orange Vitamin C won with the highest number of points, followed by Relax Juice 100% Orange – main product and Billa Orange Fair Trade 100% with the same number of points placed second. Solevita Orange Juice 100% Fruit Content Vitamin C placed third in the test, while the worst-rated is TESCO Value 100% Orange Juice Pure Fruit.

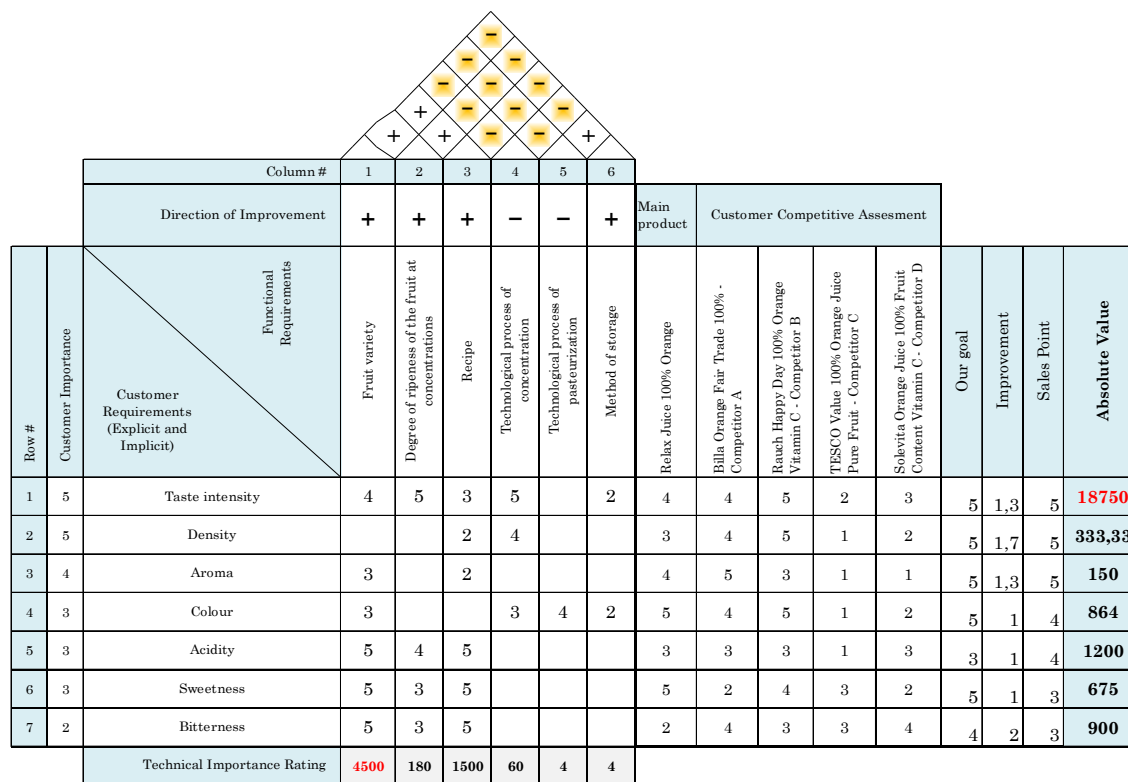


Figure 1. Strategic matrix

Source: Own processing

In the strategic matrix, we calculated the total line value for individual customer requirements, and for the individual technical parameters, we calculated the column value priorities, which are the basis for the final interpretation of the strategic matrix. The developed QFD method shows that the most important customer requirement for orange juice is the intensity of taste, which can be influenced by the manufacturer of the main product by targeting or changing the most important technical parameter, which is the fruit variety. However, the technical parameter of the fruit variety positively correlates with the technical parameters of the degree of ripeness of the fruit at concentration and recipe, and those characteristics need to be improved at the same time.

Therefore, if the manufacturer of the main product changes the fruit variety to satisfy the customer's requirements, it must also consider changing the degree of ripeness of the new fruit variety during the concentration as well as changing the recipe. By changing these technical parameters, the manufacturer would be able to achieve its goal - to achieve or outperform in the product evaluation of the main competitor Rauch Fruchtsäfte GmbH & Co. KG, which won the blind test.



## Summary

Quality Function Deployment (QFD) serves as a systematic framework for identifying and transforming customer needs and desires into actionable strategies for creating products that cater to those needs. The term "voice of the customer" refers to both explicitly expressed and implied requirements articulated by customers. Capturing the voice of the customer involves employing various methods such as direct discussions, interviews, surveys, focus groups, customer specifications, observation, warranty data, and field reports. By comprehending these customer needs, a comprehensive product planning matrix, also known as the "house of quality," is constructed. These matrices play a vital role in converting broader needs or objectives into specific product requirements or technical characteristics, thereby ensuring the satisfaction of those needs. In this paper, we use this method as an effective tool to support pro-quality action. The QFD method reveals that the primary customer demand for orange juice is the intensity of taste, which can be influenced by Hermann Pfanner Getränke GmbH, the manufacturer. The most crucial technical parameter to address is the fruit variety.

However, it is important to note that the fruit variety is positively correlated with other technical parameters such as the degree of ripeness during concentration and the formula. Therefore, any improvements in the fruit variety must also consider adjustments in the degree of ripeness during concentration and changes in the recipe. These technical parameters need to be aligned in the same direction to meet customer expectations.

By making changes to these technical parameters, Hermann Pfanner Getränke GmbH can successfully achieve its objective of surpassing its main competitor, Rauch Fruchtsäfte GmbH & Co. KG, in the product evaluation and overall customer satisfaction.

It is crucial for Hermann Pfanner Getränke GmbH to carefully evaluate and strategically implement these technical changes to optimize the intensity of taste in their orange juice, thereby gaining a competitive advantage in the market.

## Literature

1. Aadil, R. M., Madni, G. R., Roobab, U., Rahman, U. U., & Zeng, X. (2019). Quality Control in Beverage Production: An Overview. In *Elsevier eBooks* (pp. 1–38). <https://doi.org/10.1016/b978-0-12-816681-9.00001-1>
2. AIJN – European Fruit Juice Association. 2020. *AIJN Liquid Fruit Market Report 2019* [online]. © 2020 [cit. 2020-11-26]. Retrieved from: <2019 | AIJN - European Fruit Juice Association>.
3. Crawford, C. M. (1994). How Puritan-Bennett used the house of quality John R. Hauser, Sloan Management Review (Spring 1993), pp. 61–70. *Journal of Product Innovation Management*. [https://doi.org/10.1016/0737-6782\(94\)90020-5](https://doi.org/10.1016/0737-6782(94)90020-5)
4. Gillespie, D. (2008). Sweet poison. Penguin UK.
5. Chiarini, A., & Kumar, M. (2020). Lean Six Sigma and Industry 4.0 integration for Operational Excellence: evidence from Italian manufacturing companies. *Production Planning & Control*, 32(13), 1084–1101. <https://doi.org/10.1080/09537287.2020.1784485>
6. Jia, G., & Bai, M. (2011). An approach for manufacturing strategy development based on fuzzy-QFD. *Computers & Industrial Engineering*, 60(3), 445–454. <https://doi.org/10.1016/j.cie.2010.07.003>
7. Karaşan, A., Ilbahar, E., Cebi, S., & Kahraman, C. (2022). Customer-oriented product design using an integrated neutrosophic AHP & DEMATEL & QFD methodology. *Applied Soft Computing*, 118, 108445. <https://doi.org/10.1016/j.asoc.2022.108445>
8. Lustig, R. H., Schmidt, L. S., & Brindis, C. D. (2012b). The toxic truth about sugar. *Nature*, 482(7383), 27–29. <https://doi.org/10.1038/482027a>
9. Morand, C., Dubray, C., Milenkovic, D., Lioger, D., Martin, J., Scalbert, A., & Mazur, A. (2011). Hesperidin contributes to the vascular protective effects of orange juice: a randomized crossover study in healthy volunteers. *The American Journal of Clinical Nutrition*, 93(1), 73–80. <https://doi.org/10.3945/ajcn.110.004945>
10. Pable, A., Lu, S. F., & Auerbach, J. D. (2010). INTEGRATED QUALITATIVE/QUANTITATIVE TECHNIQUES FOR FOOD PRODUCT QUALITY PLANNING. *Journal of Food Quality*, 33(1), 112–129. <https://doi.org/10.1111/j.1745-4557.2009.00287.x>



11. Raouf, A. (2004). Advanced QFD Applications 2004. Xie, K.C. Tan and T.N. Goh. Advanced QFD Applications. Milwaukee, WI: Quality Press, ISBN: 0-87389-586-X. *Journal of Quality in Maintenance Engineering*, 10(1), 76. <https://doi.org/10.1108/13552510410526901>
12. Rapisarda, P., Bellomo, S. E., & Intelisano, S. (2001). Storage Temperature Effects on Blood Orange Fruit Quality. *Journal of Agricultural and Food Chemistry*, 49(7), 3230–3235. <https://doi.org/10.1021/jf0100321>
13. Sicari, V., Pellicanò, T.M., Giuffrè, A.M. et al. Bioactive compounds and antioxidant activity of citrus juices produced from varieties cultivated in Calabria. *Food Measure* 10, 773–780 (2016). <https://doi.org/10.1007/s11694-016-9362-8>
14. Sikorski, M. (2002). Zastosowanie metody QFD do doskonalenia jakości użytkowej serwisów WWW. *Zeszyty Naukowe Politechniki Poznańskiej. Organizacja I Zarządzanie*, 119–131. <http://yadda.icm.edu.pl/yadda/element/bwmeta1.element.baztech-article-BPP1-0090-0118>
15. Sony, M, Antony, J and Douglas, JA (2020) Essential Ingredients for the Implementation of Quality 4.0: A narrative review of literature and future directions for research. *The TQM Journal*. ISSN 1754-2731
16. Tundis, R., Pellicanò, T. M., Laganà, V., & Poiana, M. (2017). Use of orange by-products (dry peel) as an alternative gelling agent for marmalade production: Evaluation of antioxidant activity and inhibition of HMF formation during different storage temperature. *Journal of Food Processing and Preservation*, 42(2), e13429. <https://doi.org/10.1111/jfpp.13429>
17. Waterworth, A., & Eldridge, S. (2010). An investigation into the application of QFD in e-commerce. *International Journal of Productivity and Quality Management*, 5(3), 231. <https://doi.org/10.1504/ijpqm.2010.032067>
18. Wolniak, R. (2018). The use of QFD method advantages and limitation. *Production Engineering Archives*, 18(18), 14–17. <https://doi.org/10.30657/pea.2018.18.02>
19. Xie, M., Goh, T. N., & Tan, K. C. (2003). *Advanced QFD Applications*.

## STARTING A SMALL BUSINESS – EXPERIENCES OF A NEW CHEESE WORKSHOP

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**Abstract:** Small businesses play an important role in the Hungarian food production, as besides the products of the well-known multinational food producers, consumers are interested in small-scale products, produced by local producers and small businesses. The short supply chain is very important in the milk and milk product industry; the products of local manufacturers are welcomed by the consumers at different places like small shops, local markets, and direct sales from the producers etc.

Our research describes the experiences of a small producer, who is a young entrepreneur and started her business a year ago. After the first few months, the shop started to develop, the revenue in started to grow. The basic products are the milk, cottage cheese and cheese, which became the most popular product. At the start 5 types of cheese were produced, but based on the customer's claims and suggestions now there are 14 types including smoked cheese products.

**Key words:** small business, local producer, entrepreneurship, cheese production

### Introduction

Today, there is a renewed focus on artisanal products produced by small farms, as opposed to mass-produced goods. Many consumers prefer small-scale food products which may be bought directly from the producers or at producers' markets, as the taste, smell and aroma of food products clearly show the difference between large-scale and small-scale production. Small-scale food production is a typical example of short food supply chains, which bring many advantages for local communities (Kneafsey et al. 2013; Benedek, Fertő 2015)

Food production is a highly regulated activity, with a number of requirements to be met in order to obtain an official licence to produce food. A number of conditions have to be met, in terms of both the premises and equipment used for cheese production, from a technological and hygiene point of view, and in terms of animal-related factors. Of course, in addition to the above, the person carrying out the activity must also meet the requirements and shall undergone an aptitude test before starting the activity.

This article summarizes the experiences of a small-scale cheese workshop which started its production approximately a year ago.

### Requirements of starting a small-scale food producing enterprise

The conditions for the production, production and sale of food by small farmers are laid down in Ministry of Agriculture (FVM) Decree 52/2010 (IV.30.) (FVM 2010). In addition, the entrepreneur receives the regulation of the activity from the Food Safety and Animal Health Department of the responsible Government Office in the form of a decision. The production of foodstuffs and their subsequent sale are also strictly controlled.

Small farmers may sell raw milk and milk products produced on their own farm through direct sales. As regards the territorial scope of the sale, it may take place by direct sales on the own farm or at any market, fair, event or authorised temporary sales outlet for the final consumer, as well as at any retail or catering establishment within Hungary, including home delivery at the request of the purchaser (Benedek, Fertő 2015; Szabó 2014).



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The main forms of direct sales are summarized by *Table 1*.

**Table 1. Forms of direct sales based on the venue of producers and consumers**

Individual direct sales			Collective direct sales		
<i>Producers do not move</i>	<i>Producers &amp; consumers meet</i>	<i>Consumers do not move</i>	<i>Producers are concentrated</i>	<i>Consumers are concentrated</i>	<i>Producers &amp; consumers are concentrated</i>
<ul style="list-style-type: none"> <li>- Farm sales</li> <li>- Pick-your-own</li> <li>- Agri-tourism</li> </ul>	<ul style="list-style-type: none"> <li>- Farmers' market</li> <li>- Roadside stands</li> </ul>	<ul style="list-style-type: none"> <li>- Home delivery</li> <li>- Mobile shop</li> <li>- E-commerce</li> </ul>	<ul style="list-style-type: none"> <li>- Cooperative shop</li> <li>- PO's shop or delivery</li> </ul>	<ul style="list-style-type: none"> <li>- Direct purchase by associations</li> <li>- Ordering by subscription</li> <li>- Buying groups</li> </ul>	<ul style="list-style-type: none"> <li>- Local or regional producers' markets</li> <li>- Festivals &amp; local traditional events</li> <li>- Thematic events</li> </ul>

Legend: PO = Producers' Organization

Source: own interpretation based on Lehota, Csíkné Mácsai (2012)

Small producers with small scale production prefer direct sales mostly in the individual way, i.e. farm sales, local farmers' markets or home delivery (Dunay et al. 2018). Venn et al. (2006) draw attention to short supply chains, particularly direct sales in 'resocializing' food through closer and more authentic relationships between producers, consumers and their food. Ubrežiová et al. (2015) underlined the importance of direct sales in activating local human potential and local sources, and they may support strengthening of local social ties. In sustainability aspects, the wider community may also benefit from short food supply chains due to the positive ecological impacts caused by reduced food miles (Tudisca et al., 2014).

In addition to the above, small dairy cattle farmers must meet a number of additional, animal and human health-related criteria. They are primarily responsible for the safety and quality of the food they place on the market and for ensuring and documenting traceability. They must have a valid official veterinary certificate attesting that the livestock from which the products are derived are certified free from tuberculosis and brucellosis. The official veterinary certificate or a certified copy thereof must be kept at all points of sale (NÉBIH s.d.).

The small producer is required to draw up a data sheet for foodstuffs produced from raw materials, which must include at least the name and address of the small producer, the place of production, the name of the foodstuff, the ingredients in descending order, the use-by date and the date of minimum durability and the storage temperature.

Throughout the entire production, processing and distribution process, small producers must ensure that the foodstuffs comply with the standards applicable to the activity carried out and must verify compliance with these requirements by means of self-monitoring (Ghadge et al. 2021). All materials used in the production of foodstuffs must be in an unobjectionable condition as regards food safety and quality. In addition, the traceability of the products used and of the adjuvants added, i.e. spices, must be ensured. Invoices or receipts for the raw materials and auxiliary materials purchased and used must be kept for 2 years by the small producer to prove their origin (Bognár, 2017).

## Starting the new cheese workshop

In April 2022 year, the small-scale cheese workshop opened its doors in the Southern Great Plain of Hungary. Initially, sales were very slow and it was difficult for new enterprise to prove that they had a place in the market as new entrants. The customers had a well-established, familiar place to buy the milk and dairy products they needed. Many people are distrustful of new things, they insist on the good old habits and afraid of new. For a young entrepreneur, it is difficult to promote and sell a completely unknown range of products. The owner of the cheese dairy is a young graduate of a higher education course in agriculture. She did not use any subsidies to set up the livestock and the cheese dairy, but was able to do so with family support.

Large proportion of the cows was bought at calf age, so there was no one major investment cost of the livestock, but calves were reared over a number of years, as the longest payback period for cattle is when the new-born animal turns into a producer. The enterprise is located in the town of Orosháza, with a population of 28 000 people. Previously there was only one local small-scale cheese workshop in the settlement and this new dairy and cheese workshop is the second one.

## Requirements of production

However, when designing a cheese workshop, there are a number of criteria that the premises must meet. First and perhaps most importantly, you need two rooms: one in which to filter the fresh milk and wash the cheese and a second is where the milk is processed, the cheeses are made and stored. However, if you do not have two separate rooms for this activity, you can easily do it by separating one. The problem was solved by installing a parapet wall made of polycarbonate and accordion doors. The advantage is that it is space-saving, easy to disinfect and keep clean. It is advisable to tile the walls, as this is the most convenient way of disinfecting and keeping them clean, but tiling is not compulsory, only to ensure that the hygiene conditions are right and that they can be cleaned.

As regards water and sanitation, both parts require the provision of hot and cold water and the construction of a central drain, which is practical during the work to drain off any spillages. A showerhead faucet is the best way to wash the press barrel, making it easier to clean the press barrel and the waste water automatically drains out through the central drain.

In the workshop section, a separate hand-washing sink and a separate double-bowl sink are needed. As far as the electricity part of the room is concerned, we definitely need electricity, a few sockets – to run electrical appliances such as the fridge, electric hob – and at least one radiator to heat the room in winter. You can use the fridge to chill both milk and cheese, but in the long run it is better to store milk and cheese in separate fridges. For cheese making and storing the tools used in the process, it is most practical to place a kitchen cabinet element in the workshop so that it can function as both a cupboard and a workbench.

When processing milk, you will need a variety of tools such as strainers, pots, wooden spoons, spoons, small plastic containers, measuring cups, and cheese moulds for moulding and pressing the prepared cheese bases.

## Results of the first year

The cheese workshop started to sell small-scale milk and milk products in April, 2022. The most important task was to get customers, as a new business needs time to become known, accepted, trusted and regularly purchased by consumers. People are initially wary of novelty, especially when it comes to a private food business. Nevertheless, there is an attraction to this type of business, as small-scale, premium quality artisanal products are more attractive than mass-produced products. Consumers like to see the real "farm to table" short supply chain, and focus on good quality and healthy food and not only on the price level.

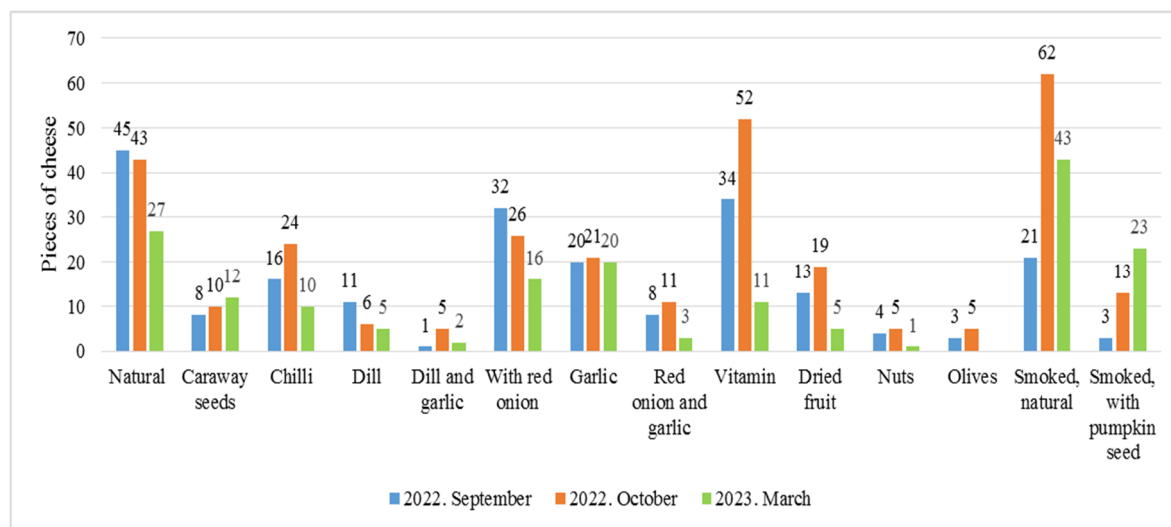
The cheese workshop started with selling raw milk cottage cheese and five types of cheese (natural, caraway, chilli pepper, garlic and red onion). The cheese is made using a simple technique – adding only vinegar and salt to the milk. The range of products is wide: there are 14 flavours, natural, caraway seed, chilli pepper, dill, dill and garlic, red onion, garlic, red onion and garlic, vitamin (dill, parsley, garlic, red onion, paprika and a pinch of crushed chilli pepper), dried fruit (apricot, plum and pineapple), walnut, olive, smoked (natural) and smoked (with pumpkin seed). The product range is constantly expanded in according to the customers' needs and suggestions, often based on their ideas.

Cottage cheese production was stopped for economic reasons, as 1 kg of traditional cottage cheese can be produced by using on average at least 8 litres of milk. Thus, if the selling price of the milk is taken into account, the unit cost of the raw material is about twice the price per kilogram of cottage



cheese available in shops. Consumers are not willing to pay so much for artisanal cottage cheese from small producers, so it is impossible to sell it to the public at such a high price. Small producers are unable to produce cottage cheese at the shop price, so it is economically more profitable to sell raw milk.

Fig. 1 shows the sales data in September and October of 2022, and data for March, 2023. The differences in sales are due to the seasonal changes of milk production and the problems of insemination, which caused changes in the plans. After a period of unsuccessful inseminations, more calves were born in the later period and the produced milk was used for feeding them. It was the decision of the owner, as the focus is on quality and healthy animals, so milk is preferred for feeding the calves.



**Figure 1. Sales of different cheese types in September and October, 2022 and March, 2023 (1 piece of cheese is approx. 0.5 kg)**

Source: own research

As it is seen from Fig. 1, smoked cheese is one of the favourites: smoked cheeses both pumpkin seed and natural accounted for almost a quarter of all cheeses sold. Smoked cheeses are very popular among the consumers. Smoking is carried out by the entrepreneur through contract smoking, and as smoking is not possible during the hot summer season, smoked cheese can only be sold during the cooler period from autumn to spring.

## Conclusions

To start a new business and creating a preferably new value is a very complex process, which starts with making lots of plans. The paper summarized the first year of a small producer who started a cheese workshop based on the existing small-scale dairy farm. For a young entrepreneur working in the food industry, it was clear to work in a short supply chain system, by selling the product directly to the customers, which helps to get a quick and direct feedback about the products, customer satisfaction and the customers' ideas and requests. One year of operation raised many problems and success, but in the first year the entrepreneur could realize that a strict planning should be implemented with better risk management measures. Based on the results, consumers are interested in the products, they are open for new products, and new taste and they are attracted by the personal atmosphere.

In the next stage of the research, the financial data and production process will be discussed in sustainability point of view, where not only the economic but also the environmental, social and practical aspects of sustainability will be analysed and summarized.

## Literature

1. Benedek Zs., Fertő I. (2015), *Miért választják a termelők a rövid ellátási láncokat?* „Statisztikai Szemle”, 93: 580–597.
2. Bognár L. (2017), *Útmutató a kistermelői élelmiszer-előállítás és értékesítés jó higiéniai gyakorlatához.* A Higiéniai Munkacsoport által tárgyalt útmutató a 2017. június 29-én hatályos jogszabályokat tükrözi. Pp. 83. (<https://elelmiszerlanc.kormany.hu/download/6/ae/e1000/Kistermeloi%20GHP.pdf>)
3. Dunay A., Lehota J., Mácsai, É., Illés B. Cs. (2018), *Short Supply Chain: Goals, Objectives and Attitudes of Producers*, “Acta Polytechnica Hungarica” 15: (6) pp. 199-217. DOI:10.12700/APH.15.6.2018.6.17
4. FVM (2010), Ministry of Agriculture Decree 52/2010. (IV. 30.) *FVM rendelet a kistermelői élelmiszer-termelés, -előállítás és -értékesítés feltételeiről* <https://net.jogtar.hu/jogszabaly?docid=a1000052.fvm>
5. Ghadge, A., Kara, M.E., Mogale, D. G., Choudhary, S., Dani, S. (2021), *Sustainability implementation challenges in food supply chains: a case of UK artisan cheese producers*, „Production Planning & Control”, 32(14), 1191-1206, DOI: 10.1080/09537287.2020.1796140
6. Kneafsey M., Venn L., Schmutz U., Balázs B., Trenchard L., Eyden-Wood T., Bos E., Sutton G., Blackett M. (2013), *Short Food Supply Chains and Local Food Systems in the EU. A State of Play of their Socio-Economic Characteristics.* JRC Report 25911, 6/2013. 123 p. doi:10.2791/88784
7. Lehota J., Csíkné Mácsai É. (2012), *Értékesítési sajátosságok – közvetlen értékesítés csatornái*, In: Szakály, Z., Szente, V. (eds): *Agrártermékek közvetlen értékesítése, marketingje.* Szaktudás, Budapest, p. 117-155.
8. NÉBIH (s.d.), National Food Chain Safety Office rules and regulations - *Tájékoztató: Élelmiszer-előállítás és forgalomba hozatal alapvető szabályai.* <https://portal.nebih.gov.hu/documents/10182/1166172/Elelmiszereloallitas+%C3%A9s+forgalomba+hozatal.pdf/fded49e1-5b7c-ceae-31f3-dd6627b90f2c>
9. Szabó D. (2014), *A rövid ellátási láncban rejlő lehetőségek és veszélyek Magyarországon.* „Acta Carolus Robertus” 4 (2) pp. 109-118.
10. Tudisca, S., Di Trapani, A.M., Sgroi, F., Testa, R. and Giamporcaro, G. (2014). Role of alternative food networks in Sicilian farms, *International Journal on Entrepreneurship and Small Business* 22: 50–63. doi: 10.1504/IJESB.2014.062130
11. Ubrežiová, I., Horská, E., Moravčíková, K. and Ubrežiová, A. (2015). *Glocalization and Local Alternative Economic Systems: the Case of the Slovak Republic.* In: Raupelienė A. (ed.): *Proceedings of the 7th International Scientific Conference, Rural Development 2015, Akademija, Lithuania.* doi: 10.15544/RD.2015.081
12. Venn, L., Kneafsey, M., Holloway, L., Cox, R., Dowler, E. and Tuomainen, H. (2006). Researching European ‘alternative’ food networks: some methodological considerations. *Area* 38: 248–258. doi: 10.1111/j.1475-4762.2006.00694.x



# THE INTERSECTION OF PSYCHOLOGICAL CAPITAL, SOCIAL CAPITAL, AND PRO-ENVIRONMENTAL BEHAVIOR

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**Abstract:** In this era of globalization and continuous rapid business changes many enterprises have emerged to offer various products and services in the market, intensifying stiff competition and forcing many to leave the market due to their inability to compete and sustain. Therefore, companies are required to continuously adapt, learn, and innovate to survive. To face such a competition, companies need to achieve a sustainable competitive advantage by optimizing their internal resources. This paper examines the intersection of psychological capital and social capital in relation to pro-environmental behaviour. While both constructs have individually been linked to sustainable behaviours, their combined impact remains underexplored. Addressing this gap, future research should investigate the interrelationships and underlying mechanisms between psychological and social factors. Additionally, exploring moderating and mediating factors can enhance our understanding of these relationships in different contexts. By bridging these gaps, researchers can provide practical insights for promoting environmental consciousness and fostering sustainable behaviours.

**Key words:** pro-environmental behaviour; psychological capital; social capital; sustainable behaviours

## Introduction

The growing impact of globalization, rapid technological changes, and intensified industry competition has made the role of human capital a top priority for both research and practical implementation (Giancaspro et al. 2022). Scholars and practitioners across various disciplinary domains, including management science and organizational behaviour, widely acknowledge the significant value that employees bring to organizations as their most vital intangible assets. With their unique knowledge, skills, abilities, and personal qualities, employees have the potential to make a substantial difference in multiple aspects and add value to the core business (Giancaspro et al. 2022).

Emerging from the realm of Positive Organizational Behaviour (POB), recent research emphasizes the pivotal role of psychology in fostering individual traits that enable employees to flourish and gain a competitive advantage. By integrating psychology into management and business practices, this positive approach effectively supports organizations in achieving sustainable performance (Spreitzer, Porath 2019). Furthermore, Luthans and Youssef (2004) highlight the significance of psychological capital (PsyCap) as a vital form of strategic human capital that can confer a competitive advantage to companies across various sectors.

On the other hand, social capital (SC), which refers to the social connections and relationships among individuals, has also been acknowledged as a valuable resource for organizations (Harraka 2002). The increasing level of SC among members within an organization fosters opportunities for collaboration, reciprocity, and overall well-being in the workplace. Previous researches, both theoretical and empirical, has recognized the influence of social capital on individual creativity (Cannella, McFadyen 2004) as well as at the organizational level (Jang, Shin 2017).

However, there is a scarcity of literature that specifically examines the intersection between Psychological Capital (PsyCap), social capital, and employees' pro-environmental behaviour according to the authors' knowledge. Therefore, the primary objective of this paper is to explore the influence of PsyCap and social capital on employees' pro-environmental behaviour.



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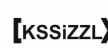
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## Psychological Capital (PsyCap)

PsyCap, which has its foundations in positive psychology and positive organizational behaviour (POB), refers to an individual's positive assessment of their situation and the belief in their ability to succeed through motivated effort and perseverance. In addition, other studies describe PsyCap as the evaluation and utilization of human resource strengths and psychological capabilities focused on positivity. These strengths and capabilities can be measured, developed, and efficiently managed to improve performance in contemporary work environments (Luthans et al. 2007).

### The dimensions of psychological capital

According to Luthans and Youssef (2004), PsyCap is a superior construct that comprises four positive psychological dimensions, namely hope, self-efficacy, resilience, and optimism.

Hope can be described as a motivational drive that guides individuals towards accomplishing their career-related objectives. It is often characterized by the emotions and beliefs individuals hold regarding their future goals. Snyder et al. (2002) have identified hope as a positive motivational state that emerges from a combination of successful agency, which involves goal-directed energy and persistence, and pathways, which involve planning and generating strategies to achieve those goals. It is widely acknowledged that employees who possess hope are more inclined to select and accomplish challenging goals, resulting in enhanced performance (Srivastava, Maurya 2017).

Self-efficacy, as described by social cognitive theory, refers to an individual's belief in their capacity to achieve desired outcomes through their own actions (Bandura 1978). In the workplace, self-efficacy is defined as an employee's conviction or confidence in their ability to mobilize the necessary motivation, cognitive resources, and actions to successfully perform a specific task within a given context. It may be defined as an individual's confidence in their ability to perform effectively in anticipated situations (Stajkovic, Luthans 1998).

Resilience, a concept that has its roots in clinical and developmental psychology, has gained significance in the field of organizational behaviour. It is the ability to effectively bounce back from problems and adapt positively. In the workplace, resilience is defined as the capacity to recover from adversity, conflict, failure, positive progress events, and increased responsibilities. Resilience enables individuals to handle stress, conflict, failure, new challenges, and heightened responsibilities. It empowers individuals to maintain their performance and even surpass previous levels of success in the face of difficulties (Luthans et al. 2007).

Optimism can be defined as a positive outlook or belief in one's ability to succeed in the present and future. It involves attributing positive outcomes to personal, permanent, and pervasive causes, while attributing negative outcomes to external, temporary, and situation-specific causes (Carver, Scheier 2002). As a component of PsyCap, optimism is closely linked to positive emotions and motivation and is seen as realistic. Unlike hope and self-efficacy, which are primarily cognitive in nature, optimism encompasses cognitive, emotional, and motivational aspects (Seligman, Csikszentmihalyi 2000). Optimism can enhance individual motivation and foster a positive expectancy, leading to improved performance outcomes.

## Social Capital (SC)

Social capital is defined as the collective resources, both tangible and intangible, that are accessible and derived from an individual or social unit's network of relationships. It is important to note that network relationships are intricate, socially constructed, and unique corporate skills that are challenging to replicate, thereby providing companies with a competitive advantage.

Social capital (SC) is widely recognized as a significant factor in fostering trust and cooperation among individuals at various levels, from organizations to larger communities. It represents the level of people's involvement in public life and the effectiveness of collaborative efforts in addressing common

problems. According to Wu (2018), SC is crucial for building relationships and promoting collective action. The structure and content of social relationships form the basis of SC, with higher levels of interpersonal trust leading to enhanced well-being and productivity in various aspects of life.

Furthermore, social capital (SC) plays a vital role in facilitating the integration of knowledge within organizations. It helps to reduce perceptions of opportunistic behaviour among group members and promotes the development of shared goals among stakeholders (Karahanna, Preston 2013). Higher levels of social capital enable individuals to establish knowledge, understanding, trust, and identification with one another, thereby enhancing effective and efficient teamwork (Ariani 2012). Consequently, it is essential for companies to nurture social capital at both the individual and organizational levels, as it is critical for fostering collective work, promoting interpersonal coordination, and driving economic and community development.

### **The dimensions of social capital**

According to Nahapiet and Ghoshal (1998), there are three distinct dimensions of social capital (SC).

The first dimension of social capital is the relational dimension, which focuses on the nature of personal relationships formed through interactions. It encompasses factors such as respect, friendship, and influences on behaviour. In the context of business networks, this dimension explores the linkages, behaviour, attitudes, and trust between firms. It is characterized by high levels of trust, shared norms, obligation, and identification among individuals.

The second dimension is the structural dimension, which pertains to the properties of the social system and the overall network of relationships. It focuses on the pattern of connections among actors and their positions within the network.

The third dimension is the cognitive dimension, which encompasses shared representations, interpretations, and systems of meaning among parties. It includes shared language, codes, and the ability to share knowledge. The cognitive dimension facilitates a common understanding of shared goals and appropriate behaviours within the social system. It also reflects individual skills in evaluating and interpreting work relations with colleagues or supervisors.

Overall, the dimensions of social capital (relational, structural, and cognitive) provide insights into the nature of personal relationships, the structure of networks, and the shared representations and meanings within a social system. These dimensions contribute to understanding the dynamics and resources embedded in social capital, although different perspectives may lead to variations in their definitions and interpretations (Nahapiet, Ghoshal 1998).

### **Pro-Environmental behaviour (environmentally responsible behaviour)**

Environmentally responsible behaviours, also known as pro-environmental behaviours, are voluntary and discretionary actions taken by individuals towards the environment (Paillé et al. 2014). In the workplace, pro-environmental behaviours refer to activities that go beyond employees' job descriptions but have a significant impact on improving the work environment. These behaviours include suggesting innovative ideas to enhance the organization's environmental performance, informing management of potentially environmentally harmful policies, and being willing to voice concerns when policies or rules do not align with the organization's environmental objectives.

Encouraging pro-environmental behaviour among employees is crucial for enhancing the environmental performance of organizations. Such behaviour involves actions like reducing energy consumption, addressing environmental pollution, and preserving the natural environment. Previous researchers have identified several key factors that contribute to the improvement of environmentally responsible behaviours in the workplace, including a green organizational culture, green selection facilities, green recruiting, green purchasing, top management commitment to environmental initiatives, and effective waste management (Shi et al. 2019).



Moreover, Koehler and Hecht (2006) stated that promoting environmentally responsible behaviours not only benefits the environment but also contributes to overall societal well-being, Building on this, numerous studies have highlighted the significant role of psychological capital (PsyCap) in predicting employee behaviours and attitudes (Luthans et al. 2007), including pro-environmental behaviour in the workplace (Sweetman et al. 2011).

## Conclusion and future research

This article highlights the significance of PsyCap, social capital, and pro-environmental behavior in the context of organizational performance and sustainability. The findings emphasize the need for organizations to prioritize the development of PsyCap and the cultivation of social capital to foster a positive work environment and promote employees' engagement in pro-environmental initiatives.

Our further research in this area will contribute to a deeper understanding of the dynamics between these factors and inform evidence-based practices for sustainable organizational development.

This paper described only the initial step of the research. The primary objective of the second phase is to examine the relationships between various variables.

The future study aims to investigate the relationship between psychological capital (PsyCap) and green creativity (GC), as well as green work engagement (GWE). Moreover, the study intends to explore how these relationships are mediated by green human resource management (GHRM). Another objective of this phase is to explore the relationship between social capital (SC) and green creativity (GC) and green work engagement (GWE) while examining the mediating effect of GHRM. In the third phase, a survey will be conducted to gather data from a selected sample of the target population.

## Literature

1. Ariani, D. W. (2012), *The Relationship between Social Capital, Organizational Citizenship Behaviors, and Individual Performance: An Empirical Study from Banking Industry in Indonesia*, "Journal of Management Research", 4(2). doi: 10.5296/jmr.v4i2.1483
2. Bandura, A. (1978), *Self-efficacy: Toward a unifying theory of behavior change*, "Psychological Review", 1, pp. 139–161.
3. Cannella, A. McFadyen, M. (2004), *Social capital and knowledge creation: diminishing returns of the number and strength of exchange relationships*, "Academy of Management Journal", 47(5), pp. 735–746.
4. Carver, C. S., Scheier, M. F. (2002), *Optimism*, in C. R. Snyder S. J. Lopez (ed.) *Handbook of positive psychology*. 1st edn. New York: Oxford University Press, pp. 231–243.
5. Giancaspro, M. L., Callea, A. Manuti, A. (2022), *'I Like It like That': A Study on the Relationship between Psychological Capital, Work Engagement and Extra-Role Behavior*, "Sustainability", 14(4). doi: 10.3390/su14042022.
6. Harraka M. (2002), *Bowling Alone: The Collapse and Revival of American Community*, Berkeley. doi: 10.15365/jocce.0602122013.
7. Jang, S.-H. Shin, J.-I. (2017), *The Effects of Social Capital on Creativity and Innovation Performance*, "International Journal of IT-based Management for Smart Business", 4(1), pp. 13–18. doi: 10.21742/ijitmsb.2017.4.1.03.
8. Karahanna, E. and Preston, D. (2013), *The effect of social capital of the relationship between the cio and top management team on firm performance*, "Journal of Management Information Systems", 30(1), pp. 15–56. doi: 10.2753/MIS0742-1222300101.
9. Koehler, D. A. Hecht, A. D. (2006), *Sustainability, well being, and environmental protection: perspectives and recommendations from an Environmental Protection Agency forum*, "Sustainability: Science, Practice and Policy," 2(2), pp. 22–28. doi: 10.1080/15487733.2006.11907981.
10. Luthans, F. Youssef, C. M. (2004), *Human, social, and now positive psychological capital management: Investing in people for competitive advantage*, "Organizational Dynamics", 33(2), pp. 143–160. doi: 10.1016/j.orgdyn.2004.01.003.
11. Luthans, F. et al. (2007), *Positive psychological capital: Measurement and relationship with performance and satisfaction*, "Personnel Psychology", 60(3), pp. 541–572. doi: 10.1111/j.1744-6570.2007.00083.x.



12. Nahapiet, J., Ghospal, S. (1998), *Social Capital, Intellectual Capital, and the Organizational Advantage*, "Academy of Management Review", 23(2), pp. 242–266.
13. Paillé, P. et al. (2014), *The Impact of Human Resource Management on Environmental Performance: An Employee-Level Study*, "Journal of Business Ethics", 121(3), pp. 451–466. doi: 10.1007/s10551-013-1732-0.
14. Seligman, M. E. Csikszentmihalyi, M. (2000), *Positive psychology. An introduction*. "The American psychologist", 55(1), pp. 5–14. doi: 10.1037/0003-066X.55.1.5.
15. Shi, J., Lu, C. Wei, Z. (2022), *Effects of Social Capital on Pro-Environmental Behaviors in Chinese Residents*, "Sustainability", 14(21), p. 13855. doi: 10.3390/su142113855.
16. Snyder, C.R; K.L. Sigmon, D. R. (2002), *Hope Theory: A Member of the Positive Psychology Family*. 1st edn, Eds. Handbook of Positive Psychology. 1st edn. Eds. Snyder, C.R. Lopez. New York: Oxford University Press.
17. Spreitzer, G. Porath, C. (2019), *Creating Sustainable Performance*, "Harvard Business Review", 90, pp. 92–99.
18. Srivastava, U. R. Maurya, V. (2017), *Organizational and Individual Level Antecedents of Psychological Capital and its Associated Outcomes: Development of a Conceptual Framework*, "Management and Labour Studies", 42(3), pp. 205–236. doi: 10.1177/0258042X17718739.
19. Stajkovic, A. D. Luthans, F. (1998), *Self-Efficacy and Work-Related Performance: A Meta-Analysis*, "Psychological Bulletin", 124(2), pp. 240–261. doi: 10.1037/0033-2909.124.2.240.
20. Sweetman, D. et al. (2011), *Relationship between positive psychological capital and creative performance*, "Canadian Journal of Administrative Sciences", 28(1), pp. 4–13. doi: 10.1002/cjas.175.
21. Wu, B. (2018), *From individual social capital to collective social capital: empirical evidence from inter-firm financing trust network*, "Journal of Chinese Sociology", 5(1). doi: 10.1186/s40711-018-0088-3.

## THE USE OF IDENTIFICATION OF EDUCATIONAL NEEDS IN CREATING THE IMAGE OF HIGH SCHOOLS – THE PERSPECTIVE OF THE LOCAL ENVIRONMENT

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**Abstract:** The purpose of this article is to present the results of research on the identification of educational needs of young people from primary and secondary schools in the Czestochowa subregion. The research was carried out as part of the preparation of the development strategy of the Czestochowa University of Technology. The research will serve to more effectively create the image of the university among the local community. Research conducted by means of a diagnostic survey among students of schools in Czestochowa showed that they do not have specific educational plans. Men are more likely than women to be oriented towards science education. Students also have little knowledge about the educational offer of the Czestochowa University of Technology, few of them declare their choice as a future place of study, and they are indifferent to the perception of its image by the local community.

**Key words:** image management, educational preferences, relations between high schools and local environment, creating of educational offer

### Introduction

For several years, Polish universities have been paying more and more attention to building their image in the local environment. They use various methods and strategies for this, including cooperation with local primary and secondary schools, creating an offer of educational services for their students, including various forms of the so-called universities for children and youth (Mioduchowska-Jaroszewicz et al. 2018, p. 91). Another form of promoting university's brand and shaping its image is organizing various types of events, including open door days, campaigns promoting scientific achievements of their employees, science festivals and many others.

Similar actions are undertaken by the Czestochowa University of Technology, as a good form of building university's brand, and at the same time, a way to reach potential students and their parents with an educational offer. In order to know whether campaigns undertaken in order to promote the university and to attract future students to it are noticed by local community, it is necessary to conduct research enabling gathering of knowledge, among others, on what pupils know about the University of Technology: how they perceive this institution and whether they identify it with a place where will continue their studies in the future.

In presented article, the authors will present results of a study on perception of the University of Technology and its educational offer as factors influencing its image among students of Czestochowa primary and secondary schools and indicate the potential possibility of its use in managing of the university image in long term.

### Literature Review

The image of an organization is a reflection of what people think about it, a kind of picture for given entity in minds of people who have direct or indirect contact with it (Sławiński 2011, p. 278). In modern society, it is becoming an increasingly important attribute of every organization, including a university (Golata, Sojkin 2020, p. 41).

Image management is inseparably associated with the classic marketing activities of enterprises, while in relation to public and non-profit institutions, it was perceived as redundant for decades (Oleksy 2022, p. 136). Only the need for them to compete to attract and retain students, who are their key clients, by means of the quality of education and a strong own brand, as well as the approach to students as entities without which these institutions have no reason to exist, brought change in this area (Azoury et al. 2014, p. 2; Witczak, Mitreęga 2015, p. 418).

A typical example of a change in approach to image-related activities is the increasing activity of university authorities related to inclusion of image-related issues in management activities. This is the result of the fact that universities managers have noticed that the popularity of a university and its ability to attract students is increasingly determined, among others, by its active building of relationships with stakeholders, which also include local communities, including children, youth and their parents (Nowacka 2016, p. 87; Lafuente-Ruiz-de-Sabando et al. 2018, p. 2; Adamska 2018, pp. 30-31). D'Uggento et al (2022) indicated that pride associated with the brand of the university is a crucial factor for students while making a decision to choose a university, therefore the image of the university is an important decisive factor. "students with a high reputation of their university develop higher brand experience, which then strengthens the pride to belong to the institution and identify with it" pride seemed to be a most evident factor in the multidimensional aspect of emotional engagement of students. the study revealed a positive association between the high brand experience of the university and the pride of the students.

Equally important are credibility, quality of educational services offered, as well as past and current perceptions by communities interacting with university (Ramdana et al. 2021, p. 359). For these reasons, in order to survive on the market and develop, also modern universities should constantly and professionally shape their image through conscious, deliberate, planned and systematic actions disseminating positive information about them in the long term (Pawlak-Wolanin, Gudowski 2016, p. 287).

It is particularly important to take actions for benefit of the local community to present intellectual potential of university and its achievements, which serves its prestige and visibility in social environment (Duarte, et al. 2010, p. 29; Załona 2019, p. 88; Kowalska-Musiał 2023, p. 2).

For image building and shaping positive relations with the social environment, it is also important to pay attention to fact that universities should be open to current changes in the environment, and those expected in the future (Golata, Sojkin 2020, p. 36).

All these factors mean that the creation of an image strategy requires managers to comply with typical for rational management activities undertakings, grouped into four basic groups of activities: planning, organizing, managing and controlling. At the same time, proper planning is crucial, as part of which it is necessary to analyze expectations towards university and its perception by stakeholders (Załona 2019, p. 89), which includes, among others, the local community.

Managing the university image also requires that the activities related to it are known to employees and accepted by them. It is also important that employees identify themselves with university and participate in shaping its image, and that their behavior manifests key values for university (Wæraas, Solbakk 2009, p. 453). Chin-Tsu found that at public universities in Iran, students' identification was positively related to the university brand positively. The Students identify themselves with the university brand and promote universities by word of mouth, student identification with the brand affects students engagement (Chin-Tsu 2016, p. 26).

Considering that the smaller the university, the more important it is for its current and future functioning to build relationships and a positive image in the local community, from which a significant part of its future students will probably come, it is necessary to constantly monitor how it is perceived in this community. An effective way of such diagnosis is conducting systematic marketing research among external stakeholders, for which e.g. online surveys can be used. Such actions in 2022 were also undertaken by the Czestochowa University of Technology, and selected results of these studies, regarding the perception of the university by students of Czestochowa primary and secondary schools, are presented later in the article.



## Materials and methods

The research presented in this text was quantitative. The chosen research method was a diagnostic poll in the form of 2 online surveys, one of which was intended for primary school students and the other for secondary school students. It was carried out in June 2022 among 1,317 primary school students in grades 7 and 8, and 1,039 secondary school students in grade 3. These were schools located in Czestochowa, while the students came mainly from this city or from towns belonging to the Czestochowa subregion. The research was carried out as part of the preparation of the development perspective of the Czestochowa University of Technology until 2030. Among the primary school students, 230 did not answer any question, and in the secondary school students case, it was 250 people.

The following research hypotheses were adopted:

H1. Both secondary and primary school students mostly do not have specific plans when it comes to choosing a place to study.

H2. Both secondary and primary school students have little knowledge of the educational offer of the Czestochowa University of Technology.

H3. For high school students, the most important when choosing a university are: attractiveness of chosen field of study, the university location and suggestions from friends.

H4. There are statistically significant differences between the educational preferences of male and female school students.

An indicator of planning future studies were declarations of choosing a place to study. The indicator of knowledge about the educational offer were the answers to questions about offered fields of study. In the survey questions, it was possible to indicate both fields of study conducted at the university and those which were not run by the university. The factors taken into account when choosing a university were the answers to a semi-open question. The three factors indicated in the hypothesis appeared most often in case of graduates of the Faculty of Management at the Czestochowa University of Technology (Przewoźna-Krzemińska et al. 2020), which is chosen by largest number of candidates applying for admission at this university. The differences between educational preferences of secondary school students were indicated by declarations of choosing an additional matriculation subject, which is important from the point of view of choosing future fields of study. Hypothesis 4 finds justification in research conducted in other cultural areas, e.g. Martin-Games et al (2022) study reveals that girls are more likely to choose careers related to social science, and humanities which make an impact on society while boys are more inclined towards science. Image promotion of society including the education system which promotes STEM as masculine, due to the preoccupied notion, and beliefs women do not identify themselves with these disciplines, as a result, a gap could be identified that of gender in these disciplines. Teachers' training and the role of schools could play a role in changing such perceptions and promoting a more realistic perspective so that the underrepresentation of women in the field of science and technology could be dealt with.

## Results

Among the primary school students who took part in the research and answered most of the questions, 428 were women, 405 men, and 128 declared that they did not want to answer this question. The vast majority (883 people) lived in Czestochowa, and only 78 outside this city. However, it can be assumed that there were even fewer people living outside Czestochowa, because additional question about the place where respondent lives gave quite fanciful answers, e.g. Los Angeles or Summoners Rift (a place from the game League of Legends).

Taking into account the respondents from secondary schools, 365 were women, 168 men, and 55 people declared their reluctance to indicate their gender. Contrary to primary schools, half of the respondents lived in Czestochowa (304 responses), and half lived outside Czestochowa (301 responses).



In order to verify H1, primary school students were asked whether they thought about studying, giving them a choice of answers in which they could indicate the place of study (Czestochowa or outside of it). Secondary school students were asked if they wanted to study, and then those who answered yes were asked where they would like to study. Among primary school students, 42% indicated that they were not thinking yet about studying, 9% said they wanted to study in Czestochowa, and 29% that they wanted to study outside of it (Table 1).

**Table 1 Indications of the willingness to study and the place of study by primary school students. Number of responses to the question "Are you already thinking about what you will study?" N = 1026**

Indications of Czestochowa as a place of study	Indications of another city as a place of study	Indications of no importance as to the place of study	No decision to study in the future
95 (9%)	301 (29%)	196 (19%)	434 (42%)

Source: own work

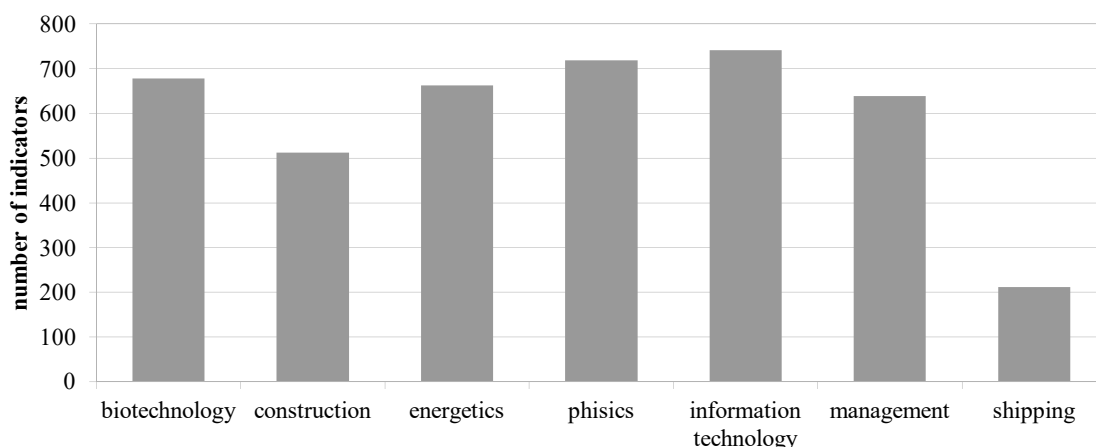
Interestingly, among 3rd grade students of secondary school, only 35% were able to indicate whether they wanted to study in Czestochowa or outside of it, and for 50% it was indifferent where they would study. Another 16% said they did not want to study. (Table 2). Among secondary school students who chose option of studying in Czestochowa, 17 (2.5% of all respondents answering this question) indicated the Czestochowa University of Technology, and 25 (3.7%) the University of Jan Długosz in Czestochowa. The remaining 5 people did not indicate a specific university.

**Table 2 Indications of Czestochowa as a city where secondary school students would like to study. Number of answers to the question "Do you want to study in Czestochowa?" N = 680**

Indications of Czestochowa as a place of study	Indications of another city as a place of study	Indications of no importance as to the place of study	No intention of studying after high school
48 (7%)	188 (28%)	343 (50%)	111 (16%)

Source: own work

To verify H2, survey questions about knowledge about the fields of study at the Czestochowa University of Technology were used. Pupils of primary schools were asked to answer the question whether they knew that it was possible to study fields indicated on the list at the university. It turned out that as many as 22% indicated the field of sea navigation, which is not taught at the university. On the other hand, fields offered by the university were indicated by 52% to 76% (Figure 1).

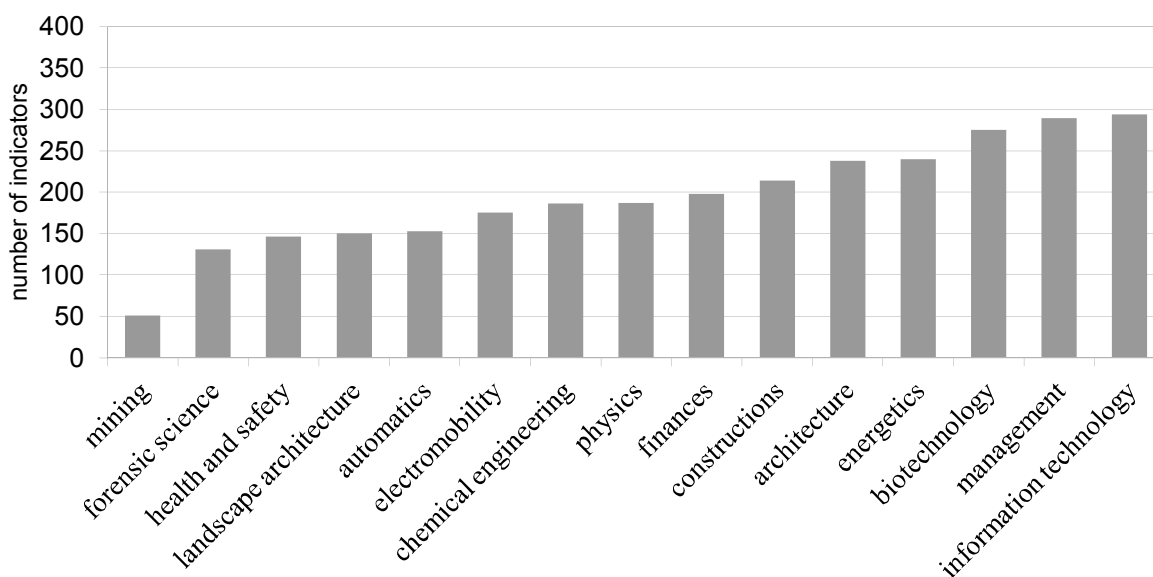


**Figure 1. Primary school students indicate fields of study that can be studied at the Czestochowa University of Technology. Answers to the question in the form of a supplementary test: "You can study at the Czestochowa University of Technology ...". N = 980.**

Source: own work

This means that a significant percentage of students do not know which fields of study can be studied at the university, taking into account that some students could choose answers at random. In case of high school students, 3 fictitious majors were given in the question. Two of them were indicated by few people: mining 8%, and criminology 21%. The third, architecture, was indicated by as many as 39%. Other directions were indicated by 24% to 48% (Figure 2).

The percentages refer to number of people who answered metric questions, so they did not resign from participating in survey in case of this question. It is surprising that more indications occurred in the case of primary school students. However, questions were not identical in both surveys, as they were adapted to the profile of the respondent. Since the number of majors to choose from in survey for high school students was quite long, it could be too tiring and some people could refrain from answering or indicate only some of them. On the other hand, primary school students may have been more interested in giving the correct answers. Taking into account small number of indications of the Czestochowa University of Technology as a university where they would like to study in future, high school students can say that they did not need to search for courses it offers. Considering the above, it can be said that H2 has not been unequivocally verified.



**Figure 2. High school students indicate fields of study that can be studied at the Czestochowa University of Technology. Answers to question "Does the Czestochowa University of Technology offer studies in field of study? Tick all the correct answers". N = 980.**

Source: own work

H3 has been partially verified positively. Most people indicated attractiveness of the field of study (67%), followed by costs associated with studying (39%), professionalism of teaching staff (37%), favorable location (36%) and attractiveness of city where university is located (36%). Suggestions from friends were indicated by only 5%, as were suggestions from family. On the other hand, 20% indicated reputation of university. Although D'Uggento et al. (2022) indicated that pride may be important when making decisions about choosing a university, their research concerned people already studying at one of the Italian universities. One can claim that feeling of pride is something that students feel, but potential candidates for studies do not experience it. This, in turn, may affect the perception of one's own choices made in the past. Otherwise it can be said that high school students before starting their

final year are more individualistic when it comes to university preferences. Nevertheless, it is worth noting that the main factor is attractive educational offer. Perhaps precisely because the university does not offer courses that would be attractive to students, they do not check what other courses they could study there.

In the case of the H4 verification, significant correlations were noticed between gender and choice of some additional subjects at matriculation examination. Women more often chose Polish, a foreign language, biology and physics, while men chose mathematics and computer science (Table 3).

**Table 3. Correlations between gender and choice of additional subjects at matriculation examination by students of high schools in Czestochowa**

Item	Standard		
	$\varphi$	$\chi^2$	p
<b>Polish language</b>	<b>0.261</b>	<b>37,678</b>	<b>0.000</b>
<b>Foreign language</b>	<b>0.138</b>	<b>10,488</b>	<b>0.001</b>
<b>Mathematics</b>	<b>-0.099</b>	<b>5.395</b>	<b>0.020</b>
Geography	-0.041	0.941	0.332
History	0.055	1,700	0.192
<b>Biology</b>	<b>0.086</b>	<b>4.124</b>	<b>0.042</b>
<b>Physics</b>	<b>0.208</b>	<b>24.047</b>	<b>0.000</b>
Chemistry	-0.021	0.243	0.622
<b>Information technology</b>	<b>-0.268</b>	<b>39.819</b>	<b>0.000</b>
Civics	0.022	0.269	0.604

Results with significant statistical relationships are bolded

Source: own work

It can therefore be said that women are more oriented towards humanities and natural sciences, and men towards technical studies.

## Discussion

The study presented in the article shows that despite the numerous events organized for primary and secondary school students by the Czestochowa University of Technology, knowledge about this institution on the part of the respondents is proportionally small. There is also no particular interest in it as a future university. It is also impossible to tell how they perceive university image.

This may be due to a number of factors resulting from both adopted methodological assumptions of entire study, as well as the fragment whose results are presented in the article. Taking into account number of events organized by the university, which are addressed to students, or even preschoolers, and observing interest that occur during them, it can be assumed that knowledge and interest in Czestochowa University of Technology among students should be much greater. On the other hand, when conducting a literature search, it was noticed that many studies, both domestic and foreign, include groups such as students, business representatives, parents (Ramdana et al., 2021; Azoury et al. 2014; Golata, Sojkin 2020; et. al.). This approach of researchers may indicate that students are not the optimal target group for this type of research. This is also evidenced by the results of the presented study, in which the "playful" approach to it was already visible in answers to the metric questions, which was mentioned in description of the sample.

However, taking into account number of students living in Czestochowa and its vicinity, taking up studies at all faculties of the university, it seems that the assessment of its educational offer and its quality are perceived positively by the local community, and thus its image is also positive. Such

a conclusion can be drawn by analyzing reports from research presented by other authors, in which they indicated the quality of education and the attractiveness of educational offer as one of most important factors positively influencing the image of a university (Zacłona 2021, Adamska 2018; Kowalska-Musiał 2023, et al.).

It also seems advisable that when undertaking similar research in future, it should be conducted in conditions controlled by the University of Technology (e.g. during the stay of students at events organized by it), and not in conditions of complete lack of supervision over these research, as it was the case in this study.

## Summary

To sum up, the issue of managing a university image has been an issue of interest to Polish and foreign researchers for many years. In research on this issue, special attention is paid to the examining of local communities, business representatives, external stakeholders, graduates and many other social groups entering into direct and indirect relations with universities.

However, there are no extensive studies involving potential future students, i.e. primary and secondary school students. The results of the study conducted on this group of people presented in the article indicate that knowledge about the interests of students and their plans for education after finishing school education can be built on their basis. This means that it is possible for university to obtain information on the basis of which future directions of education can be designed and the level of interest in studying at the university can be estimated.

On the other hand, using surveys among students as a source of information on the image of the university seems to be of little use, as it is probably an issue of no importance to them.

## Literature

1. Adamska M. (2018), *Research report on the role and importance of teaching staff in the opinion of students of the Opole University of Technology*, Wyd. Opole University of Technology, Opole.
2. Azoury N., Daou L., El Khoury Ch. (2014), *University image and its relationship to student satisfaction-case of the Middle Eastern private business schools*, "International Strategic Management Review" 2, pp. 1-8.
3. Chin-Tsu C. (2016), *The Investigation on Brand Image of University Education and Students' Word-of-Mouth Behavior*, "Higher Education Studies"; Vol. 6, No. 4.
4. Duarte, PO, Alves, HB, Raposo, MB (2010), *Understanding university image: a structural equation model approach*, "International Review on Public and Nonprofit Marketing", 7(1), pp. 21-36.
5. García-Durán D., Fernández-Oliveras A., Torres-Blanco V. (2022) *Factors to consider from education to promote an image of science and technology with a gender perspective*, "Heliyon", 8 e11169, doi: 10.1016/j.heliyon.2022.e11169.
6. Golata K. Sojkin B. (2020), *Determinants of building image and reputation of the university towards its stakeholders*, "Marketing of Scientific and Research Organizations", 35(1), pp. 29-58.
7. Oleksy K. (2022), *Creating the image of a scientist in the media on the example of academic research universities in Poland*, "Media Management", 10(2), pp. 135-170.
8. Kowalska-Musiał M. (2023), *Shaping the image of an institution on the example of a university*, <https://nowymarketing.pl/a/41423,kształtowanie-wizerunku-instytucji-na-przykladzie-uczelni-wyzszej>, p. 2. (access date: April 27, 2023).
9. Lafuente-Ruiz-de-Sabando A., Forcada J., Zorrilla P. (2018), *The university image: a model of overall image and stakeholder perspectives*, "Cuadernos de Gestión", 19(1), pp. 1-24.
10. Mioduchowska-Jaroszewicz E., Hawran K., Kowalik J. (2018), *Strategic marketing as a tool for building the image of universities in Szczecin*, "Studies and Works of WNEIZ US", 53(3), pp. 89-99.
11. Nowacka M. (2016), *Creating the image of a university among selected target groups*, "Scientific works of the Academy of Jan Długosz in Częstochowa. Pedagogy", XXV, 2, pp. 85-100.
12. Witczak O., Mitreğa M. (2015), *Management of scientific productivity in the context of building a university brand*, "Scientific Journals of the University of Szczecin 875, Problems of Management, Finance and Marketing", 41(1), pp. 415-424.

13. Pawlak-Wolanin A., Gudowski J. (2016), *Influence of the internal client on creating the image of a private university*, "Scientific Notebooks of the Jan Wyzkowski University. Studies in Social Sciences", 9, pp. 287-302.
14. Przewoźna-Krzemińska A., Kukowska K., Randak-Jezińska M., Skolik S., Chraperek E. (2020), *Report on the career paths of graduates of the Faculty of Management at the Czestochowa University of Technology*, academic year 2019/2020, Czestochowa.
15. Ramdana A.M., Rahayua A., Wibowoa L.A., Dirgantari PD (2021), *The effect of uniqueness and student's experience in improving university image: Empirical study at private universities in Indonesia*, "Management Science Letters", 11, pp. 357-364.
16. Sławiński K. (2011), *The effectiveness and measurement of image-building activities of universities in Poland*, "Scientific Notebooks of the WSB University in Wrocław", 26, pp. 277-288.
17. *Development strategy of the Czestochowa University of Technology for the years 2023-2027*, <https://pcz.pl/uczelnia/strategia-Rozwoju-uczelni> (access date: 28.04.2023).
18. D'Uggento A.M., Petruzzellis L., Piper, L., Gurrieri A.R. (2022). In the name of the University: the choice to promote as a tool to influence decision-making. "Quality & Quantity", August 2022 (4), <https://doi.org/10.1007/s11135-022-01475-w>.
19. Wæraas, A. Solbakk M.N. (2009), *Defining the essence of a university: lessons from higher education branding*, "Higher Education", 57(4), pp. 449-462.
20. Załona T. (2019), *Managing the instrument for shaping the image of a university*, "Economic Studies. Economy, Society, Environment", 1(3) pp. 86-98.



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