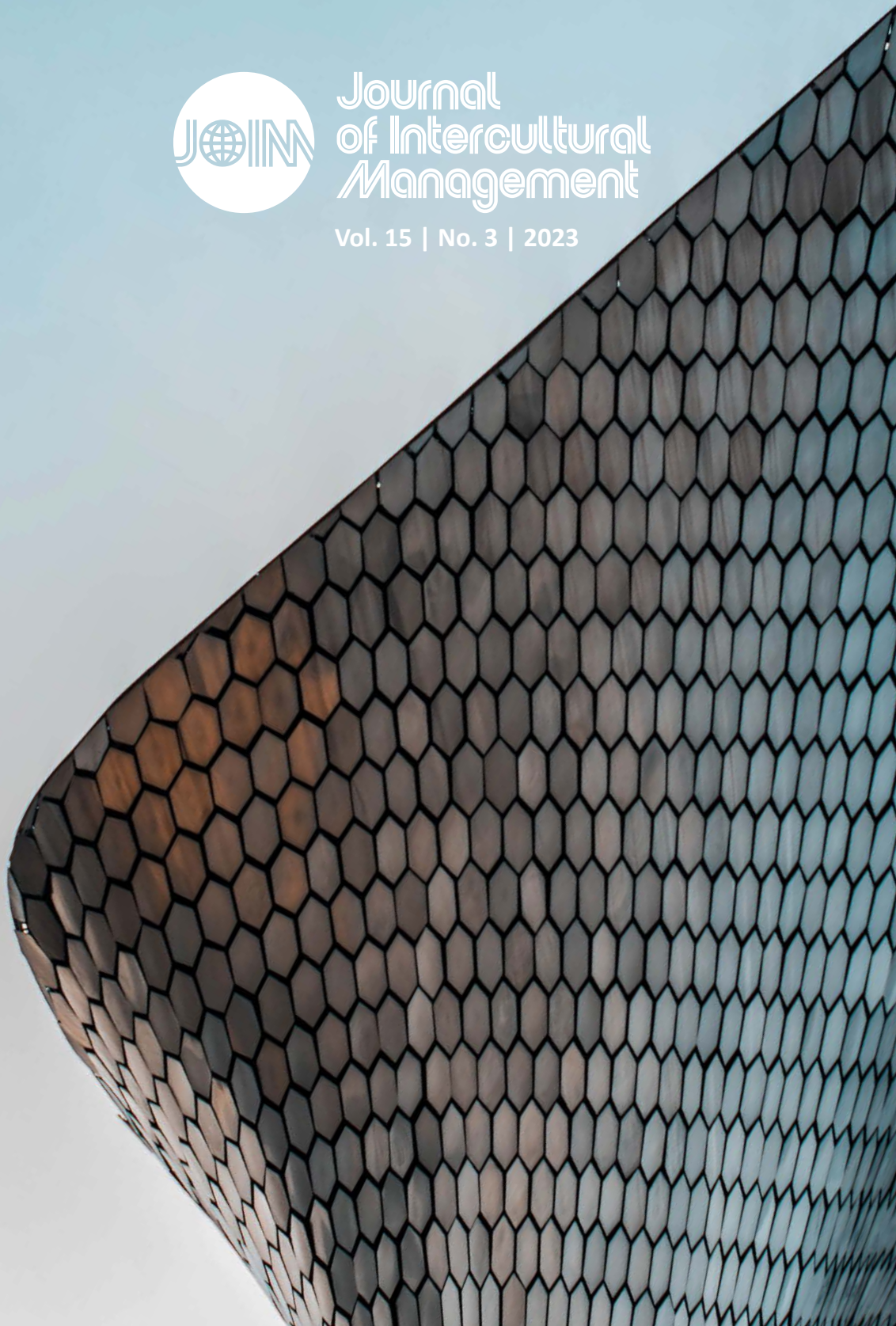




# Journal of Intercultural Management

Vol. 15 | No. 3 | 2023



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All the articles published in the journal are subject to reviews.

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eISSN 2543-831X

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# Challenges for the Aviation Market Related to Decarbonization and Sustainability in the Context of LOT Polish Airlines Operations

Received: 23-10-2023; Accepted: 14-11-2023; Published: 27-12-2023

## ABSTRACT

**Objective:** In this article, the authors described the regulation on decarbonization and sustainability in the aviation market. Formal implementations of decarbonization and sustainable development in aviation were indicated, taking into account mainly the guidelines of the European Union, IATA, and ICAO. These regulations are important from the point of view of the dynamics of air transport market growth, what is the basis of economic theory. In addition, it is part of the fight against climate change, to which Poland is obliged (inter alia by the Paris Agreement). The purpose of the study is the understanding of the perception of decarbonization and sustainable development revealed by the young customers and the evaluation of practices in this field of the LOT Polish Airlines PLL LOT company analyzed in this case study.

**Methodology:** The authors used a case study of LOT Polish Airlines and an empirical survey of 190 students to verify to what extent the issues under regulation are important according to young customers and how they evaluate the sustainable activities carried out by LOT.

**Findings:** Despite LOT's significant commitment to sustainability, in the perception of students, these activities are not sufficiently communicated.

**Value Added:** The main contribution of the proposed article is to support airlines by presenting key conclusions on decarbonization. The attitudes of young student respondents towards airline sustainability and the recognition of LOT's airline activity in this area were also verified.

**Recommendations:** Airlines, in parallel with their sustainability activities, should develop a pathway for passenger education and clear communication about pro-environmental changes.

**Key words:** aviation, decarbonization, individual voluntary carbon offset, LOT Polish Airlines, CORSIA, Fly Net Zero, ReFuelEU, air carrier market

**JEL codes:** R41

## Introduction

In the last ten years, the aviation sector has made improvement in CO<sub>2</sub> emissions per RPKs by 21.5%, new more efficient aircraft types have been launched to the market, and over 365 thousand flights have been fueled with SAF – Sustainable Aviation Fuel (Aviation Benefits Beyond Borders, 2022). Despite the far-reaching progress, aviation is still on its way to net zero emissions. A number of documents at various levels define the way to sustainability in aviation. The Polish market is influenced by CORSIA (ICAO), ReFuelEU Aviation (EU), and Fly Net Zero (IATA). Development in the context of further growth of aviation market will require decarbonization measures. The scope of changes is defined in documents created by various institutions (e.g., IATA, ICAO, European Union). Their role in shaping the future of aviation is important, and they all emphasize decarbonization. The issue of decarbonization in the European Union transport is raised increasingly frequently. The Kyoto Protocol (1997) and the Paris Agreement (2015) set the layout for the broader dialogue on this problem.

The pressure to decarbonize aviation is due to the dynamic growth of this mode of transport, on the one hand, and its carbon intensity on the other. The ability to adapt to sustainability criteria will determine the competitiveness and viability of aviation companies in the near future and this concerns also the continuously growing aviation market in Poland. The issue of decarbonization is of special importance also to one of the main carriers on the domestic market, that is, LOT Polish Airlines (further LOT).

Our paper addresses the changes in airline operations associated with decarbonization. The example of LOT as a carrier of strategic importance for Poland was used for the analysis. The purpose of this study is to indicate the directions

of change in aviation on the basis of the introduced regulations and to identify the implications for the national air carrier. It aims also to create a greater understanding of the decarbonization process in the perception of young customers of the Polish air carrier.

## Theoretical Background

### *Polish Aviation Market*

There are many factors that influence the growth of demand and supply of air transport – including market factors (inflation, unemployment rate, raw material prices, GDP levels, development of competition, access to new markets, implementation of new technologies, management skills) and non-market (pandemics, natural disasters, accidents, national or institutional policies, technical progress, regulation international and domestic institution, environmental policy) (Cowie, 2010; Vasigh et al., 2008; Kaczmarek, 2011). All these factors contribute to changes in air transport.

The air market is evolving constantly. The most noticeable example is the effects of the pandemic. The SARS COV<sub>2</sub> has caused changes in the behavior of air transport passengers. Between 2020 and 2022, there was a large decrease in the number of passengers, especially those on business trips. In 2022, the market started to grow rapidly again (64.4% increase in traffic in comparison to 2021) (Air Passenger Market Analysis, 2022). Based on the forecasts from aviation equipment manufacturers, passenger traffic is assumed to grow by 3.6–3.8% by 2040 (Airbus, 2021; Boeing, 2021).

Furthermore, the Eurocontrol forecast assumes a market growth on the European continent of 1.5% (Eurocontrol, 2023). Similarly, in Poland, which is one of the European sub-markets, demand for aviation services is also assumed to grow by 4.9% per annum (Tłoczyński & Zamojska, 2023). Poland's share of EU traffic is increasing year by year (excl. COVID-19 restriction period) and reached 3.78% in 2021 (compared to 1.91% in 2012) (Eurostat, 2023).



In 2022, air carriers operating on the Polish market carried 36 MM passengers, more than double than in 2021, representing 83% of 2019 traffic (CAA in Poland, 2023). The structure of air carriers on the Polish market is comparable to other countries with similar development parameters (Spain, Italy, Croatia, etc.) (CAPA, 2023). Poland is dominated by low-cost traffic (LCC). It held a 61% share of passenger transport in 2022 (5 pp. more than in 2019). In contrast, legacy air carriers held a share of approximately 38% (8 pp. less than in 2019) (CAA in Poland, 2023). This traffic structure is an indicator of intra-regional competition. However, the national air carrier LOT holds a decisive share in traditional traffic with the result of 61% in 2022 (in comparison: Lufthansa – 11%, Enter Air – 6.5%, Air France – 2.1%, KLM – 4.6%, and British Airways – 1.9%) (CAA in Poland, 2023). The dominance of national carriers on domestic markets is natural. LOT Polish Airlines has the largest share at its home airport – Warsaw and, additionally, offers connections from regional airports (Cracow, Gdansk, Katowice, Wroclaw, Poznan) (LOT Polish Airlines, 2023).

By 2030, it is planned that LOT will have enlarged its fleet to over 100 aircraft (Rynek Lotniczy, 2023). The investment is linked to the realization of the CPK (Central Airport for Poland) plans and the aircraft replacement process. Undoubtedly, the modernization and the purchase of a new aircraft is linked to the assumed increase in demand for air services. On the other hand, the changes will have a negative impact on the environment. Therefore, in the face of environmental challenges, LOT Polish Airlines is forced to take decarbonization measures immediately.

## Regulations on Decarbonization Connected with Aviation

Due to the potential risks associated with the rapid growth of the aviation market, it is widely indicated that air transport should be decarbonized. Moreover, aircrafts emit gases and molecules directly into the upper troposphere and lower stratosphere. These gases and molecules change the concentration of greenhouse gases (GHG) in the atmosphere (including CO<sub>2</sub>, ozone, and methane), cause



the formation of condensation trails, and may increase cirrus cloudiness (Penner et al., 1999). “The chemical composition of exhaust gases from aircraft turbine engines, as a result of further photochemical reactions taking place in the atmosphere, causes other negative phenomena like acid rain and photochemical smog” (Pawlak & Kuźniar, 2017). All of these aspects contribute to climate change.

Aviation needs to adapt climate change mitigation solutions. Many actors are trying to influence the growth of sustainable aviation, including European Union, the International Air Transport Association (IATA), or the International Civil Aviation Organization (ICAO). All these entities provide recommendations for decarbonization shown in the table below.

**Table 1.** Requirements of documents

FIELD/ DOCUMENT	SAF	NEW TECHNOLOGY	OPERATIONAL EFFICIENCY	OFFSET
ReFuelEU (European Union)	2025 – 2% SAF in fuel 2030 – 5% SAF in fuel (incl. 0,7% synthetic/ e-fuels) 2035 – 20% (5%) 2040 – 32% (8%) 2045 – 38% (11%) 2050 – 63% (28%)			
CORSIA (ICAO)	2021–2023 – voluntary 2024–2026 – first phase 2027–2035 – second phase			
Fly Net Zero (IATA)	2025 – 381 megatons (Mt) of CO <sub>2</sub> abatement; incl. 2% share in it 2030 – 979 Mt, 5% 2035 – 1,703 Mt, 17,5% 2040 – 3,824 Mt, 40% 2045 – 6,153 Mt, 55% 2050 – 8,164 Mt, 65%	2040 – 3,824 megatons (Mt) of CO <sub>2</sub> abatement, incl. 7,5% share of non-drop-in fuel technology 2045 – 6,153 Mt, 10% 2050 – 8,164 Mt, 13%	2025 – 381 megatons (Mt) of CO <sub>2</sub> abatement; incl. 1% business as usual improvements 2030 – 979 Mt, 2% 2035 – 1,703 Mt, 3% 2040 – 3,824 Mt, 3% 2045 – 6,153 Mt, 3% 2050 – 8,164 Mt, 3%	2050 – reducing transport emissions by 90% by 2050, compared to 1990 levels

Source: ReFuelEU, CORSIA & Fly Net Zero.

ReFuelEU is part of the Fit for 55 package, which in turn is the result of the work on the European Green Deal (European Green Deal, 2023). The concept is based on incorporating increasingly more sustainable aviation fuel (SAF) into the fuel tanked. SAF is a solution not interfering with the aircraft structure. ICAO defines SAF as renewable or waste-derived fuel that meets several sustainability categories (e.g., the reduction in net life cycle GHG emission by at least 10% in comparison with conventional fuels). From January 2022, seven different SAF production pathways have been certified for blending with conventional kerosene at a volume ratio of up to 50% (Teoh et al., 2022).

The document also assumes the use of e-fuels (synthetic fuels), which are a substitute for fossil fuels. This types of fuel are hydrocarbon fuels synthesized from hydrogen ( $H_2$ ) and  $CO_2$ , where  $H_2$  may be produced in the process of water/steam electrolysis and  $CO_2$  is captured from the combustion of fossil, biogenic sources, or directly from the atmosphere. The benefits in terms of climate change mitigation are unclear: e-fuels can either have higher or lower climate change impacts (compared to fossil fuels), depending on factors like: the electricity mix, the origin of  $CO_2$ , the technology for  $H_2$  production, and the electrolyzer efficiency (Ballal et al., 2023).

ReFuelEU also prohibits the practice of “tankering”, i.e., buying more fuel than necessary for a flight. This practice is used, among others, to reduce costs (refueling at airports where fuel is cheaper or avoiding refueling with SAF) but results in increased combustion and GHG emission. According to Tabernier et al. (2021), keeping the fuel consumption necessary for a safe flight at a minimum level is the simplest and most effective way to lower emissions from that flight, because tankering is responsible for 901,000 tons of  $CO_2$  emission per year. The Fit for 55 package also includes changes to the EU ETS by phasing out free allowances for the aviation sector by 2026. The industry will take more financial responsibility for its carbon footprint, which is a solid cost signal leading to emission reductions. This solution was established at the end of 2022 and, according to it, the EU ETS will apply to intra-European flights (including flights departing from the UK and Switzerland), while CORSIA will apply to routes to and from third countries participating in CORSIA between 2022 and 2027 (Proposal for a Directive of the European Parliament

and of the Council amending Directive 2003/87/EC as regards aviation's contribution to the Union's economy-wide emission reduction target and appropriately implementing a global market-based measure).

CORSIA is a solution proposed by ICAO and adapted by the European Union. CORSIA is a baseline system under which CO<sub>2</sub> credits can be freely traded on the so-called credit markets. The baseline above which emissions must be compensated or reduced is defined as the average of the total CO<sub>2</sub> emissions from all international flights covered by the scheme in 2019 and 2020. This will meet the Carbon Neutral Growth 2020 strategy target. In its essence, the scheme resembles the EU ETS. Airlines have the choice between purchasing credits for emissions in excess of their individual CO<sub>2</sub> limit or reducing emissions. This decision will depend on the abatement costs for an additional unit of CO<sub>2</sub>. In this way, CO<sub>2</sub> can be reduced in a cost-effective way while meeting a given environmental target (Scheelhaase & Maertens, 2020).

In 2021, the International Air Transport Association (IATA) launched Fly Net Zero regulations. The main idea of the commitment is to achieve net zero carbon emission by 2050 (IATA, 2021). The strategy is based on four pillars: (1) SAF, (2) new aircraft technologies, (3) improvement of infrastructure and operational efficiency, and (4) offset. The approach is more comprehensive – addressing not only the mentioned earlier SAF but also other questions. Technologies improving the efficiency of a new aircraft by an average of 1–2% per year are unfortunately counterbalanced by an average annual growth in travel of 4–5% (Kramer et al., 2022). According to the IATA approach, new technologies include, among others, aerodynamic and alternative propulsion solutions (i.e., electric or hydrogen). The main problem with hydrogen fuel nowadays is enlarging the size of traditional tanks, because of its larger volume. It is proposed to achieve 30% reduction in fuel burn by the year 2035 due to the evolution of technology. The same year electric/hydrogen aircraft should be available for regional markets (50–100 seats, 30–90 min flights). Five years later, in 2040, there will be new aircraft solutions available, such as blend-wing bodies (full-scale working prototypes) and electric/hydrogen for short-haul markets (100–150 seats, 45–120 min flights). According to the Waypoint 2050 report, by 2050, regional flights should be operated by electric, hybrid,

and hydrogen fleets (Aviation Benefits Beyond Borders, 2022). New body solutions are primarily associated with proposals such as canard wing, blended wing, strut, or truss-braced wing. Efficiency can be described as aircraft operations (airline and aircraft operator). It may be measured using weight reduction, aerodynamic improvements of in-service, or systems improving efficiency during operations. In 2045, necessary infrastructure for new energy requirements (like low carbon electricity or hydrogen) will be available. On the other hand, enhancements in air traffic management and the extent of airport operations refer to structural changes in air traffic management (ATM operations), energy savings at the airport, restrictions on the use of auxiliary power units, single-engine taxiing, and reduced taxiing times (IATA, 2021).

In addition, Fly net zero takes into account passenger liability proposing individual voluntary carbon offset (IVCO) as a possibility. These solutions transfer the “polluter pays” principle to the level of the individual (Berger et al., 2022; Gössling et al., 2009; Ritchie et al., 2021; Müller, 2008). IATA defines individual voluntary carbon offset as a method for individuals (e.g., airline passengers) or organizations to “neutralize” carbon emissions connected with flight by investing in carbon reduction projects (IATA, Carbon Offset, 2023). IVCO programs, in general, are based on a unified pricing system connected with the average emission of flight (Choi et al., 2018). Dubois et al. (2019) indicated that there is a need for stronger policy interventions at the passengers’ level (e.g., higher taxes or reduced availability of air travel), but it will be acceptable only if the rules would apply to everyone. The proposed legislation mainly affects airlines, but even now passengers can take part in voluntary activities such as individual carbon offset or International Air Passenger Adaptation Levy (IAPAL).

## Methodology

The research conducted is exploratory in nature (Stebbins, 2001; Vanhamme, 2010). Based on the literature, four areas of particular relevance to sustainable airline transformation were identified, among them: technological

development – the need for changes in the fleet, usage of sustainable aviation fuel, individual voluntary carbon offset offer, and increasing operational efficiency. These areas formed the basis for the construction of the research tool (student survey questionnaire) and the structure of the case-study analysis.

The first tool used in our study was the case study method (Yin, 2018) based on the analysis of the largest air carrier operating in Poland – LOT. The choice of such a company is not accidental. The main rationales for the choice of the sector and carrier include:

- Representativeness of the air carrier on the scale of the CEE region,
- The share of air transport in environmental pollution is 13% in gas emissions and 5% in global CO<sub>2</sub> emissions (European Environment Agency, 2022).

LOT Polish Airlines is a public air carrier, its shareholders are the State Treasury (69%) and the Polish Aviation Group (31%). The Polish air carrier is one of the 12 oldest airlines in the world, with origins dating back to 1929. The public capital structure entails many advantages as well as risks for the economic functioning of the company. The pros include the possibility of receiving state guarantees for the purchase of rolling stock and the implementation of relevant policies, e.g., pro-environmental. The cons include the dependence on politics and the lack of flexibility in decision making, which is a consequence of the period of time needed to take decisions (LOT Polish Airlines, 2023).

The micro- and macroeconomic environment of the company's operation points to several levels of competition and cooperation. In terms of competition, we observe intra-industry (LOT Polish Airlines versus Ryanair, Wizz, Lufthansa, Enter Air) and international (LOT competes with global carriers – the carriage of passengers by selected European carriers on the Polish market is presented in Table 2) rivalry. On the other hand, LOT struggles with rail, bus, and private car carriers. The competitiveness of air transport and thus of the air carrier increases with distance. It is assumed that the distance in which air transport is more competitive with other alternative means of transport is around 500–600 km (Tłoczyński, 2017a).

**Table 2.** Air carriers operating on the Polish market (2019–2022)

Air carrier	2019	2020	2021	2022	Dynamic (2019=100)
<b>Ryanair</b>	11 970 956	3 911 458	5 689 777	13 313 781	111.21%
<b>LOT Polish Airlines</b>	11 792 713	3 585 503	4 395 576	8 469 123	71.81%
<b>Wizz</b>	9 487 041	3 354 764	3 309 516	7 616 727	80.28%
<b>Lufthansa</b>	2 345 158	562 147	753 364	1 518 248	64.74%
<b>Enter Air</b>	917 004	273 228	800 316	900 510	98.20%
<b>KLM</b>	665 646	263 958	415 429	637 521	95.77%
<b>Total market</b>	43 840 172	13 375 725	16 699 056	35 983 471	82.08%

Source: Civil Aviation Authority in Poland.

The Polish air market is rapidly recovering from the Covid-19 pandemic (air traffic in 2022 reached 82% over that in 2019). The participation of LOT in the market share has been stabilized for many years. Further growth in the number of passengers carried is to be expected. Such indications result from, among others:

- Construction of the Central Airport in Poland,
- Prospects for the development of passenger air traffic,
- Increasing mobility of the Polish society,
- Prospects for GDP growth in Poland (Tłoczyński & Zamojska, 2023).

In the context of dynamic development, this paper focuses on the implementation of decarbonization processes. The paper takes into account documents regulating the implementation of pro-environmental policies by the European Union and global institutions, as well as available documents published by LOT and governmental institutions.

When assessing the risk of implementing the decarbonization process, an analytical method was used, taking into account the ESM method. EMS is a set of guidelines necessary to analyze the management of an organization, based on the identification, assessment, monitoring, and reduction of negative factors of the company's activities on the environment (ICAO, 2018).

It is considered a more rigorous standard than ISO 14001, while at the same time, providing legal security using compliance with environmental regulations introduced by public institutions (Mańkowska et al., 2023) which, in the case of LOT, is advisable.

To date, Polish legislation has not forced air carriers to implement pro-environmental procedures, despite the fact that Poland has an Environmental Protection Law (Parliament in Poland, 2001). In business practice, LOT conducts pro-environmental activities on many levels. Examples include cooperation with the Orlen Group to use SAF, or the offset policy.

For the purposes of the article, students were also surveyed. Using the knowledge gathered during the desk study of LOT activities, we prepared a questionnaire. It tested whether the students were familiar with concepts related to sustainable aviation (e.g., SAF, IVCO), whether they had experience with LOT, and how they rated the various elements of LOT's sustainability policy, especially those concerning decarbonization. A total of 190 students took part in the survey conducted from 07–16.10.2023, of whom 116 were studying economics. The majority of respondents were male (54%). 92% of those surveyed were aged 18–25, the remainder were older. A slightly higher proportion of respondents were Master's students (52%). One person was a doctoral student. 51% of respondents (97 people) had experience with LOT. Most of them (63%) had flown with LOT between 2 and 5 times, 27% had flown only once. The remainder had more extensive experience involving 6 flights and more.

## Research

Starting with the case study, it can be observed that LOT Polish Airlines has a long tradition of activities connected with sustainability. In 2009, the air carrier became involved in environmental activities by providing passengers with the possibility to use a CO<sub>2</sub> emissions calculator on its website. This allows each traveler to see how much carbon dioxide, per passenger, will be emitted into the atmosphere on their flight, and what the cost would be to neutralize



the global warming impact. The booking passenger can make a voluntary donation to neutralize the negative impact of CO<sub>2</sub> on the environment. In addition, LOT is the first Star Alliance member to join the Aviation Global Deal – AGD (the group of airlines actively supporting climate protection measures). The main objective of this group is to bring about a global solution for an emissions trading scheme in the aviation sector. The AGD includes, among others, Air France/KLM, British Airways, Cathay Pacific, Finnair, as well as the world's largest airport operator, BAA, and the international NGO The Climate Group (Tłoczyński, 2017b). Since October 2019, LOT has been supporting the Forest Carbon Farms project, which aims to increase the amount of carbon dioxide captured and stored by Polish forests. Over a period of 30 years, each hectare of forest covered by the program will absorb additional 37 tons of CO<sub>2</sub>, i.e., a total of 1 MM tons more than what these areas would have absorbed without the measures implemented with LOT's support. The project is being implemented as an initiative of Destination ECO (LOT Destineco, 2023). As part of its operational activities, LOT is successively reducing CO<sub>2</sub> emissions by optimizing flight routes and operations procedures, precise selection of climb and landing speeds, precise calculation of the aircraft's center of gravity, regular airframe and engine cleaning and reducing the weight of the aircraft. Whenever possible, the carrier uses an external power supply instead of fuel at airports. LOT also invests in technical solutions like flight planning data analyzing, which allows making connections more efficiently and economically. The airline is constantly modernizing its fleet and implementing environmentally friendly technologies. These activities are also carried out off-board. Moreover, LOT is active in reducing plastic items, including straws, as well as plastic-coated film and paper. In September 2018, the company was awarded the Green Office certificate, which confirmed proper environmental management in the office building. LOT attaches great importance to proper waste management, water, energy- and paper-saving solutions, and pays close attention to their environmental policies when selecting suppliers (LOT Destineco, 2023; Destineco App, 2023). Furthermore, LOT has its own environmental policy. It is based on 10 points among them: compliance with regulations, cooperation with IATA, rational waste management, raising

environmental awareness among employees and co-workers, promoting environmental performance among customers and incorporating environmental performance criteria into purchasing processes. In summary: as of 2023, LOT is involved in a number of sustainable activities, which are mainly communicated on the carrier's website and in the trade media. The range of activities is wide and reflects in particular the assumptions of IATA, which takes the broadest approach to decarbonization and sustainability. As a next step, it was verified whether the activities undertaken are recognized by potential student customers/clients.

The results of the student survey indicate that practically all respondents (98%) have encountered the expressions 'greenhouse gas emissions' (98%) and 'carbon footprint' (96%). At the same time, 66% of surveyed students had heard of 'decarbonization' related to these concepts. Significantly fewer respondents were aware of the terms 'SAF' (37%) and 'voluntary carbon offset' (24%).

The students surveyed rated (on a scale from 1 to 5, where 1 means bad, 2 – rather bad, 3 – neither good nor bad, 4 – fairly good, 5 – good) the validity of the airline's sustainability proposals. When considering the median across all students, a value of '4' was assigned to the travel carbon calculator, commitment to species conservation and biodiversity maintenance, commitment to reforestation, actions that reduce energy consumption or support investment in renewable energy, replacement of the fleet with a lower-emission fleet, elimination of plastic from the airline's offerings, changing the equipment and materials used to greener ones, and use of sustainable jet fuel. The only lower median score (3) was for voluntary carbon offsets. The same pattern was also observed when respondents were divided into those with and without experience with LOT.

The students surveyed were also asked whether they were familiar with the sustainability elements of LOT's offerings and activities. Of those who reported traveling by LOT Polish Airlines (n=97), 61% said they were aware of the airline's fleet upgrades (including the purchase of the Boeing 787 Dreamliner, Boeing 737 MAX), while 57% said LOT was reducing the proportion of plastic in its operations, including by switching from plastic to wooden cutlery. The fewest respondents were aware of LOT Destineco's program (15%)

and the airline's involvement in measures to protect the species of Manchurian cranes at the Zoo (Gdansk, Warsaw) (19%). Also in the group that had never travelled by LOT ( $n=93$ ), the most widely known issues were fleet replacement (among 43% of respondents in this group) and plastic cancellation (49%). And similarly, the least familiar were the LOT Destineco program (11% of indications), crane protection (24%), and the Star Alliance program (24%).

A moderately strong correlation was detected between the experience of using LOT services and knowledge of the Star Alliance program (0.33). A correlation was also detected between the use of LOT services and knowledge of fleet modernization (0.29), balanced meals on board (0.24), and use of reusable plates (0.18). All of these relationships were statistically significant with  $p<.05$ .

In summary, the students surveyed had a general understanding of decarbonization and sustainability issues in aviation. It is natural that among those who traveled by LOT, the proportion of respondents recognizing the elements of sustainability proposed by LOT was higher. However, among those who had never flown with the surveyed carrier, knowledge of its activities was also significant.

## Discussion and Recommendations for Air Carriers

As a first step, consideration should be given to educating passengers about their own options for reducing emissions resulting from the flight – through the use of individual voluntary carbon offsets. It has been shown that respondents are very familiar with the terms 'greenhouse gas emissions' and 'carbon footprint', which means they are aware of the problem. At the same time, the terms 'SAF' and 'carbon offset' were found to be much less common. This indicates that, despite being aware of the problem, the students surveyed are not familiar with solutions that can influence GHG reduction.

Considering that, the first solution, which should be more intensively promoted, is individual voluntary carbon offset (IVCO). Researchers point that the greatest amount of toxic compounds is introduced in the higher layers

of the atmosphere (8–12 km above sea level), i.e., at altitudes of long-haul flights (Pawlak & Kuźniar, 2017). It follows that IVCO should be promoted especially for flights of this nature. Berger et al. (2022) indicated that the cost of the offset does not have a meaningful effect on the decision to compensate. According to their research, neither booking classes nor flight length category are predictors of IVCO. Cost of the offset and cost of the ticket have no significant influence on the decision to compensate one's flight-related emissions. Interestingly, the route is not indicative: climate vulnerability of the destination (measured by climate risk index) does not predict offset behavior. On the other hand, research showed that passengers' subsidiary spending and buying vegetarian meal is associated with a higher likelihood of IVCO. In Schwirplies' and Zeigler's (2016) research conducted among more than 2000 participants from Germany and the USA, results in both countries supporting the hypotheses about significant positive influence of environmental awareness, warm glow motives, and the desire to set a good example on offset behavior. At the same time, some passengers' motives differ considerably, like: a green identity enhances the willingness to pay higher prices for climate-friendly products among German clients, whilst weakly decreases the willingness to buy carbon offset in the USA. Ritchie, Kemperman and Dolnicar (2021) discovered that local projects and those perceived to be effective at reducing a higher percentage of emissions have a greater impact. The offer of offsets' choice and of various providers does not influence willingness to pay. This suggests that the most effective way of promoting offset (even for international flights) may be developing local projects and communicating actual results. LOT is active with IVCO and offers its passengers the opportunity to buy offsets regardless of the length of the route. An additional advantage is the financing of local project in Poland. It offers potential passengers from the Polish market a chance to verify and assess the legitimacy of the project being financed. Additionally, challenges to offsets are connected with public critique. For example, forest carbon credits have been kept outside of some carbon markets (like the European Union's ETS) because of their unclear results in CO<sub>2</sub> mitigation. Reducing carbon emissions by increasing energy efficiency has become more popular for offsetting,

although it is also controversial. Often, carbon reduction projects would have taken place anyway, which can have adverse effects if decision makers do not implement policies to use them as an additional tool (Wozny et al., 2022). Assuming, LOT, like any other carrier, should incorporate the researches' observations into its offset strategy. LOT's undoubted advantage is the implementation of a local program, which should be promoted irrespective of the passengers' destination. At the same time, students' low knowledge of IVCO suggests that these programs should be promoted more intensively. Preferences and communication should differ depending on the country of origin of the passenger due to the cultural differences displayed; therefore, consideration should be given to which target groups to effectively address the offset message.

Another solution to reduce a passenger's own emissions is to pay a surcharge for sustainable aviation fuel. The majority of students surveyed (54%) would be willing to pay around 10% extra to the current ticket price if PLL LOT used SAF. 38% of respondents would not opt for a surcharge under the assumption of using SAF. The remainder would be willing to pay more than 10% more for a ticket. In terms of refueling, it should be avoided. It is also important to monitor the SAF and e-fuels market. LOT (as well as other carriers) has already taken some steps to secure the supply of sustainable aviation fuels by signing a memorandum with Orlen (Obserwator Logistyczny, 2022).

Subsequently, there is a need to more widely communicate the activities already implemented. An example is the low awareness of the LOT Destineco program among the students. This is all the more important as LOT's involvement in activities of a sustainable nature may, according to 43% of respondents, constitute a competitive advantage in the long term.

The highest CO<sub>2</sub> and HC emissions occur during the aircraft's taxiing operations on the apron and taxiway. This is due to the low engine load and incomplete combustion occurring in the combustion chamber. In contrast, the highest NOx emissions occur during the take-off and climb phases. This is related to the fact that the engine is operating at its design parameters and the combustion reaction in the combustion chamber occurs in the most near-complete

manner (Pawlak & Kuźniar, 2017). For LOT and other carriers, it is important to operate direct flights that generate less pollution.

According to WayPoint 2050, since the last decade, airlines have spent over a trillion dollars on more efficient aircrafts, whilst the whole aerospace sector has paid over \$150 billion on efficiency research and development (Aviation Benefits Beyond Borders, 2022). Newer generation engines have lower CO<sub>2</sub> and HC emissions than older engines. This is due to the refinement of the combustion chamber design, optimization of the combustion process and the use of modern analytical and engineering methods (e.g., Computational Fluid Dynamic) and new construction materials such as composites (Pawlak & Kuźniar, 2017).

It is beginning to be a good practice among airlines to create and introduce public sustainability reports. An example is Ryanair, creating its documents using various standards such as Sustainability Accounting Standards Board, Taskforce On Climate-Related Financial Disclosures, and Global Reporting Initiative (GRI). For LOT, this could be a good example of using international standards for reporting. In addition, some airlines (Wizz, Ryanair, Lufthansa) undergo an assessment by an independent body like CDP Project (CDP Project, 2023). Although LOT started its work towards sustainability, some areas require additional intervention.

The authors did not encounter any major problems during their activities. However, in a further approach, it could be interesting to obtain a panel of respondents reflecting the structure of LOT's passengers in order to verify how the sustainability measures are perceived by different passenger groups. Passenger awareness surveys for sustainable aviation and decarbonization also seem interesting.

The next stage of research should be interviews with representatives of air carriers operating on the selected market. Such a study would show potential directions for the implementation of a pro-environmental policy.

## References

### **Air Passenger Market Analysis (2022).**

**Airbus. (2021, November 28).** *Global Market Forecast 2021–2040*. Retrieved from <https://www.airbus.com/en/newsroom/press-releases/2021-11-airbus-foresees-demand-for-39000-new-passenger-freighter-aircraft>.

**Aviation Benefits Beyond Borders (2022).** *Waypoint 2050*. Retrieved from <https://Aviation-benefits.Org/Environmental-Efficiency/Climate-Action/Waypoint-2050/>. Access: 6.10.23.

**Ballal, V., Cavalett, O., Cherubini, F., & Watanabe, M. D. B. (2023).** Climate change impacts of e-fuels for aviation in Europe under present-day conditions and future policy scenarios. *Fuel*, 338, 127316. DOI: 10.1016/j.fuel.2022.127316.

**Berger, S., Kilchenmann, A., Lenz, O., Ockenfels, A., Schlöder, F., & Wyss, A. M. (2022).** Large but diminishing effects of climate action nudges under rising costs. *Nature Human Behaviour*, 6(10), 1381–1385. DOI: 10.1038/s41562-022-01379-7.

**Bialystok, E. (1999).** Cognitive complexity and attentional control in the bilingual mind. *Child Development*, 70(3), 636–644.

**Boeing (2021, November 28).** *Commercial Market Outlook 2021–2040*. Retrieved from <https://boeing.mediaroom.com/2021-09-14-Boeing-forecasts-9-trillion-aerospace-market-opportunities-in-commercial,-defense-and-services-over-next-decade>.

**CAA in Poland (2023, July 21).** *Air traffic in Poland*. Retrieved from [www.ulc.gov.pl/\\_downloads/statystyki/wg\\_portow\\_lotniczych\\_4kw2022.pdf](http://www.ulc.gov.pl/_downloads/statystyki/wg_portow_lotniczych_4kw2022.pdf).

**CAPA (2023).** *CAPA Centre for Aviation*. Retrieved from <https://centreforaviation.com/>.

**CDP Project (2023).** <https://www.cdp.net/en/>. Access: 25.05.2023.

**Choi, A. S., Gössling, S., & Ritchie, B. W. (2018).** Flying with climate liability? Economic valuation of voluntary carbon offsets using forced choices. *Transportation Research Part D: Transport and Environment*, 62, 225–235.

**Cowie, J. (2010).** *The Economics of Transport. A theoretical and applied perspective*. London & New York: Routledge.

**Destineco App. (2023).** <https://apps.lot.com/destinationeco>.

**Dubois, G., Sovacool, B., Aall, C., Nilsson, M., Barbier, C., Herrmann, A., Bruyère, S., Anderson, C., Skold, B., Nadaud, F., Dorner, F., Moberg, K. R., Ceron, J. P., Fischer, H., Amelung, D., Bałtrusiewicz, M., Fischer, J., Benevise, F., Louis, V. R., & Sauerborn, R. (2019).** It starts at home? Climate policies targeting household consumption and behavioral decisions are key



to low-carbon futures. *Energy Research & Social Science*, 52, 144–158. DOI: 10.1016/J.ERSS.2019.02.001.

**Eurocontrol (2023).** *EUROCONTROL FORECAST UPDATE 2023–2029*. Retrieved from <https://www.eurocontrol.int/publication/eurocontrol-forecast-update-2023–2029>.

**European Commission (2022).** *European Green Deal*. Retrieved from <https://www.consilium.europa.eu/en/policies/green-deal/>.

**European Environment Agency (2022).** *Transport and Environment Report 2022*.

**European Parliament (2003).** Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

**Eurostat (2023).** <https://ec.europa.eu/eurostat/databrowser/bookmark/1a8a82ac-f567-4b4a-8649-213aff815858?lang=en>.

**Gössling, S., Haglund, L., Kallgren, H., Revahl, M., & Hultman, J. (2009).** Swedish air travellers and voluntary carbon offsets: towards the co-creation of environmental value? *Current Issues of Tourism*, 12(1), 1–19.

**IATA (2021).** *Fly net zero*. Retrieved from <https://www.iata.org/en/programs/environment/flynetzero/>.

**IATA, Carbon Offset (2023).** <https://www.iata.org/en/programs/environment/carbon-offset/>. Access: 9.04.2023.

**Kaczmarek, B. (2011).** Formułowanie polityki i strategii ekologicznego rozwoju przedsiębiorstwa – zarys problematyki. *Civil and Environmental Engineering*, 2.

**Kramer, S., Andac, G., Heyne, J., Ellsworth, J., Herzig, P., & Lewis, K. C. (2022).** Perspectives on Fully Synthesized Sustainable Aviation Fuels: Direction and Opportunities. *Frontiers in Energy Research*, 9. DOI: 10.3389/fenrg.2021.782823.

**LOT Destineco (2023).** <https://www.lot.com/mk/pl/biuro-prasowe/informacje-prasowe/lot-umozliwia-pasazerom-kompensacje-co-2-w-ramach-programu-destinationeco>.

**LOT Polish Airlines (2023).** *OdLOTowe kierunki*. Retrieved from <https://www.lot.com/pl/pl/loty>.

**LOT Polish Airlines (2023).** <https://www.lot.com/mk/pl/biuro-prasowe/informacje-prasowe/lot-umozliwia-pasazerom-kompensacje-co-2-w-ramach-programu-destinationeco>; <https://apps.lot.com/destinationeco>.

**Mańkowska, M., Tłoczyński, D., Wach-Kłoskowska, M., & Bulczak, G. (2023).** Factors determining the implementation of green practices in airport management. The case study

of Polish airports. *Journal of Air Transport Management*, 111, 102438. DOI: 10.1016/J.JAIR-TRAMAN.2023.102438.

**Obserwator Logistyczny (2022).** <https://obserwatorlogistyczny.pl/2022/07/23/pll-lot-be-da-wykorzystywac-paliwo-saf-z-posmazalniczych-olejow-spozywczych/>. Access: 30.05.2023.

**Parliament in Poland (2001).** Environmental Protection Law.

**Pawlak, M., & Kuźniar, M. (2017).** Problematyka emisji toksycznych składników spalin silników lotniczych. *Autobusy*, 12, 338–444.

**Penner, J. E., Lister, D. H., Griggs, D. J., Dokken, D. J., & McFarland, M. (1999).** *IPCC Special Report Aviation And The Global Atmosphere*. Cambridge: Cambridge University Press.

**Ritchie, B. W., Kemperman, A., & Dolnicar, S. (2021).** Which types of product attributes lead to aviation voluntary carbon offsetting among air passengers? *Tourism Management*, 85, 104276. DOI: 10.1016/J.TOURMAN.2020.104276.

**Rynek Lotniczy (2023).** PLL LOT: Nowa flota do 2030 r. Znamy potrzeby przewoźnika. Retrieved from <https://www.rynek-lotniczy.pl/wiadomosci/pll-lot-100-nowych-samolotow-do-2030-r-14863.html>.

**Scheelhaase, J., & Maertens, S. (2020).** How to improve the global ‘Carbon Offsetting and Reduction Scheme for International Aviation’ (CORSIA)? *Transportation Research Procedia*, 51, 108–117. DOI: 10.1016/j.trpro.2020.11.013.

**Schwirplies, C., & Zeigler, A. (2016).** Offset carbon emissions or pay a price premium for avoiding them? A cross-country analysis of motives for climate protection activities. *Applied Economics*, 48(9). DOI: 10.1080/00036846.2015.1085647.

**Stebbins, R. A. (2001).** *Exploratory research in the social sciences*. Qualitative Research Methods Series, 48. Sage Publications.

**Tabernier, L., Fernández, E. C., Tautz, A., Deransy, R., & Martin, P. (2021).** Fuel Tankering: Economic Benefits and Environmental Impact for Flights Up to 1500 NM (Full Tankering) and 2500 NM (Partial Tankering). *Aerospace*, 8(2), 37. DOI: 10.3390/aerospace8020037.

**Teoh, R., Schumann, U., Voigt, C., Schripp, T., Shapiro, M., Engberg, Z., Molloy, J., Koudis, G., & Stettler, M. E. J. (2022).** Targeted Use of Sustainable Aviation Fuel to Maximize Climate Benefits. *Environmental Science & Technology*, 56(23), 17246–17255. DOI: 10.1021/acs.est.2c05781.

**Tłoczyński, D. (2017a).** Development of competition on the airport market in Poland. *Ekonomiczne Problemy Usług*, 128, 81–91. DOI: 10.18276/epu.2017.128-06.

**Tłoczyński D. (2017b).** *Spółeczna odpowiedzialność biznesu w polskim transporcie lotniczym*. Studia Ekonomiczne, vol. 332. Katowice: Uniwersytet Ekonomiczny w Katowicach.

**Tłoczyński, D., & Zamojska, A. (2023).** *Prognoza ruchu lotniczego dla Polski na lata 2022–2040*.

**UNFCCC (1997).** The Kyoto Protocol. Retrieved from [https://unfccc.int/kyoto\\_protocol](https://unfccc.int/kyoto_protocol). Access: 6.3.2021.

**UNFCCC (2015).** The Paris Agreement. Retrieved from <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>. Access: 6.3.2021.

**Vanhamme, J. (2010).** The Link Between Surprise and Satisfaction: An Exploratory Research on how best to Measure Surprise. *Journal of Marketing Management*, 16(6), 565–582. DOI: 10.1362/026725700785045949.

**Vasigh, B., Fleming, K., & Tacket, T. (2008).** *Introduction to Air Transport Economics. From Theory to Applications*. Farnham: Ashgate.

**Wozny, F., Grimme, W., Maertens, S., & Scheelhaase, J. (2022).** CORSIA – A Feasible Second Best Solution? *Applied Sciences*, 12(14), 7054. DOI: 10.3390/app12147054.

**Yin, R. K. (2018).** *Case Study Research: Design and Methods* (6<sup>th</sup> ed.). SAGE Publications.



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Journal of Intercultural  
Management

Vol. **15** | No. **3** | **2023**

pp. **26–49**

DOI **10.2478/joim-2023-0010**

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# Institutionalization of the Outcomes of Purposive and Intuitive Decision – Making in Crisis Situations

Received: 30-11-2023; Accepted: 22-12-2023; Published: 27-12-2023

## ABSTRACT

**Objective:** The aim of this paper is to determine the role of the mode of crisis situation solving in the process of institutionalization of new practice. Achieving this goal required attempting to answer two research questions: 1) How can a crisis situation in an organization lead to change? 2) Does purposive and intuitive decision making differentiate the process of new practice emergence?

**Methodology:** Based on the literature review, the considerations of selected authors regarding crisis situations in organizations, the concept of institutionalization and managerial decision-making (purposive and intuitive) were presented. The empirical section presents the results of qualitative research. A comparative case study, illustrating the thesis that intuitive and purposive decision-making stand as important categories that differentiate the outcomes of emergent practice, was carried out. Semi-structured interviews were conducted with managers in the area of decision-making in problematic situations in the logistics industry (with analysis and sub-summary of the results).

**Findings:** The research shows how managers (leaders) respond differently to crisis situations. It was registered that even though decisions can be made in apparently opposite modes, they can initiate the emergence of new practice and its institutionalization.

**Value Added:** Elaborating on the notion of institutionalization, the concept of new practice emergence offers a promising approach within crisis management.

**Recommendations:** Perceiving crisis management through the processes of decision making and new practice institutionalization offers a new opportunity to understand crisis outcomes.

**Key words:** crisis situation, decision making, change in organization, intuitive decisions, purposive decisions, institutionalization

**JEL codes:** M10, M12, L 20, L21, L91

## Introduction

The issue of effective management of a crisis situation in an organization has been addressed by numerous scholars for many decades (Mitroff & Pearson, 1998; Zelek, 2003; Wooten & James, 2008). In their works, the authors attempt to unify the key factors that can determine the level of efficiency or effectiveness of a manager in dealing with a crisis situation in the organization. They list such characteristics of a leader as competence and skills, personality traits, adopted management style, sophistication of soft skills, level of emotional intelligence, intuition in command, manager's purposive actions or gender (Sayegh et al., 2004; Crichton & Flin, 2004). It is worth mentioning that all of these aspects influence the ways in which leaders make decisions.

It can be stated that decision-making is an inherent function of every manager's daily work, and an aspect of the leader's decision-making area is related to making choices under conditions of uncertainty and risk in organizations. This is due to the vagaries and unpredictability of both economies and specific organizations, which are exposed to various threats from both the closer and further environment of the organization. In the field of management sciences, both selected concepts of decision-making and their influence on the level of relevance and effectiveness of a specific decision and what results it brings to a specific organization, especially in situations of imbalance in the company's structures, have been explored and queried for some time (Stacey, 2011; Patora-Wysocka, 2019; Bieniok et al., 2006; Wolff et al., 2013). It seems that a kind of battle of two contrasting sides has been going on in the scientific arena in which one side presents numerous evidences related to the unquestionable effectiveness of purposive, deliberate (myopic) decision-making (Doyle, 1998; Eisenfuehr et al., 2010), while the other side presents numerous

advantages of using managerial intuition in decision-making, especially in crises (Hodgkinson et al., 2009; Sinclair et al., 2002). Synthesizing the considerations of both parties, it should be noted that this theme is still under-researched, hence the authors saw a research gap that called for further exploration. It can be supposed that it is the fusion of intuition with rationalism in the context of choosing one accurate option out of many possible ones that maximizes the effectiveness of decisions. Hence, it is worth conducting research in this direction and pointing out further implications for management practice, however, it is worth refraining from explicitly designating a more effective way of decision-making, if only because of the multifaceted and complex nature of the issue.

Reflecting further on topics related to effective decision-making in crisis situations in organizations, it should be emphasized that all decisions should imply prospective changes in the organization, which constitute development. Hence, it is worth referring to the concept of institutionalization, which, according to the viewpoints adopted in this article, can be equated with the social perpetuation of given values, facts, results of decisions and changes in the structures of a given organization (Patora-Wysocka, 2019; Oliver, 1992; Barley & Tolbert, 1997; Thornton et al., 2012).

The authors synthesized the above aspects and posed two fundamental research questions that address the issue of institutionalizing the results of purposive and intuitive decisions made by leaders in the context of crisis situations:

1. How can a crisis situation in an organization lead to change?
2. Does purposive and intuitive decision making differentiate the process of new practice emergence?

The article refrains from posing *a priori* hypotheses due to insufficient literature on the subject, while the final part of the article poses *post factum* hypotheses, which can serve as a kind of reflection for further research. In addition to the presentation of literature considerations, the authors conducted an empirical (qualitative) study, which focused on the analysis of fragments of semi-structured interviews with leaders in the context of decision-making in difficult situations (with a taxonomy into purposive and intuitive decisions).



# Theoretical Background

## *Crisis Situations and Emergency Situations*

Crisis situations are not only inherent in the life of every human being, but are also permanently inscribed in the functioning of any organization. In the literature on management and quality sciences one can find various concepts of crisis situation or crisis management, in which numerous authors make considerations on topics related to the determinants of the leader's effective management of the threat. The perception of a crisis situation is multifaceted, in which social, cultural, environmental, economic or psychological factors, among others, should be weighed (Coccia, 2020, pp. 81–82).

Mitroff and Pearson (1998) equate a crisis situation in an organization with a moment of imbalance in the company's structures that may pose a direct or indirect threat to continued smooth functioning (1998). Barton (1993), on the other hand, defines a crisis situation as an unforeseeable event in an organization that can carry both negative and positive consequences for the company, including its employees and the services and products offered (1993). Gryz and Kitler (2007) interpret a crisis situation as a difficult moment for an organization, in which a breakdown occurs and the enterprise itself may cease to function in a stable and developmental manner, hence a leader is required to make immediate and effective decisions (2007). It is worth mentioning that Gilliland and James (1993) state that a crisis situation is characterized by complexity of a peculiar kind, resulting in the occurrence of disorganization, disorientation and lack of previous balance in the company (1993, p. 43). Kuipers and Wolbers (2021) emphasize that a crisis situation is only (or as much as) a difficult situation in an organization, however, it is not yet a crisis (2021). The authors add that long-term downplaying of crisis situations and avoidance of specific managerial decisions can influence the formation of further risks (Kuipers & Wolbers, 2021).

Making a typology of crisis situations in the context of organizational functioning is a relatively complicated task due to the complexity of the issue, however selected authors have attempted to present crisis situations or crises from different perspectives. Kayes (2015) recognizes that at each stage of

the development of a crisis situation the concept of learning in organizations is particularly important, since learning lessons at each stage allows the introduction of new solutions into the company’s structures (2015). Kayes perceives a crisis situation in an organization from three main perspectives: organizational, group and individual (2015, p. 59) (Table 1).

**Table 1.** Four-stage learning model of crisis in an organization

Level	Stage			
	Initiation	Precursor events	Breakdown	Recovery (learning restored)
Organizational	Strategic planning, constancy in planning	Error detection, gathering information	Knowledge sharing, creating a culture based on safety	Lessons learned, creating databases
Group (collective)	Simulations	Psychological care	Group learning	After-action review
Individual	Knowledge, skills, abilities training	Creating learning orientation	Crisis response training	Interviews, lessons learned

Source: own elaboration based on: (Kayes, 2015, p. 59).

Table 1 presents a four-stage model for the deepening of a crisis situation or crisis in an organization. The initiation stage is associated with the emergence and development of a problem situation in the organization’s structure, where it can be stopped through strategic planning and relentlessness in the pursuit of making corrections, creating simulations of crisis development or deepening knowledge and developing capabilities (Table 1). Elements in stage two indicate the need to weigh such factors as premature detection of threats, gathering of information, psychological care of staff and creation of a learning-based culture (Table 1). The breakdown stage of the organization requires knowledge sharing, cooperation, and adequate crisis response training (Table 1). The recovery

stage follows the crisis stage, in which it seems particularly important for managers to learn from situations, create databases, and disseminate the causes and effects of the crisis situation within an organization (Table 1). This aspect is important in the context of managerial decision-making in a crisis, where given solutions can remain in the organization for shorter or longer periods of time, while creating a learning-oriented organizational culture.

What managerial decisions are made at the management level not only weighs on the handling of a given situation at a particular point in the life cycle of a company, but can also enshrine itself in the organizational culture and determinate future methods of dealing with threats by managers. The phase of the emergence of the crisis situation, which is identified in the literature with the need for the manager to quickly identify the threat, seems to be crucial. Identification of a crisis situation should consist of four fundamental steps, that is, finding the sources of the problem situation, identifying the symptoms, getting to the triggers of the threat situation, and clearly defining that there is a crisis situation or crisis in the organization (Mehr & Jahanian, 2016).

From the perspective adopted in this article, the complexity of situational circumstances and divergent motives in difficult situations is worth emphasizing. How a leader makes decisions can be influenced by many factors, such as: the leader's personality traits, level of emotional intelligence, leadership style, resources, knowledge, experience, skills and aptitude. On the one hand, the important role of decision-making, based on specific data, information, knowledge and experience of the manager, which seeks to deal with the problem situation as efficiently as possible and to minimize the incurrence of losses in financial and non-financial resources, is emphasized (Bonelli & Liu, 2023; Green & Armstrong, 1995). On the other hand, however, according to the literature on the subject, the role of emotions in the context of decision-making is stressed (Brundin et al., 2022). Although decisions may not be based on actual data analysis, however, a manager weighing the human factor, is crucial in managing a problem situation (Khatri & Alvin, 2000; Sayegh et al., 2004).

Kayes (2015) breaks down the mechanisms responsible for the occurrence of emergency situations in a company (2015). Kayes proposes key reasons for the emergence of emergency situations by locating them in eight spheres, which

are as follows: group processes, use of information, organizational culture, complexity of processes, coordination of activities, improperly adopted goals and missions, lack of expertise, and lack of adaptation to the environment (Table 2).

**Table 2.** Various types of organizational failures

Aspect responsible for failure	Definition of an emergency
Group process	Conformism increases and critical thinking is reduced
Information usage	Inability to correctly interpret and use information
Organizational culture	Certain cultural norms no longer prove adequate and require readjustment
Complexity of processes	The more complex the task, the greater the chance of failure
Coordination of activities	People in organizations cannot make cognitive sense of various interactions
Incorrectly chosen goals and missions	Intended plans or experiments failed
Lack of expertise	Lack of expertise contributes to inability to develop and make changes in the structure of the organization
Lack of adaptation to environment	Knowledge and information in the company get misused

Source: own elaboration based on: (Kayes, 2015, p. 45).

Table 2 presents a number of possible spheres of causes for the occurrence of an emergency situation in an organization, together with the explanatory part (Table 2). After analyzing the mentioned aspects, it can be concluded that they are intra-organizational (endogenous) in nature, hence it should be considered that both employees and managers have a significant influence on making changes towards a more efficient functioning of the organization (Table 2).

In conclusion, the issue of factors influencing decision-making in crisis management is presented in the literature in an ambiguous and multifaceted manner. The flow and use of important information, which has been systematized in such a way that it can be read in a clear and practical manner, promotes increased efficiency in crisis management (Komorowska, 2021). With the help of

specific information, it is possible to exclude certain events from the complete set of probable events, which are as much as possible in the practical sphere of emergency management. The use of data, numbers and information influences purposive decision-making, which implies that the decision made is pragmatic, adequate, up-to-date, complete and precise (Komorowska, 2021; Liedel & Serafin, 2011, p. 45). Referring to the concept of effective management of a crisis situation, the literature states that the key factors that affect the level of effectiveness in dealing with an emergency situation by a leader are interpersonal skills, communication skills, and skills related to an empathetic and sensitive approach to people and situations (Walecka & Zakrzewska-Bielawska, 2009, p. 388). Empathy, synthetic (contextual) thinking, intuition, visionary thinking, perspectivist strategy of action, and any behavior aimed at helping the other person in a crisis situation are just some of the qualities that a leader in a crisis needs to show (Walecka & Zakrzewska-Bielawska, 2009, p. 388).

## Purposive and Intuitive Decisions in Organizations

Metaphorically, it can be said that decision-making in practice is the heart of the management function (Bieniok et al., 2006). Some key findings from the literature review show that decisions can be made in the following manner: the purposive-rational acts; based on bounded rationality; spontaneous; intuitive; individual; collective; automatic; routine or reflexive (see Patora-Wysocka, 2019). Addressing the issue of managerial decision-making, it should be emphasized that usually decisions in the workplace are made under conditions of uncertainty or risk, because rarely can a leader in an organization predict the consequences of their decision infallibly.

In that sense, the concept of decision-making perceived as the intertwined cognitive and calculating operation that searches for *one best way* solutions, is more often replaced by processual and indeterministic view on organization and management.

Therefore, decision-making may be viewed as *contextualized socially* and habitually predominated processes (Dalton, 2004, pp. 614–616). Using the works of Joas (1996), Bourdieu (1980/1990) and Bourdieu and Wacquant it may be assumed that setting goals is not a purely intellectual act prior to action but it is rather a reflexive outcome of the way people act routinely (Joas, 1996, p. 158). There is a quasi-dialogue between the situation and the act of decision-making: the decisions are not determined by planning and goals and the orientation on results. Instead, situations are constituents of decisions and their aims. Joas (1996) described the process as: “the conscious setting of goals as issuing from a reflection on aspirations and tendencies that have already operated on a prereflective level. Intentionality thus consists in an agent’s self-reflective control over his or her current behavior; motives and plans must be considered not the factual causes of actions but the situational products of such reflection” (Burger, 1998, p. 109).

It is coherent with the works of Dewey (1939) who introduced the term of *ends-in-view* i.e. the replacement of the notion of goals with the concept of expected consequences of actions. People make practical judgements of their activities, they assess the very myopic consequences of their nearest decisions, thus, they can evaluate them quickly and change the course of action. It may stand as a kind of contemporary lense on purposive decision-making as it puts the emphasis on strategic myopia (Czakon, 2020). A myopic strategist does not perceive broader social, cultural, political and many other problems, but instead makes purposive decisions in response to the situation in which the organization finds itself at any given time. Thus, that kind of strategy expresses the dynamics of a given company’s relationship with the business environment, which is revealed through purposive managerial activities aimed at using resources, capabilities, and knowledge. It seems that the very strategy contributes to the creation of the course of affairs in a given organization in a specific situational context, hence one can speak of the effectiveness of myopic thinking (Czakon, 2020).

Dittrich and Seidl (2017) put emphasis on the changeability of goals in the course of reproduced practice, and therefore, they put forward the concept of *emergent intentionality*. Using that notion one may differentiate the term of predetermined decisions – ones that are embedded with prior defined aim i.e.

purposeful decisions from the purposive decisions – that are innate in intentional actions that may change according to emerging aims (see Patora-Wysocka, 2019, pp. 95–96). If one adds the aspect of time-scale to that category, it may appear that purposive decisions are myopic and effective acts of strategic thinking.

We can see how the notion of *emergent intentionality* is derived from the works of Bourdieu (1990). His concept of *habitus* puts forward the rich, sometimes apparently divergent range of acting schemas: bodily and emotionally innate reactions and routines; interpretations and understandings; motives and presuppositions. They emerge in the individual as well as collective entourage of organizational and everyday life. *Habitus* then, stands as the source of the system of structured and structuring dispositions of practice (Bourdieu & Wacquant, 1992, p. 121), and may be perceived as the root of intuitive decisions.

The Dictionary of Foreign Words and Phrases defines intuition as a kind of glare, premonition, the process of directly acquiring knowledge, certainty in some matter without conscious reasoning (Kopaliński, 2001). Intuitive actions are related to explicit and implicit knowledge, experience, cognitive skills, level of emotional intelligence, subjectivity of the decision-maker and spontaneity. It emphasizes the role of an emotional approach, a personally committed leader, and the adoption of a perspective strategy that views the organization as a holistic entity that has far-reaching and multifaceted goals, which is why intuitive actions can be effective (Malewska, 2018).

The important fact is that this kind of concept of intuitive decisions does not stand in complete opposition to purposive decisions. It rather stands as a complementary element in the context of organizational practice.

In this sense, an additional interesting aspect of further empirical exploration is the comparative view of purposive and intuitive decision-making process in terms of feminine and masculine dimensions of organizational leadership, where intuitive vs. purposive decision-making may be adequately represented by female vs. male style of leadership. In the management science literature, it is reported that pragmatism in action is the domain of the male style of management (goal-oriented, profit-oriented, uncompromising, pursuing the organization's mission at all costs, myopia, not paying particular attention to the human factor) (Brol & Kosior, 2004; Orych, 2022). On the other hand, aspects related



to: friendship-based leadership, managerial intuition, acting for the benefit of the other, higher levels of emotional intelligence, interpersonal and cognitive abilities are attributed more to the female dimension of management (Holska, 2017; Moczyłowska, 2017). Thus, synthesizing, one can risk the thesis that purposive decisions will be closer to masculine schemas, while intuitive ones to feminine ones.

## The Concept of Institutionalization in the Context of the Decision-making Process

Consideration of the concept of institutionalization has been undertaken for decades by many authors associated with management and related sciences, however, there are many indications that it is still an insufficiently empirically researched thread. Patora-Wysocka (2015) defines institutionalization as the process of emerging new activity schemas and reproducing these actions. Institutionalization of new practice may be triggered spontaneously as well as in a planned way. Everyday activities and spontaneous decisions that consist of routine practice may influence the change of organizational system as well as institutional logic. Change can also affect the sphere related to communication and interaction between participants in the organization's structure, and can even shape changes in the shared-value system and shared-understanding in an organization (Patora-Wysocka, 2015, pp. 83–84).

The roots of the concept of institutionalizing the results of managerial decisions belong to evolutionary theory in management science. The work of Nelson and Winter (1982) presents the routinized behavior in organizations as the metaphors of organizational genes (1982). Stańczyk (2019) adds that the evolutionary perspective in management science is involved in understanding certain mechanisms of change and, in particular, the conditions in the organization that cause these changes (2019, p. 129). The evolutionary metaphor implies viewing an organization through the lens of key aspects: the ability to survive and the ability to make fragmentary modifications to the pattern (Stańczyk, 2019, pp. 129–130).

The concept of institutionalized practice also draws from the notion of spontaneous activities (Patora-Wysocka, 2019) as well as from the learning process in which routine (reproduced) managerial decisions and behaviors can imply changes and affect the effectiveness of the organization's functioning as a holistic system (Gawande, 2002). It seems that even if managerial actions and decisions were unplanned, they have a degree of purposefulness in them that was defined by the previously implemented strategy, adopted norms and values that are entangled in the organizational praxis (Patora-Wysocka, 2015, 2019). Hence, it can be assumed that purposive or intuitive decisions can initiate change in the organization.

One may ask whether it is possible to differentiate between these modes of decision-making in organizational praxis observations or is it only an analytical tool applicable to better understanding the managerial problems.

## Case Study – Qualitative Research

This part presents the results of a case study which was conducted using an in-depth interview method and a non-participatory observational method. The study was conducted at a company in the logistics sector, which deals with a wide range of both domestic and international transportation. The logistics sector has been exposed to numerous risks in recent years due to market turbulence and situations of constant macroeconomic change. Companies have struggled with high inflation, high costs of doing business, rising prices of raw materials (e.g., fuel), numerous difficulties in the proper execution of supply chains, staff shortages and numerous unmentioned problems. The authors, observing business practice in the logistics sector, also state that numerous causes of crisis situations can be found, which have an intra-organizational basis (problems with strategy, technology, etc.).

The authors, knowing the specifics of the enterprise, decided to choose a purposive selection of cases, which was done in accordance with Silverman's (2007) theoretical selection. Two interviews were conducted with both the female and

male owner of the enterprise (for the purpose of analyzing the data obtained, the female owner was called Beta, while the male owner was called Zeta). Both interviews were semi-structured. To provide a broader range of explanations, informants (i.e. male and female owners) representing different management styles (contrasting) were selected within the enterprise.

The research was carried out in the fourth quarter of 2023. The interviews were recorded using a voice-recorder (the respondents consented to the recording, the interviews lasted about 20 minutes each), and the resulting data was then transcribed. The interviewers made notes during both the first interview and the second one, which increased the efficiency of further analysis of the findings. The interview transcription includes 47 pages of text. Data also were collected using non-interfering observation that lasted three days (5 hours a day each). The non-interfering visits to the organization were aimed at gaining a deeper understanding of the daily specifics of the company's operations. The interview questions were structured in such a way that informants had the opportunity to expand on the themes of their decision-making in problem situations in the organization, which was crucial from the researcher's perspective.

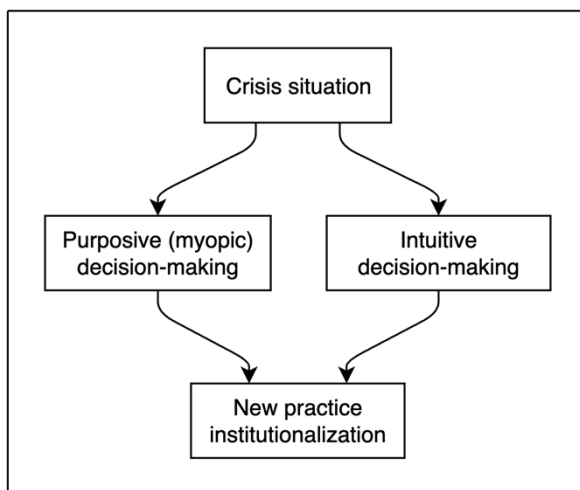
The surveyed transport company has been in continuous operation for more than 10 years. It is thriving in both the local and international transport market. The owners own about 150 trucks (refrigerator trucks, tarpaulins, chassis trailers and curtainsiders), and most of them are in constant operation. The company mainly transports shipping containers and full truckloads of cargo requiring controlled temperatures (frozen food, hazardous materials). In addition to a building adapted for daily office work, the company has its own storage facilities, a sphere for drivers' rest (social containers), a trans-shipment yard and a workshop. The owners of the enterprise have been married since the organization's inception. Both of them are in their mid-40s and participate jointly in decision-making in organizational life.

The purpose of the study was to try to answer two research questions:

1. Can a crisis situation in an organization lead to change?
2. Does intuitive and purposive decision-making in crisis situations differentiate the process of emerging a new practice in an organization?

The process of initiating change in an organization can occur, among other things, through the results of purposive and intuitive decisions, which are made by owners/managers in a planned, spontaneous or natural way (Patora-Wysocka, 2015, pp. 83–84). Considering the viewpoints adopted in this article, the concept of institutionalization should be interpreted as a process of emergence of new schemas and activities that are repetitive in nature and lead to changes in the organization through professed values (Patora-Wysocka, 2019). Based on the above considerations, a hypothetical model of institutionalization of the outcomes of managerial decisions with a distinction between purposive and intentional (in business practice) was created (Figure 1).

**Figure 1.** Process of institutionalization decision outcomes in crisis situation



Source: own elaboration.

Tables 3 and 4 contain excerpts from the transcribed statements of the respondents, along with the sub-categories that were the foundation for further research analyses. Table 3 refers to intuitive decisions, while Table 4 refers to purposive decisions.

**Table 3.** Partial categories of the model of institutionalization of intuitive decision outcomes of the owners (transportation company)

Partial category	Transcribed statement of the informants	Interpretation of data
<b>Intuitive decision</b> (based on knowledge, experience, synthetic, creative, spontaneous thinking, using emotional and cognitive intelligence, subjective)	<b>1)</b> "(...) Recently we even had such a situation at the warehouse. One of the employees was bullying a colleague, colleagues even (...) He spoke so badly, called them, these employees, co-workers, which of course we didn't find out, we found out from outsiders, so no one among the employees told us about it. I took the step to immediately to clarify this conflict and talk to the employees, I wanted not only to clarify this conflict, but for all of us to have a good relationship with each other, I still wanted to give this employee a chance and not fire him, but I was also guided by the welfare of the employees at the warehouse" <b>(Informant: Beta)</b>	The owner of the company, upon learning of the employee's unethical behavior, decided to talk to him immediately and explain the situation. The employee was not fired, but steps were taken to preserve good relations and prevent such further situations. The welfare of the employees was considered, the manager subconsciously knew that such a situation could not be downplayed, as the employees might suffer
	<b>2)</b> "(...) There was also a situation where the family could not afford to bring the corpse (...) It was a Ukrainian employee, so I think not everyone can afford to pay such costs, by the way, he was our employee, so we felt obliged to help and deliver his body to the burial site. It is our duty to deliver the corpse from abroad to the place of employment, while I knew subconsciously that I had to transport him to his place of residence, at my expense" <b>(Informant: Beta)</b>	An intuitive decision was made to bring the corpse to the family. The owner believes that this is what should be done - it is ethical. Sensitivity to human feelings was shown. The owner felt obliged, although legally she did not have to take such steps
	<b>3)</b> "(...) There are also situations of hate speech on the Internet (...) When it comes to whether it is written by employees, it is difficult to verify, usually these are anonymous comments, we can guess that they are our employees (...) Or maybe it is a competitor or someone malicious from the outside (...) If it is very untrue then I ask various portals to delete such comment. I am afraid of some bad image of the company in the future, it seems to me that this is the way to react, with an eye to the future" <b>(Informant: Beta)</b>	The leader subconsciously takes care of a company's image. That is indicative of a leader's synthesized thinking and fear of an image crisis. This kind of long-term preventive behavior accounts for the greater possibility of avoiding a crisis in the future

<b>A longer-term change in the company</b> (a change for a longer time)	<b>1)</b> Not observed	<b>1)</b> Not observed
	<b>2)</b> Not observed	<b>2)</b> Not observed
	<b>3)</b> Not observed	<b>3)</b> Not observed
<b>Institutionalization of decision outcome</b> (repetitive patterns of behavior, routinized activities, institutionalized new practice)	<b>1)</b> „(...) What has changed is that I will now talk to warehouse workers on a regular basis and control the situation there, over a longer period of time, and I do that, this control function has been strengthened”	Regular inspection functions have begun and have entered the daily life of the organization
	<b>2)</b> „(...) That situation gave me even more to think about how important it is for this family and I would do the same in the future, I am even more confident about it now”	The belief has been solidified within the company’s structure that following empathy and intuition within the company when dealing with unplanned and tragic situations is the correct approach that will be repeated
	<b>3)</b> (...) „It seems to me that since we started to fight it a little bit I am reporting more drivers to work, but this is also influenced by many factors for sure”	Intuitive fight against hurtful online reviews has boosted interest in the company

Source: own elaboration.

**Table 4.** Partial categories of the model of institutionalization of purposive decision outcomes of the owners (transportation company)

Partial category	Transcribed statement of the informants	Interpretation of data
<b>Purposive decision</b> (based on knowledge and experience, rational, objective, practical and logical, using data and information)	<b>1)</b> "(...) There was a case of an extremely unpleasant customer who insulted me, but I don't pay attention to what they say, whether he insults me or not (...) I make decisions taking into account a specific goal, a job has to be done (...) And he has to arrange transport, and we have to transport the loads, there is a profit out of it." <b>(Informant: Zeta)</b>	A decision was made with a focus on material profit, not on proper interpersonal relations with the customer. An attempt was made to make a purposive decision that would bring profit to the company
	<b>2)</b> "(...) In Covid-19 I had a case that the drivers didn't want to go on the trip due to the fact that they were afraid of the pandemic, I told them that they can protect themselves in many ways (...) In any situation you have to get along somehow (...) I tried to explain to them that they don't come into contact with the population in transport and they should nevertheless work and drive so that I could fulfill orders (...) As if no one went on the trip the company would not be profitable" <b>(Informant: Zeta)</b>	Despite the Covid-19 pandemic, the owner convinced drivers with arguments that they were not in danger, and this was due to the need to maintain their position in the market. They were guided by rational arguments, which at the time seemed logical and practical
	<b>3)</b> "(...) I almost lost a regular customer once, and the losses are big for the company, because a regular customer is the best customer (...) Mostly someone changes carriers if they are not satisfied with the services (...) I try to convince with good service, availability of employees and availability of trucks (...) I convinced him with practical advantages of working with us, because we have a lot of truck sets, and this is important for the customer" <b>(Informant: Zeta)</b>	A key customer for the company was almost lost, however, the owner made a purposive decision to convince the customer with his concrete capabilities. The availability and reliability of the trucks was proposed, as well as the continued attention to the realization of transports

<b>A myopic change in the company (irregular)</b> (occasional, one-time change)	<b>1)</b> “(...) There was no joint fulfillment of orders thereafter, but there were some individual moments when he had no longer anyone from other carriers, so he chose us, by the fact that we got along somehow there, he still ordered something with us”	No further ongoing cooperation has been observed, but by singularly disregarding the customer’s insulting comments, this customer is occasionally profitable
	<b>2)</b> „(...) I had to offer them higher rates for the trip, and they went, the goal was fulfilled (...) But it can’t be done always”	Drivers were offered a one-off-increase in their wages to carry out this specific job
	<b>3)</b> Not observed	3) Not observed
<b>Institutionalization of decision outcome</b> (repetitive patterns of behavior, routinized activities, institutionalized new practice)	<b>1)</b> Not observed	1) Not observed
	<b>2)</b> Not observed	2) Not observed
	<b>3)</b> „(...) At that moment I cared about a long-term relationship, because a long relationship means constancy in the execution of orders, profit for the company is very important (...) Exactly, with that client we are working until today, because I somehow convinced him that time”	The organization began to convince customers of the company’s capabilities in terms of pragmatic solutions. The increased reliability and availability of the trucks convinced the customer to continue working together

Source: own elaboration.

## Findings

From the analysis of the interviews conducted (with both the female leader and the male leader), it can be concluded that the two research questions posed at the beginning of the article were answered. Leaders’ decisions (intuitive and purposive) in crisis situations lead to myopic (one-time) changes and to the institutionalization of new practices in the organization. It was observed that purposive decision-making, in addition to being used more often by the male leader, leads to myopic changes in the organization that produce a specific profit at a given time. Two problem situations in the organization led to myopic changes in the life cycle of the organization, one to the institutionalization of the outcome



of the decision. This certainly ties in with Czakon's (2020) concept on strategic myopia, the validity of which certainly needs to be considered. On the other hand, after the analysis of the interviews, the study found that intuitive managerial decisions (made by the female leader) can account for the institutionalization of new practices in an organization. These kind of decisions are of prospective and long – term character that is rooted in the company's structure and organizational routines. All three decisions made by the female owner led to the institutionalization of a new practice in the organization. One cannot help but notice the difference in what guided the owners in making their decisions. It seems that the intuitive decisions (made by the woman) indicated the need to take care of the human factor, which involves sensitivity, empathy, ethics, and not always perceived logic in decision-making. In contrast, purposive decisions (made by the man) were aimed at pragmatic business solutions and specific material profit for the organization. So, in addition to answering the research questions, while analyzing the data obtained, it was possible to make two *post factum* hypotheses:

1. Purposive decisions do not favour new practice emergence
2. Intuitive decisions may support new practice institutionalization

The *post factum* hypotheses indicates a new area which is certainly interesting for further research exploration. To conclude this part, it should be noted that during myopic prevention of a crisis situation, purposive decision-making is applied, while the orientation in the mindset of long-term outcomes of a crisis situation is constituted by intuitive decision-making.

## Conclusions

The article addresses the issue of managerial decision-making in difficult, crisis situations. Both purposive and intuitive decisions lead to changes in the life of the organization, however, a particularly interesting aspect in terms of

conducting further research is the differential impact of a given decision on further strategic processes. Intuitive decision-making leads to the institutionalization of a new practice in the company, while purposive decision-making leads to myopic (sporadic) changes. Therefore, this paper brings added value to the discussion on strategic myopia vs. long-term strategy. In addition to the continued need for research on the impact of purposive and intuitive managerial decisions on the formation of changes in the organization (whether short-term or long-term), aspects of female vs. male leadership open up.

## References

- Barley, S. R., & Tolbert, P. S. (1997).** Institutionalization and Structuration: Studying the Links between Action and Institution. *Organization Studies*, 18, 93–117.
- Barton, L. (1993).** *Crisis in organizations: Managing and Communicating in the Heat of Chaos*. Cincinnati: South-Western College Publishing.
- Bieniok, H., Halama H., & Ingram, M. (2006).** *Podejmowanie decyzji menedżerskich*. Wydanie drugie. Katowice: Wydawnictwo Akademii Ekonomicznej im. Karola Adamieckiego w Katowicach.
- Bonelli, M. I., & Liu, J. (2023).** Rational strategic decision-making during crises: a process approach. *International Journal of Decision Making*, 22(4), 388–411.
- Bourdieu, P. (1980/1990).** *The logic of practice*. Cambridge: Polity Press.
- Bourdieu, P., & Wacquant, L. J. D. (1992).** *An Invitation to Reflexive Sociology*. Oxford: Polity Press and Blackwell Publishers.
- Brol, J., & Kosior, M. (2004).** Kobiety styl zarządzania w Polsce (aspekty społeczno-ekonomiczne). *Kobieta i Biznes*, 1(4), 7–11.
- Brundin, E., Liu, F., & Cyron, T. (2022).** Emotion in strategic management: A review and future research agenda. *Long Range Planning*, 55(4), 102144.
- Burger, T. (1998).** The Creativity of Action by Hans Joas review. *Contemporary Sociology*, 27(1), 109–110.
- Coccia, M. (2020).** Critical Decisions in Crisis Management: Rational Strategies of Decisions Making. *Journal of Economics Library*, 7(2), 81–96.

- Crichton, M. T., & Flin, R. (2004).** Identifying and training non-technical skills of nuclear emergency response teams. *Annals of Nuclear Energy*, 31(12).
- Czakon, W. (2020).** *Krótkowzroczność strategiczna menedżerów*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
- Dalton, B., (2004).** Creativity, Habit, and the Social Products of Creative Action: Revising Joas, Incorporating Bourdieu. *Sociological Theory*, 22(4), 603–622.
- Dewey, J. (1939).** *Theory of Valuation*. Chicago: University of Chicago Press.
- Dittrich, K., & Seidl, D. (2017).** Emerging Intentionality in Routine Dynamics: A Pragmatist View. *Academy of Management Journal*, 61(1).
- Doyle, J. (1998).** *Rational Decision Making*. In R.A. Wilson, & F.C. Keil (Eds.), *The MIT Encyclopedia of the Cognitive Sciences* (pp. 1–8). Cambridge: MIT Press.
- Eisenfuehr, F., Weber, M., & Langer, T. (2010).** *Rational Decision Making*. Berlin: Springer.
- Gawande, A. (2002).** *Complications: A Surgeon's Notes on an Imperfect Science*. New York: Henry Holt and Company.
- Gilliland, B., & James, R. (1993).** *Crisis Intervention Strategies*. California: Brooks/Cole, Golan.
- Green, J., & Armstrong, D. (1995).** Achieving Rational Management: Bed Managers and the Crisis in Emergency Admissions. *The Sociological Review*, 43(4), 743–764.
- Gryz, J., & Kitler, W. (2007).** *System reagowania kryzysowego*. Toruń: Wydawnictwo Adam Marszałek.
- Hodgkinson, G. P., Sadler-Smith, E., Burke, L. A., Claxton, G., & Sparrow, P. R. (2009).** Intuition in Organizations: Implications for Strategic Management. *Long Range Planning*, 42(3), 277–297.
- Holska, A. (2017).** Kobięce przywództwo w zarządzaniu organizacją – szansa czy zagrożenie? *Zarządzanie. Teoria i Praktyka*, 1(19), 11–20.
- Joas, H. (1996).** *The Creativity of Action*. Chicago IL: University of Chicago Press.
- Kayes, C. D. (2015).** *Organizational Resilience: How Learning Sustains Organizations in Crisis, Disaster, and Breakdown*. Oxford: Oxford University Press.
- Khatri, N., & Alvin, H. (2000).** The Role of Intuition in Strategic Decisions Making. *Human Relations*, 53(1), 57–86.
- Komorowska, K. (2021).** Rola informacji we współczesnym świecie. *Zeszyty Naukowe SGSP*, 79, 187–203.

- Kopaliński, W. (2001).** *Słownik wyrazów obcych i zwrotów obcojęzycznych*. Warszawa: Muza SA.
- Kuipers, S., & Wolbers, J. (2021).** *Organizational and institutional crisis management*. Oxford: Oxford Research Encyclopedia of Politics.
- Liedel, K., & Serafin, T. (2011).** *Otwarte źródła informacji wywiadowczej*. Warszawa: Difin.
- Malewska, K. (2018).** *Intuicja w podejmowaniu decyzji kierowniczych*. Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.
- Mehr, M. K., & Jahanian, R. (2016).** Crisis Management and its Process in Organization. *Mediterranean Journal of Social Sciences*, 7(5), 143–148.
- Mitroff, I. I., & Pearson, C. M. (1998).** *Zarządzanie sytuacją kryzysową, czyli jak ochronić firmę przed najgorszym*. Warszawa: Business Press.
- Moczydłowska, J. M. (2017).** Płeć osób na stanowiskach kierowniczych a efektywność zarządzania. *Przedsiębiorczość i Zarządzanie*, XVIII, 11(2), 183–195.
- Nelson, R., & Winter, S. (1982).** *An Evolutionary Theory of Economic Change*. Cambridge: Harvard University Press.
- Oliver, C. (1992).** The Antecedens of Deinstitutionalization. *Organization Studies*, 13(4), 563–588.
- Orych, M. (2022).** Przywództwo kobiet w organizacjach – analiza percepcji żeńskiego lidera. *Przedsiębiorczość i Zarządzanie*, 13(4), 19–30.
- Patora-Wysocka, Z. (2015).** Instytucjonalizacja zmian spontanicznych w procesie umiędzynaradawiania przedsiębiorstw. *Problemy Zarządzania*, 13(4), 82–100.
- Patora-Wysocka, Z. (2019).** *Rutyny organizacyjne w zarządzaniu z perspektywy procesualnej*. Warszawa: PWN.
- Sayegh, L., Anthony, W. P., & Perrewé, P. L. (2004).** Managerial decision-making under crisis: The role of emotion in an intuitive process. *Human Resource Management Review*, 14(2).
- Silverman, D. (2007).** *Interpretacja danych jakościowych*. Warszawa: PWN.
- Sinclair, M., Ashkanasy, N. M., Chattopadhyay, P., & Boyle, M. V. (2002).** Determinants of Intuitive Decision Making in Management: The Moderating Role of Affect. In N. M. Ashkanasy, W. Zerbe, & C. E. J. Hartel (Eds.), *Managing Emotion in the Workplace* (pp. 143–163). 1<sup>st</sup> edition. New York: Routledge.
- Stacey, R.D. (2011).** *Strategic management and organisational dynamics. The Challenge of Complexity*. Harlow: Prentice Hall.
- Stańczyk, S. (2019).** Organizational Routines, Practices and Artefacts. At the Intersection between the Evolutionary and the Cultural Approach. *Problemy Zarządzania*, 2(28), 127–141.

**Thornton, P., Ocasio, W., & Lounsbury, M. (2012).** *The institutional Logics Perspective: A New Approach to Culture, Structure and Process*. Oxford: Oxford University Press.

**Walecka, A., & Zakrzewska-Bielawska, A. (2009).** Przywództwo w obliczu kryzysu przedsiębiorstwa. *Prace i Materiały Wydziału Zarządzania Uniwersytetu Warszawskiego*, 3(2), 381–391.

**Wolff, D. Ch., Drenth, P. J., & Henk, T. (2013).** *A Handbook of Work and Organizational Psychology: Volume 4: Organizational Psychology*. Wilts: Psychology Press Ltd.

**Wooten, L. P., & James, E. H. (2008).** Linking Crisis Management and Leadership Competencies: The role of Human Resource Development. *Advances in Developing Human Resources*, 10(3), 352–379.

**Zelek, A. (2003).** *Zarządzanie kryzysem w przedsiębiorstwie. Perspektywa strategiczna*. Warszawa: Instytut Organizacji i Zarządzania w Przemysle „Orgmasz”.



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Journal of Intercultural  
Management

Vol. **15** | No. **3** | **2023**

pp. **50–77**

DOI **10.2478/joim-2023-0011**

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# Startups: the Global Context of Functioning and the Need for Innovation Openness

Received: 06-11-2023; Accepted: 11-12-2023; Published: 27-12-2023

## ABSTRACT

**Objective:** The presented work is part of the discussions on evaluating the organizational surroundings, which, in the context of an increasingly globalizing world, is becoming regarded from a global perspective. Considerations of the environmental perception are supported with reflections on innovation and, in particular, startups' innovation. Businesses, which are characterized by the ambition of dynamic scalability, are able to accomplish this dynamism precisely through innovative intensity, which in turn can also be associated with openness to knowledge and solutions coming from the surroundings, not only the closest – local or regional but also international or even global. Striving to develop toward smart enterprises, startups should concentrate on the digitalization of their processes, entering the path of Industry 4.0. The purpose of the work is to contribute to the perception of the environment by startups and the perception of open innovation.

**Methodology:** In order to meet the objectives of the work, in addition to considerations based on the existing results available in the literature, the results of an analysis of data from a questionnaire survey conducted among future start-ups were also used. To achieve the objectives of the study, research questions were formulated referring to the general view of future innovation openness, then the view of the propensity to share knowledge, that is, openness from the enterprise side, and finally also the view of the need for openness of the organization at different stages of its development. In the context of organizational openness, the broadest geographically possible context of the organization's environment, namely the global context, was also considered.

**Findings:** As a result of the analysis, a relationship emerged between perceptions of innovative openness and the global environment of companies. The greater geographical scope of operations is accompanied by a higher demand for innovation, the more globally the enterprises would like to operate, the more innovation intensive they should be. Future entrepreneurs are strong advocates of open innovation, and they are also strong advocates of viewing the environment in an increasingly global dimension.

**Key words:** openness, globalization, competitiveness, innovation, entrepreneurship, start-ups, Industry 4.0

## Introduction

The accompanying processes lead to the unification of the image of the world as a homogeneous entirety, where a combination of an economic element and a common consumer-type culture takes place. As a result of globalization, territorial boundaries lose their importance, and the trends that facilitate the process occur outside the framework of nation-states. The practical expression of globalization of the economy are the economic changes and trends in the supply of world trade, the realization of foreign direct investment, the increase



in the number of corporations and their shares or subsidiaries in the world. Among the characteristics of globalization, what may be identified are, among others, the need for continuous observation of the surroundings and continuous re-thinking of the organizational strategy, the need for operational internationalization, diagnosis of organization's competitive capabilities and the need to search for new tools for building competitiveness on a global market.

The continuous, progressive development of globalization, which is distinctively perceived by the consumer and, from the point of view of organizations, represents both opportunities for greater access to consumers and the risk of greater external competition, brings not only modifications in the form of understanding and perception of the environment. When defining the environment from the perspective of an organization, the main focus is on other organizations that create this environment. With increasing globalization, less importance is ascribed to the element of territoriality which, among other things, is the result of the impact of one of the determinants of globalization, that of digitization. The increase in the level of globalization, resulting mainly from intensifying technological processes (Borowiecki & Siuta-Tokarska, 2016), has an ever greater impact on the functioning of modern economic organizations, which seems to be related to the more global context of perception of the organization's environment. Thus, as a result of globalization, territorial boundaries are losing their previous meaning (Kusio, 2016) and the distant environment, thus also acquires a new significance, especially bearing in mind that globalization processes affect the directions of the organization's activities (Nogalski & Niewiadomski, 2014). Thus, it may be justifiable to conclude that it is increasingly necessary to look at the functioning and effects of business-oriented and non-business-oriented organizations from the perspective of globalization (Kusio, 2016). At the same time, the environment is a determinant of development for organizations (Chojnicki, 1999). The definition of the environment, which, from the point of view of the most common classification, is divided into internal and external, and closer and further away, has also begun to undergo some terminological modification. In the territorial context, as Scholte (2006), points out, supraterritoriality should be identified, within which social relations should be largely transferred beyond the territorial space. Place ceases, thus, to be territorially bound. The perception

of the environment is determined by the progressive globalization processes, which increasingly causes it to be recognized in broad terms, not only local or even regional but supra-local and supra-regional.

The environment is also understood as the collective of organizations with which an organization interacts (Olesiński, 2014). The organization, in the subjective approach, in the science of organization and management, is defined as a certain separate entity, often with a specific legal status like a company or a bank, a school a hospital, a theater (Olesiński, 2014). The quality of inter-organizational relations, as well as the quality of functioning of organizations, is determined by the behavior of the managers of these very organizations. In the era of globalization, the formation of inter-organizational relations is, as a rule, supra-local, supra-regional, and even supra-national. Besides, sometimes, supra-national cooperation is a prerequisite for the existence of a cooperation in order to achieve particular tasks (knowledge and technology transfer)(Gross-Gołacka et al., 2021). The stronger the need to intensify inter-organizational relations, and at the supra-local or supranational level, the more important are the knowledge, skills, and competencies of the people who make up a given organization. The creativity of managers and animators of inter-organizational cooperation is determined by their entrepreneurial inclinations and attitudes, which are noticeable both in international profit-oriented and not-for-profit organizations.

An interesting context of the environment is also outlined by Borowiecki & Siuta-Tokarska (2016) in which the global environment is formed through three key factors – natural, economic, and human capitals. What the authors also point out in the context of globalization is the growing importance of the financial sector, which demonstrates an overarching role in relation to the economic sector, as well as the need to discuss sustainable development, which reveals dependencies with globalization.

Changes in the environment, therefore, which, in accordance with the dynamics of globalization (Rzepka, 2013), also involve, with greater or lesser intensification, changes in the organizations, are associated with the need to increasingly adapt to the evolving patterns of consumer behavior, growing and changing needs in this regard, which the literature (Schumpeter, 1943) defines as

innovation. However, it can be concluded, at the same time, that there is a feedback loop between globalization and innovation, and innovation itself is also strongly evolving, which is reflected in the current generation of open innovation. The rationale of the open innovation model, under which a higher level of efficiency in the creation and implementation of innovations is achieved when relying on external sources rather than intra-organizational sources (Chesborough, 2003), seems to be confirmed more and more, and additionally, this model is evolving (Sopińska & Diurski, 2019). Given the continuing evolution of innovation, or rather, evolution in relation to open innovation, what still seems to be the subject of a cognitive gap, the question is to what extent the current and future organizations will be open in terms of innovation (Rzepka, 2019). Open innovation can be exemplified as the uptake of data streams that reach the organization is also produced by it and can be shared by it – what level of openness the organization is willing to accept as a level beneficial to its development.

The issue of perception of the environment by the current and future entrepreneurs is an interesting subject of consideration, taking into account the imperative of change, the imperative of innovation, that is, management through the prism of the dynamics of intensification of the introduction of innovative (Rzepka, 2018) solutions in the organization in the subject not only of products, but also of processes and organization of work that occur in the organization (Kusio, 2019).

Analysis of the environment, or environmental analysis, in the context of seeking directions for innovation development (Filipowicz, 2013) is linked to the creation of a model of regional pro-innovation policy in the 1990s. It is also related to the development of the new technology sector, as well as the attraction of globally operating companies and the stimulation of spin-offs. What is, therefore, important from a management perspective and, at the same time, stands as the first research question is the extent to which an organization is ready to share information, data, i.e., media, and knowledge, i.e., already processed data (RQ1). In turn, bearing in mind high-tech startups, as well as tech-no-starters, among others, in academia – an interesting cognitive issue, which creates the second research question, is how the potential future entrepreneurs perceive the issue of open innovation and the level of organizational openness,

among others, at the very beginning of operations, but also in the acceleration phase, the adjustment of the organization (RQ2).

Striving to develop toward smart enterprises may be composed of:

1. Investing in digital infrastructure (Miśkiewicz et al., 2021): Startups should invest in digital infrastructure, such as cloud computing, artificial intelligence, and the Internet of Things (Jędrych et al., 2021), to improve their operations and increase efficiency.
2. Utilizing data analytics: Startups should use data analytics to gain insights into customer behavior (Turulja & Bajgoric, 2019), market trends, and other key metrics. This will help them make better decisions and stay ahead of the competition.
3. Automating processes: Startups should automate processes (Borowski, 2021) wherever possible to reduce manual labor and increase efficiency. This will also help them save costs and increase profits.
4. Developing smart products: Startups should develop smart products that are connected to the internet and can be controlled remotely. This will allow them to provide better customer service and improve customer experience.
5. Leveraging AI and machine learning: Startups should leverage AI (Borowski, 2020) and machine learning to automate tasks and improve decision making. This will help them stay ahead of the competition and increase their competitive advantage (Rzepka & Sabat, 2022).

Embracing digital transformation (Jędrych et al., 2022): Startups should embrace digital transformation and use it to create innovative solutions (Miśkiewicz, 2020) and products. This will help them stay ahead of the curve and remain competitive.

In order to gain knowledge (Kraus et al., 2019a) in the indicated area, and thus with a view to partially fill the cognitive gap, a literature analysis supported by the results of the empirical study will be carried out. The construction of the model of considerations thus outlined in this paper consists of a section on the literature review, followed by a description of how the empirical study

was carried out and the presentation of its results accompanied by an interpretation of the data. As a result of the study, conclusions and implications for further considerations will be drawn.

## Literature Review

Globalization, according to the EU definition, is the process of creating interdependence of markets and production of countries around the world. The tightening interdependence of markets and production results from the increasing dynamics of the exchange of goods, services, and the flow of capital and technology (Economic Report, 1998). As a result of the process of dynamizing the interdependence of markets and production in the world, the very concept of the world economy has lost its previous meaning in which the autonomous economies of individual countries co-created the overall world economy. As a result of the globalization processes, which refer to the growing interdependence of markets and production, the world economy is emerging as a system of integrated goods, services and financial markets (Bogdanienko, 2006). Under the interdependence of markets, companies are shifting their strategies in a global direction. This means locating new companies in other countries which is facilitated by the openness of markets and technological advances. The diffusion of business in a global context is due to the advantages associated with the possibility of lowering production costs, or the possibility of increasing sales. Formal issues related to this are of lesser importance, which has a dynamic effect on the processes of globalizing the strategy of business operations (Liberska, 2002). The current business environment is therefore determined by global conditions, which are characterized by, among other things, so-called hypercompetition (Otola, 2013). It forces companies to make quick decisions and imposes dynamic modification of their operations, and the source of competitive advantage are competence resources. In turn, gaining competitive advantage is achieved through continuous innovation, which these resources are responsible for creating and implementing,

establishing a series of temporary advantages (Bratnicki, 2001). Hypercompetition, the postulates of which are closely related to the need and logic of innovative intensity, is an important factor in the construction of current strategies for the functioning of enterprises. It is related to the perception of the leading role of the dynamics of environmental change, which causes the need for dynamic adaptability of enterprises (Klimek, 2020). Large and small enterprises should strive to meet the demands of adaptive dynamics. Adaptive dynamics is a factor that determines the competitive strength of small enterprises, where this process occurs easier. It seems that the dynamics of change increasingly determines not only the operating strategies of enterprises, but also affects the decisions of establishing new enterprises. An example of this is intrapreneurship is the process of setting up businesses by existing employees.

The requirements of competitiveness and even hyper-competitiveness pose for all enterprises, regardless of their size, the need to redefine the boundaries of the enterprise organization system toward its flexibility (Bettis, 1995), the increased importance of learning, the ability to respond quickly and strategically to new situations in the environment. The environment of an enterprise, or more broadly of an organization, is defined by such attributes as uncertainty, volatility, complexity, and hostility. Some authors treat volatility, complexity, and hostility as attributes of uncertainty (Pichlak, 2014). Changes in the environment occur dynamically and require dynamic adaptability – they are unstoppable – therefore, in the strategies of enterprises, it becomes important to take advantage of the phenomenon of the dynamics of change, as recognized by Chesbrough (2002), and Borowiecki and Siuta-Tokarska (2012), point to the necessity of a change imperative. According to the concept of the change imperative (Borowiecki, 2015), innovation is a *sine qua non* for the process of functioning of an organization at every stage of its development. Applying the need for innovation to not only for-profit but also not-for-profit organizations is linked to the issue of management universalism (Kusio, 2019). The need for organizational change leading to the increase of economic effectiveness refers to all organizations: SMEs, large enterprises, NGOs and other not-for-profit entities, such as social economy entities (Borowiecki & Siuta-Tokarska, 2012).

Only by defining and considering the environment in the quoted categories can one consider the innovativeness of an organization, i.e., the propensity to implement innovative solutions, the ability to implement them, and the readiness to bear the associated risks (Pichlak, 2014). The urge for dynamism in the adaptability of enterprises directly relates to the dynamics of the development of globalization, while the observed phenomena point to the imperative of innovation, which arises not only from the need but also from the necessity to adapt to changes in the environment.

The company's adaptive measures to changes in the operating environment refer to the behavior of employees who, by undertaking adjustment actions, strive to bring the company into a state of equilibrium with the business surroundings (Skonieczny, 2001). A significant role in global governance, moreover, is attributed to managers (Mączka, 2003). A highly innovative organization should have more numerous and detailed work standards than an organization with an organic organizational structure. The results of the study of Hopej-Kamińska and Hopej (2008) indicate that organizational hierarchy can benefit and positively build the organizational learning. It occurs when, the main role of superiors, among others, is to inspire the creativity of subordinates. The above statement can be followed up with the possibility that leaders who build pillars of organizational learning in their leadership culture can build the creativity of subordinates, regardless of whether it is a similar behavior of their main role in the organization. In small organizations, relationships between employees should be found to be less formal compared to large corporations. Transnational corporations, i.e., those businesses in which global operating strategies have become effective and efficient, and which have succeeded in gaining the desired share in the markets of individual countries, as well as locating production cost-effectively in accordance with the financial cost logic, have a great competitive strength, especially toward local small businesses (Liberska, 2002). In contrast, from the point of view of the dynamics of adaptability, large companies may be behind in this regard, compared to small companies, which can take advantage of these dynamics competitively.

From the viewpoint of the recipient of products and services, globalization is associated with the homogenization of certain segments of commodity

markets, the unification of consumer tastes, needs, and demands. This is the result of a growing number of alliances, mergers, and acquisitions, as well as foreign direct investment (Bogdanienko, 2006). This may have the effect of creating a similarity situation between key success factors on most global markets. This applies to both large and small enterprises striving for market success. The boundary in understanding the success of a business operation has shifted – from the concept of profit orientation to the concept of value orientation underlying the theory of stakeholders (representing the neighborhood) and the theory of corporate social responsibility. The development of stakeholder value also involves both internal and external stakeholders, who thus determine the internal and external environment. External stakeholders include, among others, business partners, customers, and end users of products, who are a valuable source of explicit information (comments, remarks), but also implicit information resulting from observations of product application in practice and product adaptations introduced unconsciously (Prahalad & Ramaswamy, 2004). Prosumerism, i.e., the participation of consumers in the creation of the concept of value for the organization should be considered an essential factor of innovation in the organization but also a determinant of the possibility of market success.

Enabling small businesses to compete on markets around the world has been made possible by recent advances in manufacturing, telecommunications, and transportation (Etemad & Wright, 2003). Due to the intrusion of large global corporations into local domestic markets, competition with them by small businesses has become an everyday reality; moreover, the very nature of intensified competition on domestic markets has changed the reality of competing. Small businesses, thus, face global competition when competing with locally operating subsidiaries of global companies.

Companies that are younger may have a higher propensity to enter international markets, not least because new techno-starters are pioneering cutting-edge product development and innovation. Intense innovation is required to compete successfully in a global environment (Etemad & Wright, 2003). In addition to their propensity to enter international markets, SMEs should also be considered pioneers in bringing new products to market. Opinions can be



encountered regarding the leading role of SMEs in introducing new, innovative products and services to markets (Soczewska, 2002). The innovation success of small companies that have used an open model including a prosumer model is represented by the example of Amazon (Chesborough, 2011), currently a global corporation. This company, by introducing open services innovation, gained the ability to source free information from customers on the level of product acceptance, including services, which were offered on the corporate platform. Currently, a similar mode of collecting customer feedback is largely spread globally. There are also automated mechanisms in place to facilitate feedback on products, their features, the purchase process, post-purchase, even warranty. Automation is accompanied by additional mechanisms not only to facilitate reviews but also to reward them.

The example of Amazon, as one of the first companies to make such extensive use of prosumerism to intensify innovation processes, underscores the importance of the global context, mainly the participation of customers from around the world in the co-creation of the value concept. Consumers, as external stakeholders, through their contribution to the creation of the value concept, among other products, acquire the characteristics of internal stakeholders, acting for the benefit of the organization whether profit-oriented or not. In addition, prosumerism is characterized by a large share of the human factor in the creation of the value concept. Subsequently, adequate information management appears to be important.

Information management performs a crucial role in the process of organization management. Adequate process of information gathering and, first of all, the identification of proper and reliable sources of information are the very important elements of this information management system. As the organization possesses the mission and vision of its operations, it is important to adequately refer the information processed to these very objectives of the organization. One of the features of the information management is the dynamics of the interactions of the elements of the information system. The quicker the sources are identified and then information processed as valuable, the quicker the decision may be taken. Therefore, this dynamics is important and instruments which may lead to the dynamics increase are valuable too. The information management system

consists of technical tools and is operated by the people, who also design and operate the system. People very often create the system and people deliver the information to the organization. The importance of information is growing and it is also possible to see the increasing importance of information processing efficiency. Primarily, it is a matter of getting to both explicit and implicit information.

Major factors having a strong impact on innovative openness include the development of mechanisms for searching (Trantapoulos et al., 2017), among others, for sources of ideas and sources of funding (crowdsourcing, crowd-funding). The mechanisms mentioned involve sources shared by communities, particularly online communities. This further indicates the great potential and ever-increasing impact of digitization on the processes of sharing and acquiring information. The Fourth Industrial Revolution, the beginning of which is dated to year 2000 (Górka et al., 2020) is characterized by data evolution (Big Data Management), data systems with cyber physical characteristics, and smart factories, manufacturing sites, among others. Systems of high-speed wireless Internet access, the Internet of things, autonomous cars not requiring the presence and supervision of a driver are being introduced, and, in a personal context, there is the emergence and development of social media. Important consequences that can be considered as a result of the development of the above include industrialization programs, personalization of products and services, but also a strong focus on services. Access to companies and their product offerings is facilitated, precisely because of digitalization and the ubiquitous Internet. Artificial intelligence (Sharp et al., 2019) is recognized as one of the controversial socio-economic consequences of the Fourth Industrial Revolution. A particularly interesting issue is the impact of the Fourth Industrial Revolution on the development of non-urbanized areas, which can be considered significant. Due to the opportunities provided by the Internet, digital access to the range of products that are produced by agricultural producers can be facilitated. However, the examples of family businesses in rural areas are not widespread enough to discuss the full use of the opportunities created by the Fourth Industrial Revolution.

In the era of disseminating intensification of digitalization processes, it is also possible to see significant changes in communication systems. While in the previous understanding of communication, the role of the human has

always been prominent, in the era of the Fourth Industrial Revolution, a new dimension of communication is emerging, namely machine-to-machine. Both the sender and the receiver of the message in a face-to-face context become a machine and not just a computer. It should be clarified that in the definition of the Internet of Things, access to a global digital communication network refers not only to computers but to an increasingly wide and growing spectrum of devices. Among them, cell phones or rather personal miniature computers for digital communication, including audio and visual, are considered the most common. Naturally, the leading source of communication is a human being, but the role of machines in the communication process has increased significantly. Remarkably, digitalization continues to advance, which authorizes the statement that to an even greater extent the importance of the Internet of things, communication, and digitalization will affect the processes of globalization and the dynamics of open innovation.

## Materials and Methods

Apart from the introductory literature analysis, the survey method has been applied for this study (Singleton & Straits, 1999). The research questionnaire was entitled “Scaling up by means of innovative solutions.” It was sent to an 82-person group of people aged 20–25, interested in issues of entrepreneurial development. Of those invited to participate in the study, 75 correctly completed the questionnaire, answering the questions posed. All questions in the questionnaire were closed questions. The choice of this method appeared sufficient to collect standardized data and the necessary info (Rukuni & Maziriri, 2020).

The form contained 19 questions, 17 of which were based on a 5-point Likert scale (1-completely disagree, 5-fully agree). The topics the respondents were asked about covered four basic blocks:

- creation of new innovative concepts,
- openness of the organization to cooperation with other entities,

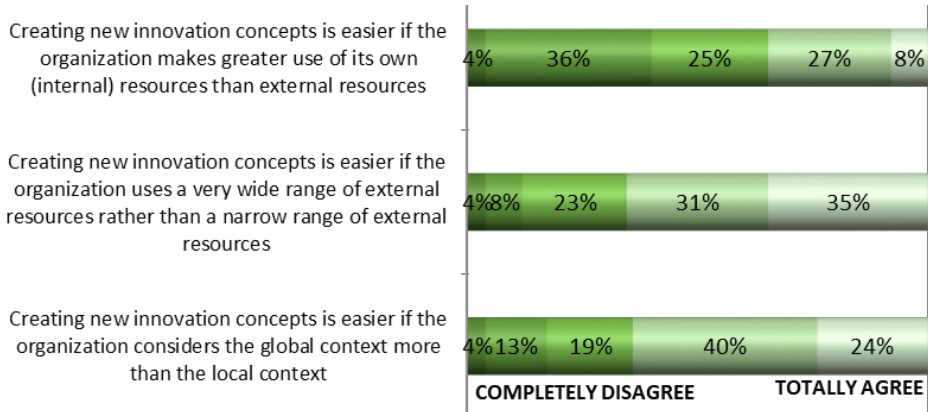
- management of own resources at different stages of the enterprise's operation (1 question without the Likert scale, indicating at which stage of development the enterprise should/or should not be more willing to provide its own resources),
- inborn entrepreneurship vs. learned entrepreneurship (1 question on a 10-point scale, where 1 meant the view of "born entrepreneur" and 10 meant the view of "learned entrepreneur").

As for the results of the responses to the question on the ability to acquire pre-entrepreneurial skills, they were not considered for the purposes of this study. The choice of the target group was the result of the interests indicated by these people, namely the voluntary application for a course on startup development. The survey was implemented between October 19–27, 2021 and as a result, 75 correct answers were obtained. The questionnaire did not ask about the gender of the respondents, as there was no research intention to consider the results of the survey depending on this factor.

## Research Results

Responding to questions about whether the organization needs to use its own internal resources to a greater extent in conceptualizing new innovative ideas, the answers are inconclusive, but most respondents tend to answer in the negative (Figure 1).

**Figure 1.** Opinion on the use of internal resources to conceptualize new ideas



Source: own elaboration.

Thus, using more of one's own resources is not at all considered an effective formula for creating innovative solutions. The view presented by young people who express an orientation towards entrepreneurial behavior may be an expression of their understanding of the limitation of the innovative capacity of small and even micro-enterprises. Despite the fact that the creation of an innovative startup, by its very nature, is the implementation of an innovative solution, the process of developing new concepts may not be an easy one, in the implementation of which their own resources, such as human, intellectual, among others, could be entirely sufficient.

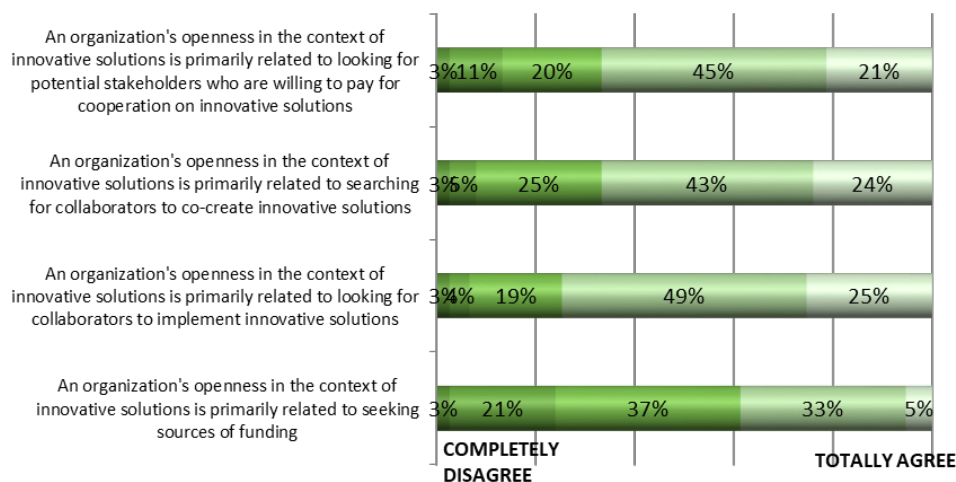
Another issue is the question of financing innovation, which for small companies is often an insurmountable barrier, which clearly indicates the need to reach for external financial resources.

A far more polarized view emerges from an analysis of answers to the question on the broad scope of external sources in conceptualizing new innovative ideas. As many as 66% of definitely yes and yes answers were indicated by those questioned in response to the legitimacy of using the broadest possible external source base. Interviewees thus perceive a positive dimension to broad cooperation with external partners. Very similar indications apply to the view of the global context when it comes to sources of innovative ideas. The results of our research prove that the global context is more important than the local

context, as it found supporters in 64% (Figure 3). In contrast, strong opposition to this view, as well as weaker negation, was indicated by a total of 17% compared to 12% of respondents in the context of comparing the broad AND narrow external context of information sources for innovation creation. The data in Figure 1 provide a very clear indication of the perception of the need for external cooperation as broad as possible in the case of innovation activities. Moreover, a clear global context is perceived, which may indicate the need to go beyond the local environment in the case of building an organization's competitive strength.

Another interesting finding in the context of innovation is the openness of the organization. When asked whether the organization's openness in the context of innovation solutions is primarily related to seeking potential cooperators willing to pay to obtain such solutions, the vast majority answered positively (Figure 2) – 66%.

**Figure 2.** Opinion on openness to cooperation



Source: own elaboration.

Another driver which, according to the respondents (67%), determines innovative openness for the sake of innovation is cooperation, the purpose of which is to jointly develop innovative solutions. To an even greater extent (74%),

the organization's openness to the neighborhood is required during the implementation phase of innovative solutions. The only driver that received little approval from respondents was the search for funding sources. In this case, positive answers (definitely yes and yes) were expressed by only 31% in contrast to 24% in opposition, and as many as 37% of those with no opinion on the subject. Thus, the search for funding sources for innovative solutions does not necessarily affect the openness of the organization, according to the respondents.

Thus, in the opinion of potential startups, the greatest extent of seeking external support is related to the implementation of innovative solutions, to a lesser extent to the development of such solutions, financial issues alone are not as problematic for respondents.

The next chart (Figure 3) graphically summarizes opinions on the relationship of innovation openness with the organization's level of maturity, the organization's level of globalization, and the organization's size.

**Figure 3.** Opinions on the relationship of innovation openness with the organization's level of maturity, the organization's level of globalization, and the organization's size



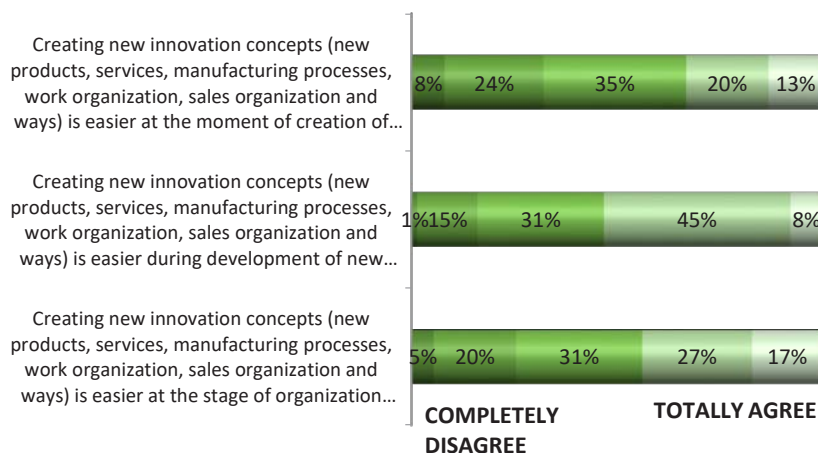
Source: own elaboration.

According to the prospective entrepreneurs, to the greatest extent, this convergence occurs in the second case, i.e., in developing new innovative solutions, then it occurs to the greatest extent the more global the organization is, i.e., the more global the organizational environment is. As many as a total of 60% of respondents indicated such an opinion in their answers. 10% of all responses

were strongly in favor of such an opinion, while 43% agreed less strongly with the relationship in question. Neither the maturity of the organization nor its size, according to the respondents, seems to be related to the openness of the organization in the context of creating new innovative solutions. This is in line with the earlier opinions on the question of how an organization's own resources and the use of those resources affect its level of innovation (Figure 1).

The next chart (Figure 4) shows a graphical representation of the responses to the question of at what stage of the organization's development the creation of new, innovative solutions is the easiest.

**Figure 4.** Respondents' opinion on the impact of the organization's development stage on the ease of creating new, innovative solutions



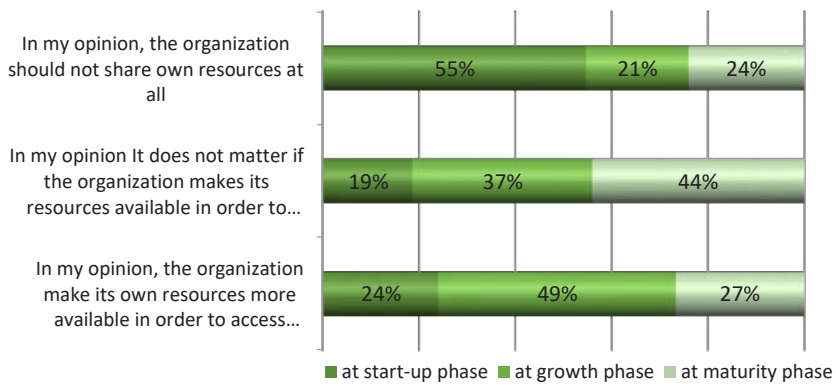
Source: own elaboration.

The respondents considered this phase to be the development stage of the organization (total responses of definitely yes and yes are 53%), followed by the maturity stage of the organization (total affirmative responses of 44%), and finally the phase of the formation of a new business entity (33% of total affirmative responses). Surprisingly, in each of the three phases to which respondents referred to, there is a large and very similar percentage regarding the neutral (hard to say) response – 31 to 35%, which is basically 1/3 of the responses and indicates a lack of knowledge in this area.



Figure 5 shows the respondents' view of innovation openness in the context of making one's own resources available at three stages of an organization's operation: in the formation, development, and maturity stages.

**Figure 5.** Respondents' view of innovation openness in the context of making own resources available at different stages of the organization's operation



Source: own elaboration.

According to the respondents, as it is shown in Figure 5, the sharing of own resources at the initial stage of the company's functioning, i.e., in the startup phase, should be definitely limited. This is claimed by as many as 55% of the respondents, while 45% believe that there should be no sharing of own resources at all in the later stages of the business, i.e., in the development and maturity phases of the company. It appears that indications of innovation closedness, so to speak, are due to the need to preserve trade secrets, so that the potential imitation of products that will be marketed will be hindered and postponed. 21% of people believe that it is not appropriate to share one's resources at all during the company's development stage, and 24% believe that it is not appropriate to share one's resources at all during the company's maturity stage, i.e., regular operation. For 19% of the respondents, sharing their own resources does not affect the similar practice of other organizations when it comes to the initial stage of operation. 37% have a similar opinion, but with

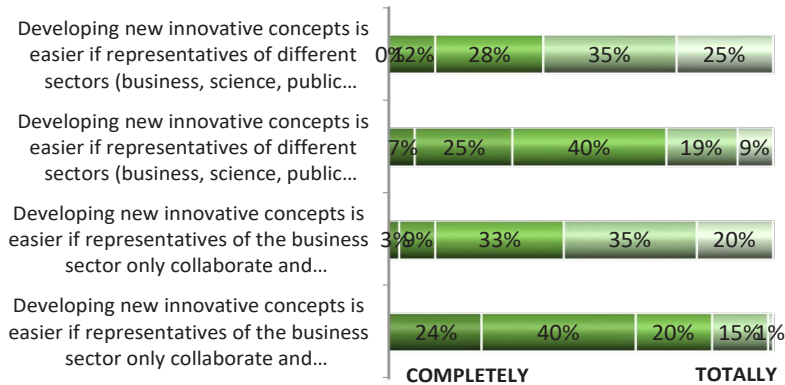
regard to the development phase, and as many as 44% relate this regularity to the maturity phase.

As for the view regarding the recognition of the need to share one's own resources in order to gain access to the resources of other organizations, the highest percentage of responses in this regard relates to the company's development phase (49%), compared to comparable response percentages when it comes to the startup phase – 24% and the maturity phase – 27%. Respondents, therefore, consider as necessary this practice of action aimed at increasing the relational level with other organizations, the high importance in this regard is assigned to the practice of openness of sharing one's own resources.

As for the respondents' opinion of the impact of triple helix and B2B relationships on the emergence and development of innovation concepts, direct communication was considered the most important (Figure 6). This was first within the triple helix (a total of 10%) of affirmative responses, followed by direct B2B relationships (55%). The emergence of innovation concepts is far less influenced by virtual communication, with responses within the triple helix of 28% and within B2B communication of only 16%. Virtual communication was generally rated negatively in terms of its impact on the development of innovation concepts – in the case of triple helix communication, negative responses (definitely no and no) exceeded positive ones at 32%, while within B2B, it was as high as 64% of total negative responses.

It can be concluded that in the formation of innovation concepts, directness effect, face-to-face contact, direct quicker expression of one's own opinions on the proposed solutions that would carry improvement, whether product, process, organizational or marketing. It is also possible to relate the results of the survey to the post-pandemic period, or a period that qualifies as post-pandemic, in which the negative effects of the lack of direct relations have already begun to be felt. Thus, from the point of view of those interested in setting up startups, it is necessary to conduct direct discussions, meetings with both scientific, administrative, public, and business representatives.

**Figure 6.** Respondents' view of innovation openness in the context of making own resources available at different stages of the organization's operation



Source: own elaboration.

## Conclusions

Globalization has led organizations to recognize sales opportunities beyond national borders, and for large companies, this means opportunities to cut costs, access new customers, and diversify risks (Urbański, 2021). Business with a transnational nature, which is identified with the global nature of the company's operations, affects the readiness to change in the event of unfavorable business conditions on one of the markets on which the company operates (Wiśniewska-Placheta, 2015). In addition, access to broader markets also implies an increase in the company's innovation potential (Iqbal & Hameed, 2020).

Changes in markets also help business organizations because of innovation issues (Rzepka, 2023). This is due to the fact that new markets mean new sales opportunities for existing products. Products that are not new on the existing markets can be innovative on the new markets, which means new profits for the companies bringing them in. Therefore, the wider the geographical scope in the context of new markets to which products are introduced, the higher

the level of innovation for the company, even though the product is no longer innovative on its home market. From this point of view, innovation, which is the result of changes in, among other things, the production offer, or the system of provision of the offer, is not only a necessity – an imperative, but also should be subject to appropriate dynamics – innovative intensity. Given that the resources of the organization are often far from sufficient to meet these demands, there is a need to reach for external resources to create innovation concepts and their implementation – open innovation.

Open innovation to a greater extent may be demanded by small enterprises that are in possession of fewer resources including primarily human resources, which are predominantly responsible for the creation of innovation concepts. Nevertheless, the possibility of acquiring external knowledge is also an opportunity for large enterprises to raise the dynamics of innovation. From the point of view of the dynamics of adaptability to changes in the environment, small enterprises have an advantage over large ones. On the other hand, from the point of view of prosumerism (Rzepka et al., 2021), i.e., the participation of stakeholders (mainly customers) in the co-creation of value concepts – large enterprises, by reason of their larger number of customers, find it easier to acquire a greater amount of knowledge – ideas, comments, and suggestions on products, among other things.

Global competition takes place due, among other things, to an increase in the level of homogeneity of markets. Thus, competition from the local or regional level is more easily transferred to other markets, especially when it comes to offering products and services via the Internet (Miśkiewicz, 2019). This also promotes the perception of global competitiveness (Rzepka et al., 2022).

The results of the questionnaire survey show that prospective entrepreneurs rely on external sources in the creation of innovative concepts, both in the broadest possible sense and by perceiving the environment in a global way that is consistent with Ristviej et al. (2017). It shows that the global context is, to some extent, a natural perspective for perceiving opportunities for startups. In addition to a decidedly open-minded approach when it comes to sourcing innovation concepts, the similar nature of respondents' answers concerns

cooperation with external entities. Cooperation in the joint development of solutions, as well as their implementation, is viewed positively, also taking into account the issue of commercial sourcing of solutions, but not with regard to the search for funding. The openness of an organization is equated with its level of globalization. This also provides an answer to the research questions formulated in the introductory section of this paper. In addition, examination of the reflections that other researchers have carried out on the topic in question seems to coincide directly or indirectly with the results of the questionnaire study. This is because what emerges from these two sources of inference is the current state of perception of the functioning of startups.

## References

- Bettis, R. A., & Hitt, M. A. (1995).** The New Competitive Landscape. *Strategic Management Journal*, 16, 7–19.
- Bogdanienko, J. (Ed.). (2006).** *Firma w otoczeniu globalnym*. Toruń: Wydawnictwo Dom Organizatora.
- Borowiecki, R. (2015).** *Permanent restructuring of enterprises in terms of challenges of modern economy*. The honoris causa honorary degree for R. Borowiecki lecture. Szczecin: University of Szczecin.
- Borowiecki, R., & Siuta-Tokarska, B. (2012).** *Wyzwania i dylematy społeczno-gospodarcze Polski w procesie transformacji*. Toruń: TNOiK Stowarzyszenie Wyższej Użyteczności Dom Organizatora.
- Borowiecki, R., & Siuta-Tokarska, B. (2016).** Zrównoważony i trwały rozwój wobec postępujących procesów globalizacji. Globalizacja i regionalizacja we współczesnym świecie. *Miscellanea Oeconomicae*, 20(3, 2), 71–81.
- Borowski, P. F. (2021).** Digitization, Digital Twins, Blockchain, and Industry 4.0 as Elements of Management Process in Enterprises in the Energy Sector. *Energies*, 14(7), 1885. DOI: 10.3390/en14071885.
- Borowski, P. F. (2020).** New Technologies and Innovative Solutions in the Development Strategies of Energy Enterprises. *HighTech and Innovation Journal*, 1(2), 39–58.

**Bratnicki, M. (2001).** Pod znakiem przewag konkurencyjnych. Kilka uwag o tworzeniu strategii organizacji w nowej ekonomii. In M. Moszkowicz (Ed.), *Strategie i konkurencyjność przedsiębiorstw po dziesięciu latach transformacji*. Materiały III Ogólnopolskiej Konferencji Naukowej w Polanicy Zdroju.

**Chesbrough, H. W. (2002).** Graceful Exits and Foregone Opportunities: Xerox's Management of its Technology Spin-off Companies. *Business History Review*, 76(4), 803–838.

**Chesbrough, H. W. (2003).** *Open innovation. The new imperative for creating and profiting from technology*. Boston: Harvard Business School Press.

**Chesbrough, H. (2011).** *Open Services Innovation: Rethinking your Business to Grow and Compete in a New Era*. San Francisco, CA: Jossey-Bass.

**Chojnicki, Z. (1999).** *Podstawy metodologiczne i teoretyczne geografii ekonomicznej*. Poznań: Bogucki Wyd. Naukowe.

**Economic Report for 1997 (1998).** European Economy, No. 63. Brussels: European Commission. Belgium.

**Etemad, H., & Wright, R. (Eds.) (2003).** *Globalization and Entrepreneurship Policy and Strategy Perspective*. Northampton, MA: Edward Elgar Publishing Ltd.

**Filipowicz, P. (2013).** *Zarządzanie proinnowacyjne technologią w kształtowaniu strategii konkurencyjności przedsiębiorstwa. Aspekty teoretyczne i praktyczne*. Kraków: Wydawnictwa AGH.

**Górka, K., Their, A., & Łuszczak, M. (2020).** Consequences of the Fourth Industrial Revolution in Social and Economic Development in the 21st Century. In P. Buła, & B. Nogalski, B. (Eds.), *The Future of Management. Industry 4.0 and Digitalization* (pp. 60–71). Kraków: Wydawnictwo UJ.

**Gross-Gołacka, E., Kusterska-Jefmańska, M., Miśkiewicz, R., & Rzepka, A. (2021).** The intellectual capital and its Impact on the Sustainable Development of the SML-Sized Enterprises in Poland. *European Research Studies*, XXIV(2B), 410–429.

**Hopej-Kamińska, M., & Hopej, M. (2008).** Otoczenie organizacji a jej struktura organizacyjna. *Przegląd Organizacji*, 7/8(822/823), 3–5.

**Iqbal, J., & Hameed, W.U. (2020).** Open Innovation Challenges and Coopetition-Based Open-Innovation, Empirical Evidence From Malaysia. In P. Ordon de Pablas, X. Zhankg, K. T. Chui (Eds.), *Innovative Management and Business Practices in Asia*. Hershey: IGI Global.

**Jędrych, D., Klimek, A., & Rzepka, A. (2021).** Principles of Sustainable Management of Energy Companies: The Case of Poland. *Energies*, 14(8), 2042.

**Jędrzych, E., Klimek, D., & Rzepka, A. (2022).** Social Capital in Energy Enterprises: Poland's Case. *Energies*, 15(2), 546. DOI: 10.3390/en15020546.

**Klimek, D. (2020).** Sustainable Enterprise Capital Management. *Economies*, 8(1), 12.

**Kraus, S., Palmer, C., Kailer, N., Kallinger, F. L., & Spitzer, J. (2019).** Digital entrepreneurship: a research agenda on new business models for the twenty-first century. *Int Journal Entrep Behaviour Res*, 25(2), 353–375. DOI: 10.1108/IJEBR-06-2018-0425.

**Kusio, T. (2016).** Wyzwania przedsiębiorczości i innowacyjności uczelni w warunkach globalizacji i inteligentnej specjalizacji regionów. *Miscellanea Oeconomicae. Studia i Materiały*, 3, 201–208.

**Kusio, T. (2019).** *Więzi relacyjne uczelni z biznesem*. Kraków: Wydawnictwa AGH.

**Liberska, B. (2002).** Współczesne procesy globalizacji gospodarki światowej. In B. Liberska (Ed.), *Globalizacja. Mechanizmy i wyzwania* (pp. 17–37). Warszawa: PWE.

**Mączka, L. (2003).** *Gospodarka globalna u progu XXI wieku*. Kraków: Wydawnictwo Akademii Ekonomicznej w Krakowie.

**Miśkiewicz, R. (2020).** Efficiency of Electricity Production Technology from Post-Process Gas Heat: Ecological, Economic and Social Benefits. *Energies*, 13, 6106.

**Miśkiewicz, R. (2019).** Industry 4.0 in Poland – selected aspects of its implementation, Scientific papers of Silesian University of Technology 2019. *Organization, and Management*, 136, 403–413. DOI: 10.29119/1641-3466.2019.136.3.

**Miśkiewicz, R., Rzepka, A., Borowiecki, R., & Olesiński, Z. (2021).** Energy Efficiency in the Industry 4.0 Era: Attributes of Teal Organisations. *Energies*, 14(20), 6776.

**Nogalski, B., Niewiadomski P. (2014).** Elastyczność w obliczu wyzwań globalnej gospodarki – kontekst dopasowania rynkowego. In R. Borowiecki, & A. Jaki (Eds.), *Restrukturyzacja w obliczu wyzwań gospodarki globalnej* (pp. 123–138). Kraków: Fundacja UEK.

**Olesiński, Z. (2014).** Paradygmat sieciowy w nauce organizacji i zarządzania. In R. Borowiecki, & T. Rojek (Eds.), *Współczesne formy relacji międzyorganizacyjnych. Współpraca-Kooperacja-Sieci* (pp. 18–42). Kraków: Katedra Organizacji i Ekonomiki Przedsiębiorstw, Fundacja UEK.

**Otola, J. (2013).** Dynamiczne podejście do strategii w warunkach hiperkonkurencji. In R. Borowiecki, & B. Siuta-Tokarska (Eds.), *Zarządzanie rozwojem współczesnej organizacji. Uwarunkowania. Innowacje. Strategie* (pp. 245–252). Kraków: Uniwersytet Ekonomiczny.

**Pichlak, M. (2014).** Wpływ otoczenia na generowanie i przyjmowanie innowacji w organizacjach. *Przegląd Organizacji*, 5(892), 7–12.

**Prahalad, C. K., & Ramaswamy, V. (2004).** Co-Creating Unique Value with Customers. *Strategy & Leadership*, 32, 4–9.

**Ristviej, J. Sokolová, L., Starackova, J., Ondrejka, R., & Lacinak, M. (2017).** Experiences with Implementation of Information Systems within Preparation to Deal with Crisis Situations in Terms of Crisis Management and Building Resilience in the Slovak Republic. In *Proceedings – International Carnahan Conference on Security Technology; ICCST 2017*. DOI: 10.1109/CCST.2017.8167821.

**Rukuni, T. F., & Maziriri, E. T. (2020).** Data on Corona-virus Readiness Strategies Influencing Customer Satisfaction and Customer Behavioural Intentions in South African Retail Stores. *Data Brief*, 31, 105818.

**Rzepka, A. (2013).** *Globalisation and global economy in theory and practice*. Saarbrücken: Lap Lambert.

**Rzepka, A. (2018).** Innovative character of the contemporary enterprise and determinants of innovation. In *New Trends in Process Control and production management* (p. 445). CRC Press.

**Rzepka, A. (2019).** Innovation, inter-organizational relation, and co-operation between enterprises in Podkarpacie region in Poland. *Procedia Manufacturing*, 30, 642–649.

**Rzepka, A. (2023).** *Innovation in the Digital Economy New Approaches to Management for Industry 5.0*. London & New York: Routledge.

**Rzepka, A., Maciaszczyk, M., Wiśniewska, A. M., & Kocot, M. (2021).** E-Consumers and their Agile Qualities as Creators of Eco-Innovations: A Case Study. *European Research Studies*, 24(2B), 23–38.

**Rzepka, A., & Sabat, A. (2022).** Knowledge Creation in Teal Organizations. In A. Rzepka, Z. Olesiński, & E. Jędrych, *Self-Management, Entrepreneurial Culture, and Economy 4.0 A Contemporary Approach to Organizational Theory Development* (pp. 184–196). London & New York: Routledge.

**Rzepka, A., Olesiński, Z., & Jędrych, E. (2022).** *Self-Management, Entrepreneurial Culture, and Economy 4.0 A Contemporary Approach to Organizational Theory Development*. London: Routledge.

**Scholte, J. A. (2006).** *Globalizacja. Krytyczne wprowadzenie*. Sosnowiec: Oficyna Wyd. Humanitas.

**Schumpeter, J. (1943).** *Capitalism, Socialism and Democracy*. New York: Harper.



**Sharp, R., Lopik, K. V., Neal, A., Goodall, P., Conway, P. P., & West, A. (2019).** An industrial evaluation of an Industry 4.0 reference architecture demonstrating the need for the inclusion of security and human components. *Computers in Industry*, 108, 37–44. DOI: 10.1016/j.compind.2019.02.007.

**Singleton, R. A., & Straits, B. C. (1999).** *Approaches to Social Research*. Oxford: Oxford University Press.

**Skonieczny, J. (2001).** Działania adaptacyjne przedsiębiorstwa. *Przegląd Organizacji*, 6, 13–15.

**Soczevska, K. (2002).** Tendencje zmian w sektorze małych i średnich przedsiębiorstw w kontekście globalizacji gospodarki. In J. Rymarczyk, & W. Michalczyk (Eds.), *Internacjonalizacja i globalizacja przedsiębiorstwa i gospodarki*, t. 1. Wrocław: WAE im. Oskara Langego we Wrocławiu.

**Sopińska A., & Diurski, P. (2019).** Motives for Creating Open Innovation in Enterprises operating in Poland. In B. Nogalski, & P. Buła (Eds.), *The Future of Management – Entrepreneurship, Change and Flexibility* (pp. 193–204). Kraków: Jagiellonian University Press.

**Turulja, L., & Bajgoric, N. (2019).** Innovation, firms' performance and environmental turbulence: is there a moderator or mediator?. *European Journal of Innovation Management*, 22(1), 213–232. DOI: 10.1108/EJIM-03-2018-0064.

**Trantapoulos, K., von Krogh, G., Wallin, M. W., & Woerter, M. (2017).** External knowledge and information technology. Implications for process innovation performance. *MIS Quarterly*, 41(1), 287–300.

**Urbański, M. (2021).** Ocena postrzegania globalnej strategii przez pracowników dużych przedsiębiorstw. *Przegląd Organizacji*, 3, 12–19.

**Wiśniewska-Placheta, E. (2015).** Determinanty gotowości przedsiębiorstwa do zmiany. *Zeszyty Naukowe, Seria: Organizacja i Zarządzanie*, 77, 249–264.



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Journal of Intercultural  
Management

Vol. **15** | No. **3** | **2023**

pp. **78–106**

DOI **10.2478/joim-2023-0012**

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# Financial Motivational Factors Supporting the Optimisation Process

Received: 05-09-2023; Accepted: 28-11-2023; Published: 27-12-2023

## ABSTRACT

**Objective:** The research objective of the paper is to present the results of an analysis of financial motivational factors supporting the optimisation process in the implementation of *Lean Management* concepts on the example of a selected manufacturing company.

**Methodology:** To verify the studied issue, a survey was conducted on the relationship of the influence of financial motivation on the reporting of *Kaizen* requests among the employees of a manufacturing company apart on two groups of employees, that is, two groups of respondents:  $GI_{N=158}^{2022}$  and  $GII_{N=137}^{2023}$ , using a five-point Likert scale. The paper draws on *Lean Management* and *Kaizen* literature, academic articles, online sources, analyses of data from 2020–2023 obtained from the analysed company, and empirical results. Mathematical analysis tools were used to describe the research results obtained, allowing for the construction of summaries and the creation of presented conclusions. An estimation model was also developed to allow managers to evaluate existing motivational factors.

**Findings:** The research identified a gap resulting from the communication and information flow process operating within the company. A 4 percentage points increase in the effectiveness of the activities carried out, with a 62% level of non-involvement, was observed, indicating the low attractiveness of the current financial motivation factors as a tool to support optimisation processes in the surveyed company.

**Value Added:** By carrying out the research, valuable and practical information was obtained, which has been used by company managers to take measures to increase employee motivation and the impact of the financial motivation factor operating within the company to support optimisation processes.

**Recommendations:** The current bonus system in terms of financial incentives to support optimisation processes is at an unsatisfactory level for employees. The scoring of applications should be evaluated or the financial value per model evaluation point should be increased.

**Key words:** optimisation, *Lean Management & Kaizen*, cost minimizing, company objectives, factor productivity, profit maximizing, environment and growth

**JEL codes:** D21, D24, L15, L21, L25, O44

## Introduction

The range of instruments supporting the optimisation and productivity enhancement processes of companies include the concepts: *Lean Management* and *Kaizen*. The former eliminates waste and excess waste in continuous improvement cycles. The latter, on the other hand, which is a philosophy of continuous improvement, involves employees in implementing the improvements developed. Hence, optimisation projects implemented in accordance with them bring benefits to the company, such as increased productivity, reduced costs, improved product and service quality, and increased customer satisfaction. However, the possibility of certain risks must also be taken into account, such as implementing changes too quickly, failing to adequately train employees, or inadequately managing change processes. The introduction of *Lean Management* and *Kaizen* requires time, commitment, and an understanding of the nature of the processes as well as the change in the philosophy by both employees and managers. At the same time, process optimisation and continuous improvement can bring long-term financial benefits and contribute to a company's success.

With this approach, the motivational factors accompanying the implementation of the *Lean Management* philosophy can help increase the effectiveness and efficiency of operations. With clearly defined goals, employees know exactly what they need to achieve and what the employer's expectations are. It is then

also important to provide them with the right level of training and a support system, which only increases the effectiveness and efficiency of subsequent implementations. An additional factor, such as an individually designed system of rewards and recognition for good performance, can increase employee motivation and encourage commitment to Lean. Employees should also be offered the opportunity to contribute suggestions and ideas that can improve processes and multiply productivity, which in turn can affect their motivation to perform.

There are inherent financial aspects related to change processes. Hence, the selection of instruments that enable measurement allows business owners or managers to accurately assess the effectiveness of implementations, including cost reductions, increased productivity, improved quality, and minimised losses. Conducting such an analysis facilitates measuring whether the introduction of the *Lean Management* concept has brought the expected financial benefits and whether further investment in this area is justified. Practicing the method requires a change in the way an organisation thinks and works, which can be challenging for both employees and management.

The research objective of this article is to present the results of an analysis of a change management project in terms of financial motivational factors supporting the optimisation process in implementing the *Lean Management* concept on the example of a selected manufacturing company. That is, the aim is to examine in detail the essence of the influence of the financial motivation factor on the effectiveness of the implementation of *the Lean Management* concept and to attempt to identify the determinants supporting the effectiveness of these activities in terms of the most effective financial motivators.

## Materials & Methods

In order to analyse the influence of the financial motivation factor on the support of *Lean Management* optimisation processes, a survey was conducted on the relationship of the influence of financial motivation on the reporting of

*Kaizen* requests among the employees of a manufacturing company. The voluntary and anonymous survey was conducted twice: in October 2022 and then in March 2023. The aim of the survey was to find out the importance of financial motivation factors for employees in the context of implementing the *Kaizen* concept and the significance of the issue of the influence of financial aspects on the willingness to participate in a *Kaizen* implementation project in the analysed company. The survey consisted of closed questions using a five-point Likert scale. The survey was preceded by internal marketing campaigns promoting all aspects concerning the employee suggestion programme (posters, posters, flyers). The results of the survey were analysed and, based on them, changes were implemented in the company to increase employee involvement in the *Kaizen* programme of suggestions. Five months after implementation, a repeat survey was carried out to once again verify the results obtained, enabling the project to be further improved.

Using the survey, the impact of financial factors on employee motivation levels was analysed and the effectiveness of the suggestion system was assessed in terms of increasing the efficiency of production processes. The survey aimed to gain insight into the behaviour of employees and their attitudes toward innovative solutions that could contribute to improving product quality and increasing the efficiency of production processes.

The research groups described as:

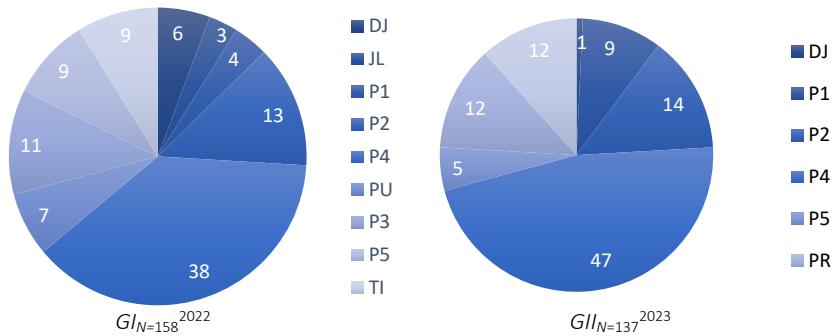
- Group I:  $GI_{N=158}^{2022}$  (survey conducted in October 2022)
- Group II:  $GI_{N=137}^{2023}$  (survey conducted in March 2023)

show variation in both the proportion of respondents of the respective departments and their survey sample size. The company has a total of 506 employees ( $G_{N=506}^{All}$ ); however, only the group of production employees working in departments classified according to the company's internal procedure ( $G_{N=489}$ ) was surveyed:

- DJ – Quality Assurance
- JL – Laboratory

- P1 – Modelling Plant
- P2 – Smelting Shop
- P3 – Hand Foundry
- P4 – Machine Foundry
- P5 – Mechanical Foundry
- TI – Technology
- PU – Maintenance
- PR – Core Shop (Figure 1).

**Figure 1.** Proportion of GI & GII trials [%]

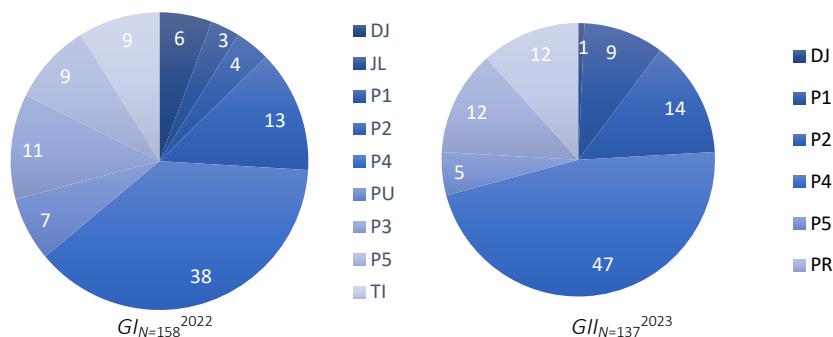


Source: own research.

The highest proportion of  $GI_{N=158}^{2022}$  and  $GII_{N=137}^{2023}$  respondents were employees of department P4, which is the most numerous in terms of the number of employees.

The respondents with  $GI_{N=158}^{2022}$  are: 60 employees with seniority of 1 to 10 years, 34 employees with seniority of 31 to 40 years, 21 employees with seniority of 21 to 30 years, 20 employees with seniority of 11 to 20 years, 18 employees with seniority of 41 to 50 years. 5 workers in the research group analysed entered the survey without providing information to enable classification (Figure 2).

**Figure 2.** Seniority structure of *GI* & *GII* sample respondents [in years]



Source: own research.

In contrast, respondents with *GII*<sub>N=137</sub><sup>2023</sup> are: 71 employees with a length of service between 1 and 10 years, 29 employees between 31 and 40 years, 16 employees between 21 and 30 years, 9 employees between 11 and 20 years, 7 employees between 41 and 50 years. Also, 5 workers did not provide an answer in this surveyed criterion. The structure of participation confirms that it is the employees with the youngest seniority in the company who care about the continuous improvement of the workplace, as this group is the most numerous in both *GI*<sub>N=158</sub><sup>2022</sup> and *GII*<sub>N=137</sub><sup>2023</sup>.

The paper draws on *Lean Management* and *Kaizen* literature, academic articles, online sources, analyses of data obtained from the company from 2020–2023, and empirical findings. To describe the research results obtained, mathematical analysis tools were used to construct summaries and create the presented conclusions. On the other hand, financial modelling tools were applied to the presented estimation model allowing managers to evaluate existing motivational factors.



# Current State of Knowledge

## ***Lean Management Concept – Continuous Enhancement***

*Lean Management* is an operating philosophy developed by Toyota in the 1950s. The main objective of this concept is to eliminate waste and maximise the efficiency of processes to contribute to customer satisfaction by providing added value to products, while minimising waste of resources (Conviss & Liker, 2012). It is worth noting that the term '*Lean*' has many applications that are applied in different contexts including:

- *Lean Philosophy* – focusing on continuous improvement and the elimination of waste,
- *Lean Thinking* – a way of thinking that focuses on increasing efficiency by identifying non-value-adding activities and eliminating them,
- *Lean Management* – a concept for the comprehensive management of an organisation by eliminating waste in all areas of activity,
- *Lean Manufacturing* – a lean production system that applies continuous improvement tools (Connaughton, 2008).

*Lean Management* as a philosophy of the Toyota Production System (TPS), was developed by Taiichi Ohno, director of production at Toyota Motor Corporation in the 1950s, who began to look for different ways to improve production efficiency in the then young but rapidly growing company. Inspired by the mechanics of mass production, he began to analyse the production systems of western automotive corporations. He noticed that many of the elements of these systems were characterised by waste and inefficiency. He drew particular attention to their two major production flaws that were key factors in the creation of numerous imperfections and errors:

- the inability to adapt the variety of products to the needs and tastes of customers,

- production on a mass scale, generating excessive inventories that incur high costs and require large storage space (Holweg, 2007).

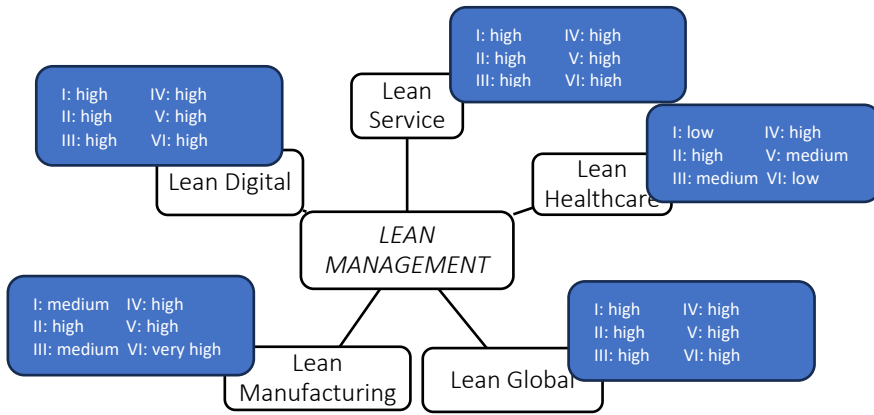
The result was the start of developing a new production system to eliminate waste, increase production flexibility, and focus on customer needs. To achieve this goal, three main principles – called the TPS pillars (Japanese: *Jidoka*) – were developed, on which Toyota’s new production system was based:

- producing only what is absolutely necessary,
- eliminating everything that does not add value to the product,
- stopping production when an error is detected.

The introduction of the above strategy, which became the foundation of the *Lean Management* concept, resulted in Toyota in the 1970s beginning to achieve significant success through high productivity and low production cost. The extraordinary potential lying in the organisation’s employees was also recognised, which contributed to the development of teamwork, increased individual responsibility and decentralised decision-making (Liker & Franz, 2013; Liker, 2005).

Since the 1980s, *Lean Management* has gained recognition among managers and entrepreneurs worldwide, and the publication of the book *Lean Thinking* by James Womack and Daniel Jones in the 1990s cemented the importance of the entire concept (Figure 3) (Womack & Jones, 2001).

Figure 3. Lean diversity



where:

I: competition

II: customer expectations

III: customer satisfaction

IV: quality improvements

V: responsiveness

VI: process improvements

Source: own elaboration based on literature review.

*Lean Management* has also started to be applied in the service sector, where it has been adapted to the needs and requirements of this market, characterised by strong competition and high customer expectations. *Lean Manufacturing*, on the other hand, is mainly directed at improving manufacturing processes, while *Lean Service* focuses on improving the quality and efficiency of service processes. The aim of this concept is to identify and eliminate waste and to streamline service processes, thereby improving their quality and increasing customer satisfaction. *Lean Service* is customer-oriented and assumes that the highest quality services should be delivered as quickly as possible at the least cost. *Lean Service* takes into account the importance of understanding customer needs and adapting service processes to meet these needs in the best possible way. *Lean Management* is evolving and successive phases cover precise areas of business: *Lean Global*, *Lean Digital* or *Lean Healthcare*, which has been specifically adapted to the healthcare sector (see also Coignet et al., 2019).

## Kaizen Concept – Continuous Improvement

*Kaizen* is a philosophy of management thinking and action pioneered in 1986 by the Japanese Masaaki Imai at the Toyota automotive group. Today, it is a practice used worldwide in a variety of industries to support the achievement of goals set by companies. *Kaizen* (Japanese: *kai* – change, *zen* – good) means a change for the better. It is also the search for and implementation of improvements with the involvement of every employee – both management and rank-and-file workers. The *Kaizen* concept is a method that is a link between philosophies, systems, and problem-solving tools. Its message is one of improvement and continuous improvement without significant investment (Imai, 2022, 2007). The opposite of the *Kaizen* method is innovation, i.e., introducing change through the use of high-cost technology.

*Kaizen*-driven companies must be focused on common-sense solutions to daily difficulties that arise and on seeking and implementing change on every position. Following the notion “*any chain is as strong as its weakest link*” (Wohlleben, 2016). The smallest mistakes that go unnoticed in the functioning of a company can cause negative effects that accumulate. To prevent this, it is necessary to observe every single detail of the entire process, even the smallest one, and to strive for an even better result, i.e., endless improvements. An important aspect is the involvement of every employee who is part of the process, i.e., observing basic principles such as

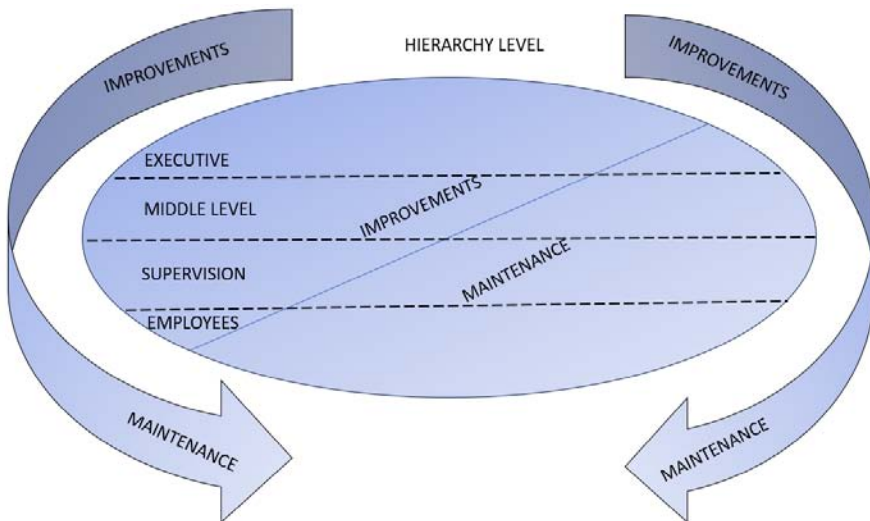
1. order in the workplace,
2. elimination of waste, or
3. standardisation.

Order in the workplace allows developing self-control in the employee and, through self-discipline and appropriate motivation, also maintaining it. This is an important element of improvement, because a person without such a principle will not provide a product/service of good quality. According to this concept, waste is referred to as *muda*, i.e., all activities that do not contribute to the value. The concept of *muda* was defined by Japanese engineer Taiichi Ohno

as “anything that does not add value, adds cost”. The elimination of *muda* facilitates increasing productivity and reducing operational expenditures at no cost (Ohno, 2017, 2012, 1998; Bańka, 2007). *Kaizen* seeks to eliminate *muda* by accumulating small improvements within processes, the rules of which are standardised and followed by every employee. Standards are written process steps that guarantee the quality of individual processes and prevent the repetition of errors already observed.

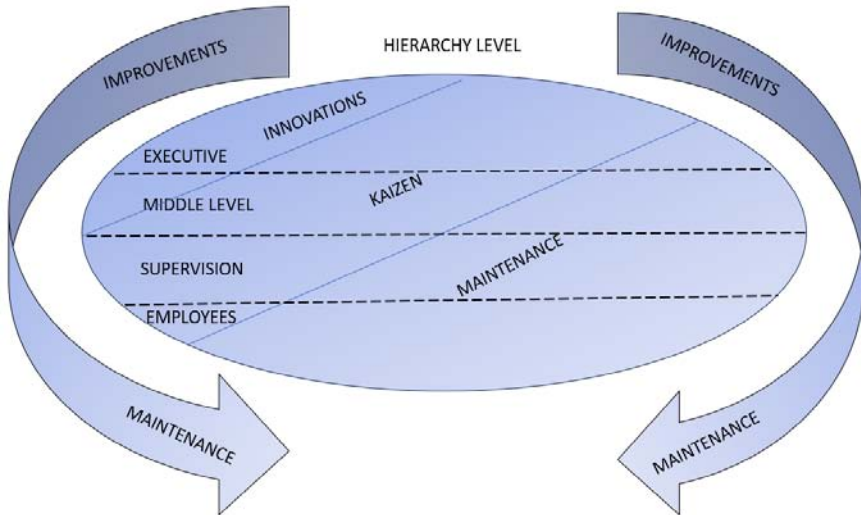
Management is also an important element of the process, with the task of following procedures, spreading them among employees, and maintaining discipline through continuous improvement, i.e., activities aimed at raising the level of current standards: maintenance and improvement and enhancement. Maintenance focuses on meeting current technological, managerial, and operational standards (Figure 4 & 5).

**Figure 4.** Japanese perception of employee functions



Source: own elaboration based on Imai, 2022.

**Figure 5.** Improvements split into innovation and *Kaizen*



Source: own elaboration based on Imai, 2022.

Involving individuals within an innovation improvement guarantees radical improvement through investment, whereas *Kaizen* emphasises human effort, communication, training, teamwork commitment, and self-discipline.

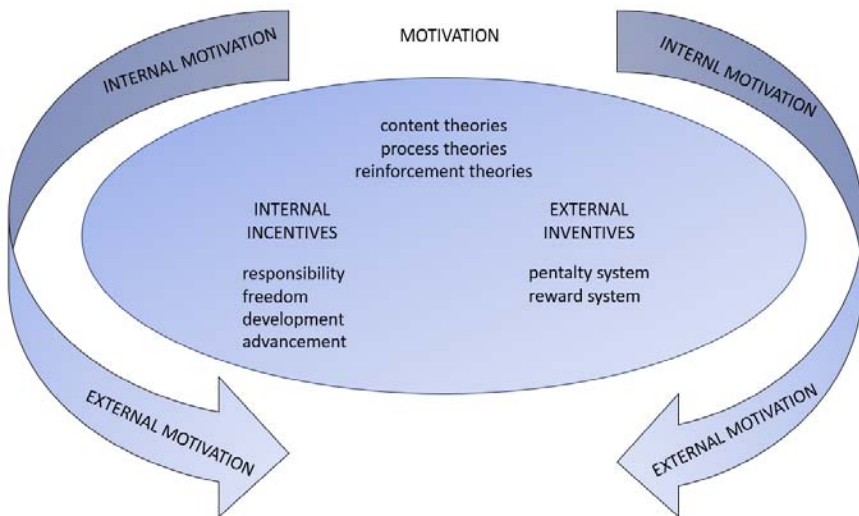
## Motivation Factors Increasing Productivity

Motivation is an issue addressed by sociology as well as organisational and management science. It is one of the main factors driving performance and influencing everyone's actions. It is a force for action of employees, thanks to which basic needs are satisfied, what, at the same time, constitutes a motive for work that translates into the realisation of the company's goals and mission (Dejnaka, 2003; Filipowicz, 1998).

Motivation is the driving force behind human action and behaviour, which can be of a diverse nature (Reykowski, 1979). Two types of motivation are distinguished:

- internal – spontaneously occurring stimuli, by which people behave in a certain way and move in a certain direction; the following stimuli are distinguished: responsibility, freedom of action, possibility of development or promotion,
- external – a system of penalties and rewards (Figure 6).

**Figure 6.** Motivation types



Source: own elaboration based on literature review.

The process of influencing motivation is called a motivate process. According to economist S. Borkowski, motivation is the process of consciously and deliberately influencing people's motives and behaviour at work by creating conditions and opportunities for them to realise their value systems and expectations in order to achieve the motivating goal (Borkowski & Ulewicz, 2008). Management theory addresses aspects of people's work by seeking appropriate

ways to motivate action, in which the degree to which different needs are taken into account is a basic assumption (Stoner & Wankel, 1997).

According to J.A.F. Stoner and Ch. Wankel (1997), there are three main views of motivation in the management theory:

- content theories – emphasise the importance of the intrinsic factors that cause a person to act in a certain way (“what motivates”, i.e., what is motivated),
- process theories – identify how and by what goals individuals are motivated (“how one is motivated”),
- reinforcement theories – determine how the effects of past action influence future behaviour in a cyclical process of individual learning (“behavioural learning”) (Stoner & Wankel, 1997).

The basis for most management definitions is psychologist’s A. Maslow’s concept of the hierarchy of needs. Needs theory explains the internal factors that cause certain human behaviours. It assumes that every human being has certain internal needs and strives for their full or partial satisfaction, which in turn provides the driving force for action. Recognising the factors that trigger certain behaviours leads to the identification and classification of needs (Maslow, 2017, 2006, 2004).

## Objectivity of *Lean Management* and *Kaizen* Implementation

*Lean Management* and *Kaizen* are two management concepts that are gaining increasing acceptance among organisations in various industries around the world. They aim to increase the efficiency of an organisation’s processes by eliminating waste and continuously improving. Introducing *Lean Management* and *Kaizen* into an organisation brings many benefits; however, the implementation of these concepts can also give rise to many difficulties that need to be considered during the implementation process (see also Karlof, 1992). The more thoroughly both



the benefits and limitations of *Lean Management* are understood, the more effective planning activities that implement the concept in an organisation. More and more companies in Poland are introducing or planning to introduce *Lean Management* into their management policies. This is because of the real benefits that can arise from the application of Japanese resource management methods and techniques. However, it should be emphasised that despite the numerous advantages that the introduction of this concept brings, still relatively few companies use it to its full extent. This is unfortunately due to the fact that organisations encounter many difficulties when implementing *Lean Management*. The literature identifies some of the most common obstacles, such as:

- lack of support from management – successful implementation of *Lean Management* requires the commitment of management, who must be willing to implement change and provide adequate support,
- lack of belief in the effectiveness of the overall method,
- lack of proper communication between different levels of the organization,
- excessive control system and lack of cooperation among employees,
- insufficient employee training – employees need to be adequately trained to understand and implement the *Lean Management* approach,
- too much pressure to perform – pressure to continuously improve processes and increase productivity can lead to too much pressure put on employees, which in turn can lead to stress and burnout,
- difficulty in changing organisational culture – implementing *Lean Management* requires a change in organisational culture, which may be met with resistance from employees (Małecka, 2022; Podobiński, 2015; Carr et al., 1998).

Implementing *Lean Management* in a manufacturing company can bring many benefits, such as:

- increased process efficiency – by using *Lean Management* methodology, an organisation is able to eliminate unnecessary activities and reduce the time it takes to complete a task,

- improved quality – by eliminating errors and imperfections in processes, an organisation can achieve higher quality products or services,
- increasing efficiency – continuous process improvement can lead to increased efficiency and reduced costs,
- improved organisational culture – *Lean Management* requires the active participation of employees in continuous process improvement, which can lead to an improved organisational culture and greater job satisfaction,
- increased profitability – improving process efficiency allows an organisation to achieve higher profits,
- efficient use of resources – by focusing on eliminating waste, an organisation can achieve better use of its resources (Pawłyszyn, 2017).

When looking at the process of implementing the *Kaizen* philosophy, there are both positive and negative aspects of the method.

The main advantages include:

- mutual benefits – gradual introduction of changes, which positively influences employee acceptance; this offers them more time to assimilate new information and better organise their work, avoiding unnecessary stress related to sudden changes,
- easier to achieve a stable competitive position – by introducing gradual changes and continuously improving processes, the company gains more experience and can better prepare itself for different situations on the market; as the changes are gradual and do not require a large financial outlay, the company can achieve a good competitive position without making major sacrifices; as a result, its products are improved on an ongoing basis, which contributes to their quality, which in turn attracts customers and builds a positive image of the company on the market,
- eliminating waste in processes through continuous improvement – the employees are constantly busy, which ensures that they feel needed and useful, and the company avoids additional costs and delays; all this is possible thanks to the constant observation of the employees and

the introduction of small improvements, to which they themselves contribute their ideas; in such a company, there is no room for unnecessary slack times (*muda*), which only increase costs and reduce productivity,

- the responsibility for the quality of the products does not rest with just one employee, but is shared among the whole team – each employee has their own tasks and is responsible for carrying them out properly and according to the established standards; this leads to the dispersion of responsibility and reduces the risk of errors; each employee knows what they should do and at what stage of production the product is; this low and simple responsibility makes it easier to control the production processes, as well as to react quickly to possible problems,
- straightforwardly proportional increase in performance and commitment – companies implementing this concept have the opportunity to see an improvement in production performance and an increase in employee commitment to the change processes; importantly, these benefits do not require a large financial outlay, meaning that the company can continue to operate with less risk; at the same time, the process of continuous improvement provides incremental improvements to the company; in other words, introducing the Kaizen philosophy to a company brings benefits both immediately and in the long term,
- low implementation costs – the philosophy focuses on incremental changes to processes and employees rather than large financial investments; however, it requires commitment and the right approach from managers, who should influence the positive attitude of their employees and create a friendly atmosphere within the company (Król, 2004).

Although *Kaizen* is used for its many advantages, it also has several disadvantages worth noting:

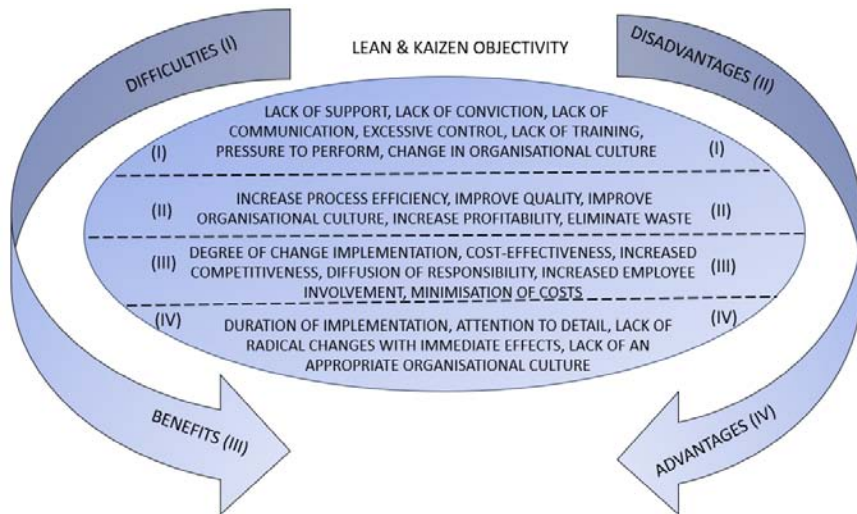
- requires time and patience – changes are introduced gradually and in small steps; therefore, not every company can opt for this method,

especially when it is in a difficult financial situation, such as on the verge of bankruptcy; in this case, more drastic measures may be needed to quickly improve the situation and recover from the crisis,

- for large companies, being too meticulous in the *Kaizen* process can be a challenge as it requires focusing on every detail of the process and coordinating the work of many employees; this can lead to dealing with unnecessary issues and additional problems arising, which in turn makes it difficult to reach all employees,
- failure to radically change the status quo – instead, it focuses on small improvements that are intended to lead to a gradual, systematic improvement in the quality of work; it does not aim at revolutionary investments or the overhaul of the entire company, but rather at changing the mentality of employees in order to guide them towards a continuous improvement and betterment of the status quo,
- there may be a lack of an appropriate organisational culture in European companies, which may be a barrier to adopting the *Kaizen* concept; the presence of barriers to assimilating and understanding the new management concept and defining quality (Matecka 2018; Król 2004).

From the advantages and disadvantages presented, it can be concluded that both *Kaizen* and *Lean* themselves have many benefits for companies that want to improve their efficiency, product quality, and employee engagement, but the decision to implement should be rational and take into account the disadvantages and limitations of the processes (Figure 7).

**Figure 7.** *Lean and Kaizen objectivity*



Source: own elaboration based on literature review.

Despite some disadvantages, such as the need for time and employee involvement, these methods offer many advantages, such as increased productivity, improved product quality, reduced project times, and increased employee involvement. Implementing *Lean* and *Kaizen* methods can be difficult and resource-intensive, but they are well worth investing in to achieve market dominance and stay ahead of the competition in the long term.

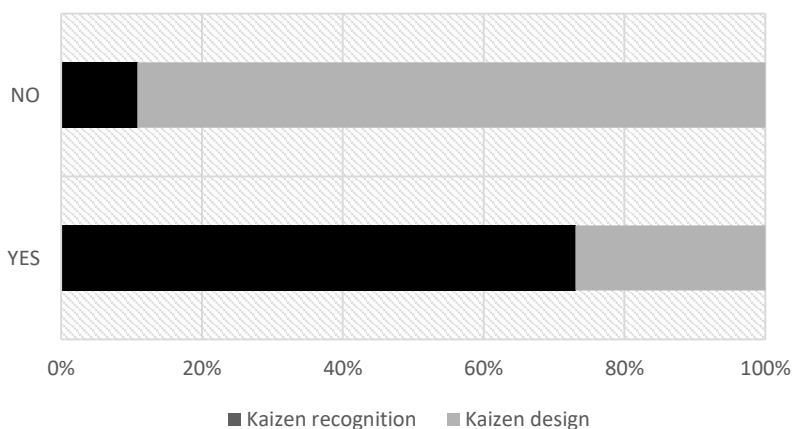
## Result

### ***Financial Motivational Factors supporting the Optimisation Process in the Light of Empirical Research***

Measuring the results of the  $GI_{N=158}^{2022}$  survey, it was found that 92% of the respondents heard of *Kaizen* operating in the area of employee suggestion programmes in the company before, while 8% of the respondents have not. It is

the company's business practice to encourage employees to actively and creatively optimise their jobs. Of the surveyed group  $GI_{N=158}^{2022}$ , 34% of the respondents applied to the *Kaizen* programme, while 66% of respondents did not participate in the programme, with an existing financial incentive programme of 1pts. = EUR 3.02 (Figure 8).

**Figure 8.** *GI Kaizen* recognition and designing [%]



Source: own research.

It was, therefore, decided to modify the financial factors and increase the baseline of one point by 13%. When the changes in the design of the financial aspects of the motivational factors were made after 5 months and implemented, the respondents were asked identical questions regarding their understanding of the *Kaizen* programme and the results of the  $GI_{N=137}^{2023}$  survey were measured (Table 1).

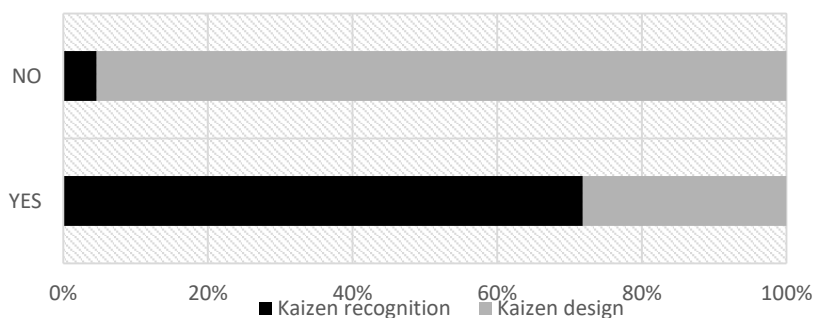
**Table 1.** Financial motivation factors *GI* & *GII* [%]

Points [min.– max.]	Value of points <i>GI</i> <sub>N=158</sub> <sup>2022</sup> [EUR*]	Additional award <i>GI</i> <sub>N=158</sub> <sup>2022</sup>		Points	Value of points <i>GII</i> <sub>N=137</sub> <sup>2023</sup> [EUR*]	Additional award <i>GII</i> <sub>N=137</sub> <sup>2023</sup>		Value of points <i>GII</i> – <i>GI</i> [%]	Additional award for <i>GI</i> & <i>GII</i>	
		Kaizen of the quarter	Kaizen of the year			Kaizen of the quarter	Kaizen of the year		Kaizen of the quarter	Kaizen of the year
1	3.02			1	3.49			15.38		
100	302.33	232.56	697.67	100	348.84	232.56	697.67	15.38	0	0

\* For a EUR exchange rate of 4.3.

Source: own research.

A 5 percentage points increase was found in the aspect of the first measurement, as 97% of the respondents heard of the programme however, 3% still have not. In contrast, participation in the programme increased to 38% (Figure 9).

**Figure 9.** *GI* Kaizen recognition and designing [%]

Source: own research.

The results allow concluding that more than half of the surveyed employees did not participate in the programme, while 1/3 decided to apply. This means that 1 in 3 respondents was involved in the *Kaizen* programme (Table 2).

**Table 2.** *GI & GII index of variation [%]*

Index of variation	Kaizen recognition		Kaizen design	
	[%]			
YES	5	↑	4	↑
NO	-5	↓	-4	↓

Source: own research.

Despite the measures taken in terms of: (1) intensifying the marketing action related to intensifying the information about *Kaizen* by placing information posters in the plant aimed at increasing the awareness of employees about the need to continuously improve production processes and (2) increasing the value of the financial motivating factor to encourage employees to actively participate in the programme, 3% of the respondents answered that they have not heard about the *Kaizen* programme. Thus, there are still some gaps in the organisation due to the communication process and the flow of information, which should be considered as a necessary element to be diagnosed, verified, and improved. The 4 percentage point increase in participation in the programme is significant, however, with the level of non-involvement in *Kaizen* optimisation concepts remaining at 62%, it must be concluded that the financial motivation factor supporting optimisation processes is not sufficient or that it still remains at a too low level.

Analysing the data globally for four consecutive years, a heterogeneous trend in the number of proposals submitted between 2020 and 2023 was registered (by 100%, 84.6%, -32.2%, -64.9%\*, or 40.3%\*\* , respectively) (Table 3).



**Table 3.** Tendency of *Kaizen* design and implementation

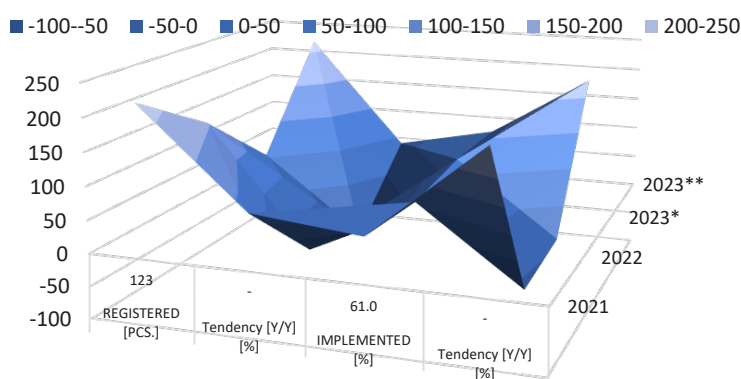
Year [Y]	Number of applications			
	REGISTERED [PCS.]	Tendency [Y/Y] [%]	IMPLEMENTED [%]	Tendency [Y/Y] [%]
2020	123	-	61.0	-
2021	227	84.6	68.3	206.7
2022	154	-32.2	59.1	-58.7
2023*	54	-64.9	74.1	-44.0
2023**	216	40.3	74.1	175.8

\*data as of March 2023

\*\* estimate 2023 Q1x4

Source: own elaboration based on financial data from the company.

There is a noticeable trend toward implementation above 59.1% of the applications reported (average for the 4 years 2020–2023 at 67.3%), which allows for the construction of a model based on the estimation for 2023 (Figure 10).

**Figure 10.** Structure tendency of *Kaizen* design and implementation

Source: own elaboration based on financial data from the company.

With the assumptions that the number of applications and their implementations will be the product of the values from the first quarter of 2021 (Q1), a potential financial model for savings and costs in 2023 can be calculated (Table 4).

**Table 4.** Outcome estimation 2023

Year [Y]	Amounts value of							
	Savings				Costs			
	$S_x$	$S_y$		$C_x$	$C_y$	$C_z$	$C_H$	
	Total	Average		Awards	Implement- ation	Total	Average cost of implementation	
	Value	Value	%	Value	Value	Value	Value	%
2020	290 000.00	3 866.67	0.01333	19 370.00	ND	19 370.00	258.27	0.01333
2021	555 000.00	3 580.65	0.00645	61 358.00	71 556.00	132 914.00	857.51	0.00645
2022	647 000.00	7 109.89	0.01099	42 000.00	76 000.00	118 000.00	1 296.70	0.01099
2023**	776 384.10	4 852.40	0.00645	51 679.00	73 778.00	125 457.00	1 672.76	0.01333

\*\* Estimated data for 2023, where:  $S_x = \text{number of implementation} * S_y^{2023}$

$$S_y = \sum S_y^{2020-2022} \sum S_{\text{years}}^{2020-2022}$$

$$S_y [\%] = \min. (S_x^{2020-2022})$$

$$C_x = C_z * \{ \sum C_x^{2021-2022} \sum C_{\text{years}}^{2021-2022} \} / \{ \sum C_z^{2021-2022} \sum C_{\text{years}}^{2021-2022} \} \Rightarrow \text{factor} = 0.41$$

$$C_y = C_z * \{ \sum C_y^{2021-2022} \sum C_{\text{years}}^{2021-2022} \} / \{ \sum C_z^{2021-2022} \sum C_{\text{years}}^{2021-2022} \} \Rightarrow \text{factor} = 0.59$$

$$C_z = \sum C_D^{2020-2022} \sum C_{\text{years}}^{2021-2022}$$

$$C_H = C_z * \max. (C_H^{2020-2022})$$

$$C_H [\%] = \max. (C_H^{2020-2022})$$

Source: own research.

Then, using a financial model, individual scenarios can be analysed as to the potential value of financial incentives in the form of bonuses for involvement in the optimisation process and participation in the *Kaizen* programme. At the same time, it should be noted that it is most likely that applications are often not rated at 100 points, as a simulated increase of 57% in the number of applications submitted results in less than 13% increase in costs. Thus being exactly as much as the modification of the value of the incentive factor in the form of a quota bonus. Hence, it seems that company managers are either unaware of the need to revise the scoring system or deliberately want to achieve higher savings while maintaining 2022 costs.

The results of the analysis presented here point the way to further research related to the detailed observation of the determinants associated with

the reasons for submitting an application as well as the reasons for non-participation in the optimisation programme.

## Conclusion

The aim of the study is to present the results of an analysis of a change management project in terms of financial motivational factors supporting the optimisation process in the implementation of Lean Management concepts on the example of a selected manufacturing company. Therefore, it was a question of checking the importance of financial motivation factors for employees in the context of implementing the *Kaizen* concept and the significance of the issue of the influence of financial aspects on the willingness to participate in a *Kaizen* implementation project in the analysed company.

Using the results of the study, an analysis was conducted of the financial motivational factor and its inclinations with the level of motivation of employees to implement optimisation processes in a manufacturing enterprise – in this case *Kaizen* projects. The effectiveness of the suggestion system model operating in the enterprise in the context of increasing the efficiency of manufacturing processes was assessed. The study aimed to gain insights into employees' behaviour and attitudes towards optimisation solutions that could contribute to improving product quality and increasing the efficiency of production processes.

The study was conducted between 2022 and 2023 on a sample of  $GI_{N=158}^{2022}$  and  $GII_{N=137}^{2023}$ . The homogeneity of the research environment and the use of the same research tool allowed verifying the validity of management assumptions and the effectiveness of the analysed financial motivator. Through the changes introduced, a 4 percentage points increase in participation in *Kaizen* optimisation programmes was noted; however, with the unit cost of implementation increasing disproportionately to the change in the point value in the company's existing system of financial motivators, and a continuing deficiency in the level of knowledge regarding the understanding of the need for

employees to implement optimisation methods. Thus, there are still some gaps in the organisation due to the communication and information flow process, which should be considered as an element that needs to be diagnosed, verified, and improved. On the other hand, the financial motivation factor supporting optimisation processes is not sufficient or still remains at a too low a level of attractiveness for employees.

By carrying out the research, valuable and practical information was obtained, which was used by company managers to take measures to increase employee motivation and improve the use of the *Kaizen* employee suggestion system.

A monetary equivalent for each point of *Kaizen* awarded was set as the most important limitation to be eliminated. The monetary equivalent for each *Kaizen* point awarded was identified as the most significant constraint to be eliminated. This element, however, is not only left as a suggestion for the future, but is to be one of the elements of the surveyed company's policy for the creation of an operational strategy for 2024, which creates further opportunities and determines the next direction of research.

## References

- Bańka, W. (2007).** *Operacyjne kierowanie pracownikami w organizacjach*. Toruń: Wydawnictwo Adam Marszałek.
- Borkowski, S., & Ulewicz, R. (2008).** *Zarządzanie produkcją. Systemy Produkcyjne*. Second Edition. Sosnowiec: Oficyna Wydawnicza Humanitas.
- Carr, D., Hard, K., & Trahant, W. (1998).** *Zarządzanie procesem zmian*. Warszawa: Wydawnictwo Naukowe PWN.
- Connaughton, S. A. (2008).** *Lean Manufacturing. EBSCO Research Starters*. EBSCO Publishing Inc.
- Coignet, P., Olivencia, S., & Chartier, N. (2019).** *Lean sensei*. Wrocław: Lean Enterprise Institute.
- Conviss, G., & Liker, J. (2012).** *Droga Toyoty do Lean Leadership*. Warszawa: MT Biznes.
- Dejnaka, A. (2003).** *Zasoby ludzkie. Planowanie i zarządzanie*. Gliwice: Helion.

- Filipowicz, G. (1998).** Motywowanie podczas zmian. *Personel*, 1, 16–18.
- Holweg, M. (2007).** Genealogia szczupłej produkcji. *Journal of Operations Management*, 25, 420–437. New York.
- Imai, M. (2022).** *Kaizen jako strategia*. Wydawnictwo MT Biznes, Warszawa.
- Imai, M. (2007).** *Kaizen. Klucz do konkurencyjnego sukcesu Japonii*. Warszawa: Kaizen Institute Polska MT Biznes.
- Karlof, B. (1992).** *Strategia biznesu, koncepcje i modele. Przewodnik*. Warszawa: Biblioteka Menadżera i Bankowca.
- Król, D. (2004).** *Inspiracja prakseologiczna dla systemu Kaizen*. Warszawa: Ekonomika i Organizacja Przedsiębiorstwa.
- Liker, J. K. (2005).** *Droga Toyoty. 14 zasad zarządzania wiodącej firmy produkcyjnej świata*. Warszawa: Wydawnictwo MT Biznes Sp. z o.o.
- Liker J. K., & Franz J. K. (2013).** *Droga Toyoty do ciągłego doskonalenia. Jak osiągać znakomite wyniki dzięki strategii i operacyjnej doskonałości*. Warszawa: MT Biznes.
- Małecka, J. (2022).** Knowledge Management versus Implementation of Sustainable Development during Covid-19. *European Research Studies Journal*, XXV(3), 314–336.
- Małecka, J. (2018).** The Perception of Quality in Qualitology – Selected Aspects. In *The Proceedings of the 17<sup>th</sup> European Conference on Research Methodology for Business and Management Studies* (pp. 246–253). Published by Academic Conferences and Publishing International Limited Reading, UK.
- Maslow, A. (2006).** *Motywacja i osobowość*. Warszawa: Wydawnictwo Naukowe PWN.
- Maslow A. (2017).** *Motywacja i osobowość*. Warszawa: Wydawnictwo Naukowe PWN.
- Maslow A. (2004).** *W stronę psychologii istnienia*. Poznań: Dom Wydawniczy Rebis.
- Ohno, T. (2017).** *El Sistema de Produccion Toyota: Mas Alla de la Produccion a Gran Escala*. Productivity Press Productivity Press.
- Ohno, T. (2012).** *Taiichi Ohno's Workplace Management: Special 100<sup>th</sup> Birthday Edition*. New York: McGraw-Hill Professional Publishing.
- Ohno, T. (1998).** *Toyota Production System*. Portland: Taylor & Francis Inc.
- Pawłyszyn, I. (2017).** Pierwsze kroki na drodze „wyszczuplania” – wdrożenie Lean Management w organizacji. *Zeszyty Naukowe Politechniki Poznańskiej*, 72. Poznań: Wydawnictwo Politechniki Poznańskiej.
- Podobiński, M. (2015).** Bariery i ograniczenia wdrażania koncepcji lean management – wyniki badań. *Nauki o Zarządzaniu*, 3(24), 112–122.



**Reykowski, J. (1979).** *Teoria motywacji a zarządzanie*. Warszawa: Polskie Wydawnictwo Ekonomiczne.

**Stoner, A. F., & Wankel, Ch. (1997).** *Kierowanie*. Warszawa: Polskie Wydawnictwo Ekonomiczne.

**Wohlleben, P. (2016).** *The Hidden Life of Trees*. Harper Collins Publishers.

**Womack, J. P., & Jones D. T. (2001).** *Odchudzanie firm. Eliminacja marnotrawstwa – kluczem do sukcesu*. Warszawa: Centrum Informacji Menedżera.



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Journal of Intercultural  
Management

Vol. **15** | No. **3** | **2023**

pp. **107–124**

DOI **10.2478/joim-2023-0013**

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# The Role of Education in the Development of Human Capital: A Bibliometric Analysis of Literature Outputs in 1990–2023

Received: 27-09-2023; Accepted: 29-11-2023; Published: 27-12-2023

## ABSTRACT

**Objective:** Comprehensive overview of the most relevant topics, trends, and scientific products in the field of the relationship between education and human development.

**Methodology:** Bibliometric (VOSviewer v.1.6.10) analysis were used to describe thematic, temporal patterns, clustering of concepts and research networks (geographical and institutional aspects).

**Findings:** The study provides a comprehensive overview of the state of research on education's role in human capital development, offering summarized insights into global trends, thematic shifts, and key contributors to the field.

**Value Added:** The article contains quantitative methodological approach to studying current topics and developing research on the impact of education on human development, which is interdisciplinary and covers a large volume of publications. The article defines research thematic and evolutionary-temporal patterns, carries out clustering of research networks according to the affiliation of scientists (geographical and institutional aspects), and identifies leaders of scientific opinion in this field.

**Recommendations:** Future research may focus on developing a list of measurable indicators suitable for evaluating the role of education in human development, and social and economic determinants to avoid cognitive biases or irrational and distorted decision making by mainstream agents.

**Key words:** education, human capital, economic growth, bibliometric analysis, science mapping.

**JEL codes:** I20, I25, N3, J24



## Introduction

Human capital is one of the critical macro factors of economic growth. Accordingly, a strategy for its development is integral to economic, social, and employment policies. A solution taking into account all those aspects ensures the achievement of one of the Goals of sustainable development – the promotion of progressive, comprehensive, and sustainable economic growth, full and productive employment, and decent work for all. An individual's high level of potential contributes to their productivity potential for economic and personal growth and adaptability to changes. From employers' point of view, human capital contributes to their productivity and competitiveness through the critical assets people possess – their knowledge, skills, and abilities acquired through the education system. An effective education system will allow individuals to obtain qualifications, ensure personal development, increase labor market competitiveness, improve mobility and social integration, and increase self-esteem. Human capital development enhances these attributes through education, training, and personal development.

Becker's pioneering work *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education* (in three editions, 1964, 1975, and 1994) laid the foundation for understanding the relationship between education and human capital. He introduced the concept of human capital and argued that investment in education leads to increased productivity and economic growth. Becker's analysis emphasized the role of education in improving people's skills and knowledge, thereby increasing their income potential and overall economic well-being. Weiss (2015) defined Becker as constructing a detailed and original theory regarding the possible effects a major unobserved and all-inclusive factor, human capital, would have on observed outcomes such as wages and education and their variation over time and among individual types.

Mincer's research (1981, 1984) focused on the economic returns of education and its impact on individual economic (income) growth and the social or national aggregates. Mincer's works highlighted the long-term benefits of education in terms of income inequality reduction and social mobility, the production

of new knowledge, which is the source of innovation, and technical change, which propels all factors of production.

Psacharopoulos and Patrinos (2004) reviewed the macroeconomic literature on returns from education. They summarized numerous studies from different countries and found strong evidence of a positive correlation between education and individual earnings. Their research reinforced that education performs a critical role in human capital development and has significant economic implications.

Hanushek and Woessmann (2010) examined the impact of education on economic growth using international data. They found a strong relationship between educational quality, measured by student achievement scores, and economic growth. Their research emphasized the importance of increasing educational attainment and improving the quality of education to maximize the benefits of human capital development.

There is also an active debate in the scientific literature regarding the limitations of the human capital theory and its impact on social and economic development. Sweetland (1996) comprehensively reviewed human capital theory's foundations and fundamental concepts. He explored the relationship between education, investment in human capital, economic performance, and social inequality. Sweetland discussed the exclusion of non-economic aspects of education and its limitations in reflecting the complexity of human capital formation. He emphasized the need for interdisciplinary approaches to studying human capital and the importance of considering sociocultural factors in understanding its development and results.

Tan (2014) critically examined the human capital theory and argued that it overlooks the broader social and contextual factors that shape educational outcomes. The author discussed the need to account for the social, cultural, and structural influences on human capital development. He argued that a heavy emphasis on economic returns and outcomes neglects other essential dimensions of human development, such as personal fulfillment, social well-being, and the broader contributions individuals make to society beyond their economic productivity.

Marginson (2019) examined the human capital theory, criticizing its narrow economic focus and the contextual factors that shape educational outcomes and emphasizing the need to consider ethical and social dimensions. In his opinion, a finer understanding of education and human capital is required that recognizes the complexity and diversity of educational goals today. He saw the need for a more comprehensive understanding of education that recognizes various forms of knowledge, skills, and abilities, including those outside the economy.

During the last decade, researchers have had significant scientific results from studies on education's role in human capital development. These investigations provide valuable information to the research area and formulate recommendations to promote the best practices. Therefore, a bibliometric analysis of these articles is required to integrate all the studies in the chosen research area.

The paper aims to comprehensively analyze articles focused on education's role in human capital development. Using VOSviewer, global research trends from 1990 to 2023 were summarized and used to guide future research. Therefore, a bibliometric analysis will provide a comprehensive system for investigating articles on education's role in human capital development, including relationships with other topics and the most relevant publications.

The paper consists of the following sections. The first introductory section provides a background for the research, its purpose, and the methodology. Further, the second section presents the results of the bibliometric analysis, divided into three blocks. The first block characterizes thematic issues (reasons and periods of change in the interest in the role of education, dominant directions of scientific research in this area, interdisciplinary research); the second block describes evolutionary time ones (in the coordinate system "period of research – its substantive focus – its geography"), in the third block, a clustering of research networks according to the affiliation of the scientists (geographical and institutional aspects) was carried out, and leaders of scientific opinion in this area were identified. The third section entails a discussion of the results, limitations, and a conclusion to the research.

## Methodology

The article uses bibliometric (VOSviewer v.1.6.10) analysis based on the Scopus database, a relevant base for social and economic research.

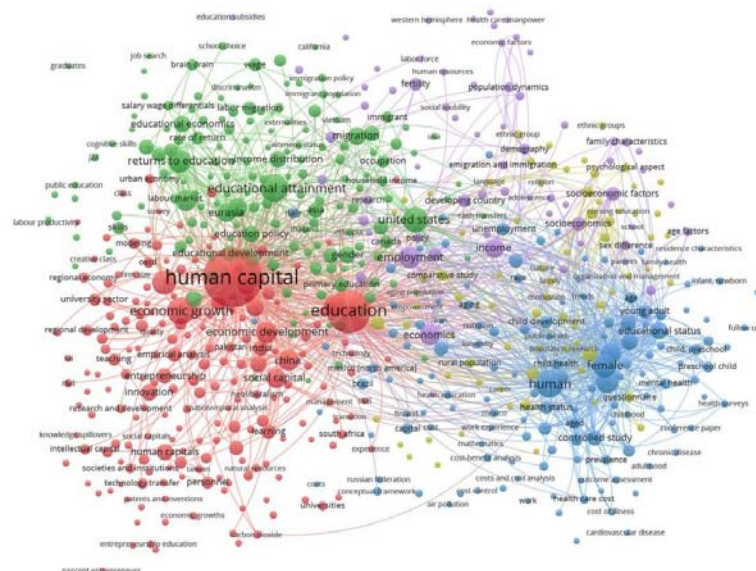
At the preparatory stage, a search for articles was carried out in the Scopus database. The author carried out the search in March 2022; keywords – “education” and “human capital”; period – from 1990 to 2023; publication language – English; source type – journal. As a result, 8954 articles in peer-reviewed journals in English were selected from 1990 to 2023. The information obtained at this stage was exported to an Excel spreadsheet for further analysis and systematization. The database contains various parameters, including author names, cited publications, journal names, sponsoring organizations, country of publication, and keywords.

In the next stage, this database was analyzed using VOSviewer. This tool allows clustering studies by topic and keywords and identifying and analyzing large amounts of scientific information. Keywords obtained from publications that had a high correlation with each other were included in the corresponding cluster.

## Results

The first block is a thematic analysis based on keyword matches to visualize key aspects of the study on the education impact on human capital development, with a minimum of two repetitions of keywords as a threshold value for the study (Figure 1). A larger circle diameter means a higher frequency of mention of the corresponding concept as a keyword in articles indexed by the Scopus database during the analysis period.

**Figure 1.** Results of a bibliometric analysis: a cluster thematic map



Source: own elaboration.

A map of the relationship between «education» and other categories was formed, making it possible to identify four clusters marked in the figure with green, red, blue, and purple colors. The main body of scientific research is focused on identifying the relationships between the role of education in the development of human capital (red cluster), human characteristics (blue cluster), parameters characterizing the level of education development (green cluster), substantiating the role of education in various socio-demographic processes (purple cluster). There are intersections and interconnections between the identified clusters, namely economic growth and economic and regional development, as well as the development of social and intellectual capital significantly depend on education and human potential, the impact of education on which is also partially compatible; an essential role in the development of human capital is performed by the level of education, educational policy, and the development of education; in turn, the personal characteristics of

individuals have practically no relationships with other clusters, despite the significant variety of categories in them.

Although the research covers a significant number of vectors of scientific research, the fundamental one is the formalization of the impact of education on the development of human capital and economic growth.

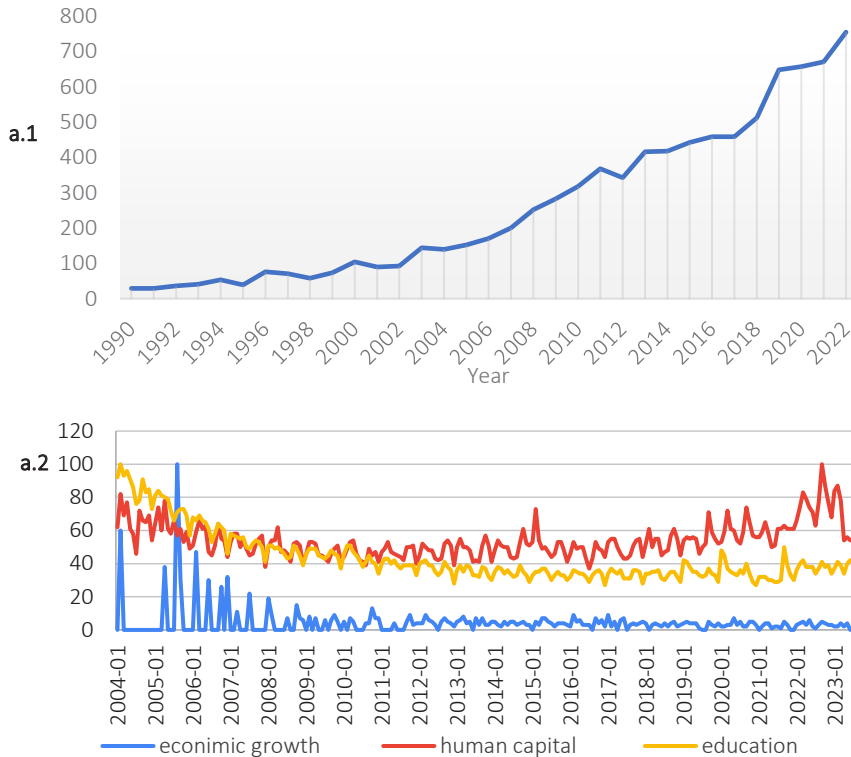
The second block includes an analysis of research results divided into trends in selected topics, conducted both in a social context (using Google Trends tools) and in an academic context (Figure 2).

Figure a.1 presents the temporal distribution of articles in Scopus, covering the years from 1990 to 2022. The average number of studies published annually is 260, and the median is 185 articles.

The observed period was divided into three shorter ones, depending on the volume and volatility of the number of publications. In the first period, from 1990 to 2005, 1224, or 13.67 %, of the analyzed publications were published, an average of 94 articles per year. In the second period, from 2006 to 2012, 1934, or 22.50 % of the selected articles were published. On average, 276 papers were published per year during this period, and the year with the most significant number of publications was 2011, when 368 studies were published. In the third period, from 2013 to 2022, 5437 articles were published, which is 63.24 % of the total articles. On average, 543 articles were published annually, and the peak was reached in 2022 when 755 articles were published.

The analysis of the results using Google Trends allow assessing the relevance and popularity of a given topic in web searches. The data presented show that although there is a significant interest in this topic in society, there is less growth than in the case of research interest.

**Figure 2.** Comparison of scientific publications in the Scopus (a.1) and the dynamics of Google searches (a.2) on issues of education, human potential, and economic growth



Source: own elaboration.

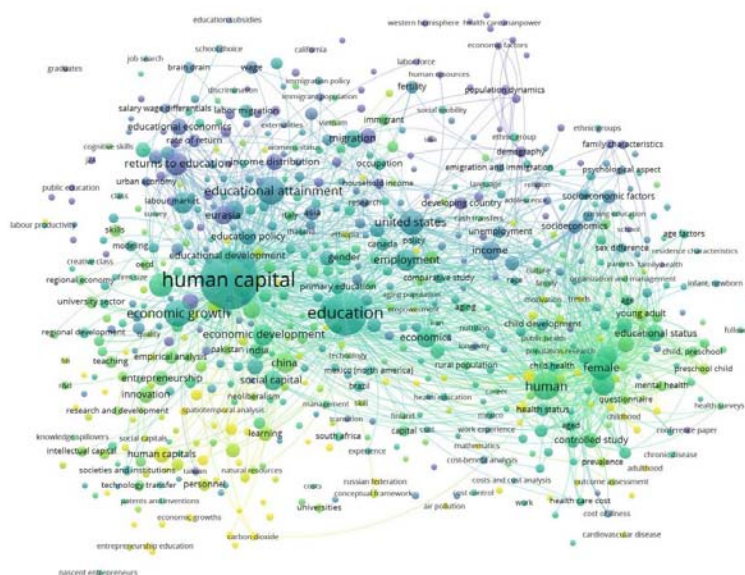
Correlation analysis did not reveal a connection between changes in the interest in this area in society and the academic environment, which allows concluding that different factors determine them.

Therefore, according to the analysis results, it was established that the intensity of scientific research on the role of education in the formation of human potential has been constantly increasing during 1990–2022. This is due to the recognition of its influence on economic and social characteristics both at an individual level and at the levels of regions and countries.

The thematic-temporal block of the bibliometric analysis was used for expanding the evolutionary-temporal perspective of the study. Based on this, the main

substantive determinants of research questions were ranked from 2005 to 2023. The analysis period is shortened compared to the thematic block of the bibliometric analysis due to the relatively small number of publications on the relevant issues from 1990 to 2012. The gradient in Figure 3 changes from blue – the earliest works, to yellow – modern works.

**Figure 3.** Thematic-temporal dimension of research



Source: own elaboration.

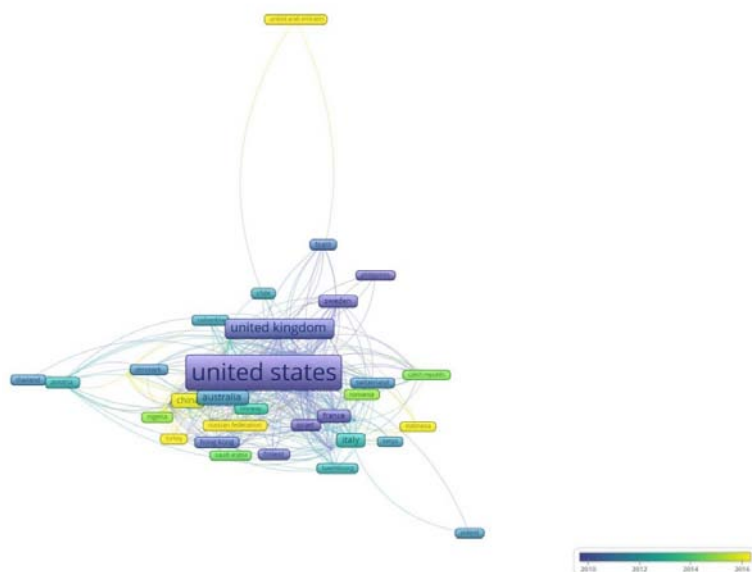
According to the results of the thematic-temporal block of research, there are three stages during which the main emphasis in this area changed. In 2006–2008, research was not active, scientists mainly considered separate issues of education, demography, labor market. In 2009–2012, the interest of researchers was directed to the formation of the human capital theory in connection and interdependence with economic growth and education, and the most significant scientific foundation in this field was formed. Since 2012, research has been focused on individual objects (such as technology transfer, patents, and innovation) without a close connection to the central areas of research. Summarizing, it can be



noted that human capital influence extends beyond the borders of the economic system, causing the activation of synergistic mechanisms in various spheres of social life. In this regard, human potential development cannot be considered separately from the economic, educational, and social policy of the state but, on the contrary, should consider the existing direct and reverse diffuse and transmission processes in this area.

Within the framework of the time perspective of the bibliometric analysis of educational research, its spatial component was studied (Figure 4).

**Figure 4.** Country network analysis of scientific production and work collaboration



Source: own elaboration.

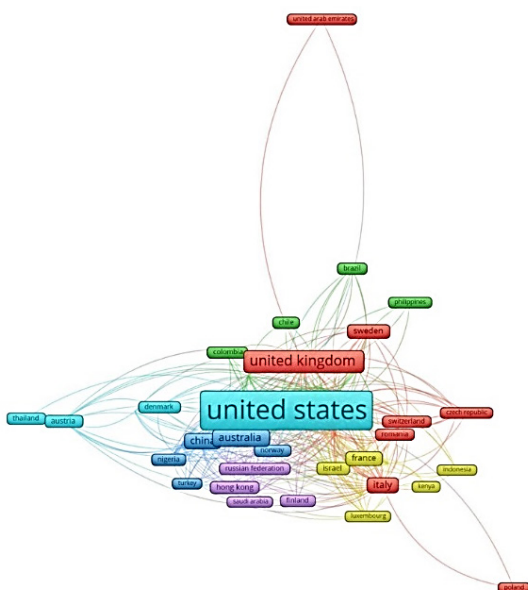
According to the results of the spatiotemporal bibliometric analysis, it was established that the intensification of research on the role of education takes place in the countries of the world during 2006–2023 within the framework of four consecutive time ranges, which has its geographical centers. A pattern can be noted: earlier studies (purple and blue clusters) occurred in industrially developed countries with a high GDP per capita (exceptions are the Philippines

and Kenya). In contrast, in the second half of the studied period (green and yellow clusters), the research geography expanded to include less economically developed countries (China is the exception).

The third block presents the results of research network clustering, according to the affiliation of the scientists (geographical and institutional aspects), identifying leaders of scientific opinion in this area.

Figure 5 provides a visual database of countries that have published research on the role of education in human development, showing changes over time and geographic connections in this area. The size of the cluster is determined by both the number of publications and the number of citations and co-citations.

**Figure 5.** Map of co-authorship of the scholars (criterion – country, designated in the affiliation)



Source: own elaboration.

Based on the spatial clustering results, six groups of countries were identified, researchers from which have joint publications on the education's role in human potential development, namely:

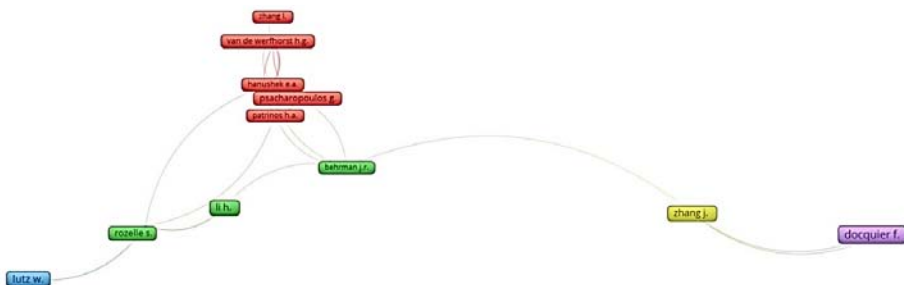
1. United States (research center), Denmark, Thailand, and Austria,
2. United Kingdom (research center), Sweden, Switzerland, Italy, Poland, the Czech Republic, Romania, and the UAE,
3. France, Luxembourg, Israel, Kenya, Indonesia,
4. Colombia, Chile, Brazil, and the Philippines,
5. Russia, Hong Kong, Saudi Arabia, and Finland,
6. Nigeria, Turkey, China (research center), Australia, and Norway.

As data show, connections between the researchers on the education's role in human potential development are usually not formed by geographical proximity; clusters (except clusters 2 and 4) unite representatives of the scientific community from different continents.

In this context, it should also be noted that from the total volume of scientific publications indexed by the Scopus database, the most significant number of works for the period 1990–2023 was recorded with affiliation to the United States (2420; 21.14 %), United Kingdom (777; 6.79 %), China (657; 5.74 %).

A formalization of the research network studying the role of education in shaping human potential is presented in Figures 6 and 7.

**Figure 6.** Map of the research network structure based on the analysis of co-citations in publications indexed by Scopus



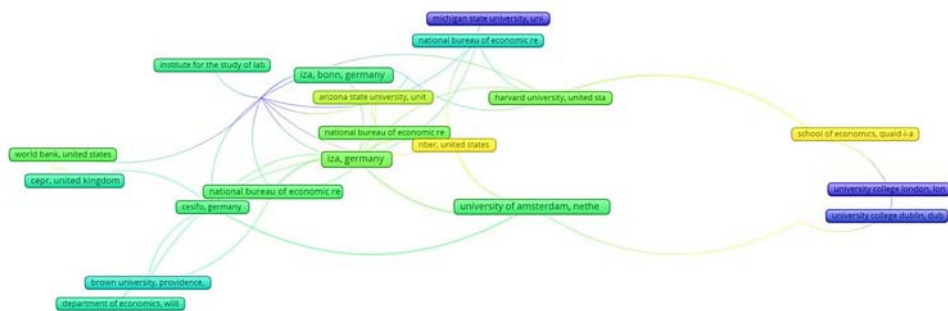
Source: own elaboration.

The formalization of the research dimension on the education's role in human potential development has proven the existence of five research schools that are international and interdisciplinary. The flagship studies are Hanushek (1979, 2011), Hanushek & Woessmann (2007, 2010), Glomm & Ravikumar (1992, 1998), Psacharopoulos & Patrinos (2004, 2018, 2020), Behrman (1983), Beine, Docquier, & Rapoport, H. (2001, 2008), Doquier, & Rapoport (2012), Lutz & Kc (2011), Zhang, Huang, & Rozelle (2002), Zeng et al. (2014).

It was established that the most significant number of works on the specified issue was published by scientists affiliated with the following research centers: World Bank, National Bureau of Economic Research (United States); Center for Economic Policy Research (United Kingdom); Institute of Labor Economics, CESifo (Germany).

The representation of higher education institutions is also significant: University Colleges Dublin, University Colleges London, the University of Amsterdam, Michigan State University, Arizona State University, Harvard University, and others.

**Figure 7.** Map of the scientists' co-authorship (criterion – institution – place of affiliation of the researcher), whose joint publications on education issues are indexed by Scopus

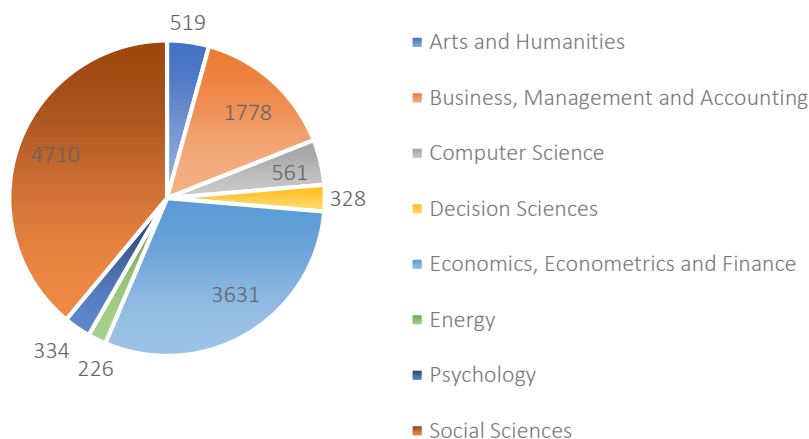


Source: own elaboration.

The obtained data confirm the preliminary conclusion that the centers of scientific thought in this field are the United States of America and the United Kingdom, where the most significant number of scientists and institutions deal with the issue of the impact of education on the social and economic systems.

It should be emphasized that the branch affiliation of the analyzed publications is quite diversified (Figure 8).

**Figure 8.** Structure of the subject area of scientific publications on education indexed in Scopus



Source: own elaboration.

Naturally, most empirical studies on education issues are concentrated in the field of social sciences (53 %), economics, econometrics, and finance (41 %), as well as business, management, and accounting (20 %).

## Conclusions

According to the results of the bibliometric analysis, it was found that research on the role of education in the development of human potential occupies a prominent place in the system of socio-economic research, scientific and user interest, which is constant.

This allows concluding that at the current stage of the development of society, one of the main priorities of the implementation of state policy in the world's countries is the formation of an effective education system that will ensure economic growth and social development. Research in this field transforms over

time. If, at the initial stages of the emergence of the scientific interest in this issue, the main emphasis was placed on education, then gradually, the defined issue began to acquire a broader perspective, covering the role of education in ensuring the development of the economic and social systems, the quality of human life. At the current stage of development, research goes beyond the traditional spectrum. Theoretical and empirical searches regarding the formalization of the impact of education on the formation of innovative potential, environmental sustainability, and ensuring sustainable development, in general, are gaining increasing popularity.

A limitation of the study is that the data were obtained only from journal articles written in English and listed only in the Scopus database. On the one hand, the study became representative since high-quality articles were used. On the other hand, due to the specifics of the database, scientists' access to it is limited due to language and financial barriers. In the future, it may be advisable to combine data from different sources, including Web of Science, Google Scholar, and non-English language articles.

The analysis shows that most of the studies in the sample were conducted in highly developed countries (USA, UK, Australia, Sweden, etc.). However, education sectors worldwide have significant differences, both quantitative and qualitative (level of funding, technology implementation, digitalization, and innovation). Cross-country studies will provide a better understanding and open broad opportunities for research into the impact of education on human development in the country.

Summarizing the above, it can be noted that the analysis made it possible to generalize the theoretical aspects of the influence of education on the development of human potential in a comprehensive manner, formalized according to some important parameters (thematic, evolutionary, spatial, etc.), which forms the basis for further empirical research in this direction.

# References

- Becker, G. S. (1964).** *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. First Edition. New York: National Bureau of Economic Research.
- Becker, G. S. (1975).** Front matter, human capital: a theoretical and empirical analysis, with special reference to education. In *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education* (pp. 22–0). Second Edition. New York: National Bureau of Economic Research.
- Becker, G. S. (1994).** Human capital revisited. In *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education* (pp. 15–28). Third Edition. Chicago: The University of Chicago Press.
- Behrman, J. R., & Birdsall, N. (1983).** The quality of schooling: Quantity alone is misleading. *The American Economic Review*, 73(5), 928–946.
- Beine, M., Docquier, F., & Rapoport, H. (2001).** Brain drain and economic growth: theory and evidence. *Journal of Development Economics*, 64(1), 275–289.
- Beine, M., Docquier, F., & Rapoport, H. (2008).** Brain drain and human capital formation in developing countries: winners and losers. *The Economic Journal*, 118(528), 631–652.
- Docquier, F., & Rapoport, H. (2012).** Globalization, brain drain, and development. *Journal of Economic Literature*, 50(3), 681–730.
- Glomm, G., & Ravikumar, B. (1992).** Public versus private investment in human capital: endogenous growth and income inequality. *Journal of Political Economy*, 100(4), 818–834.
- Glomm, G., & Ravikumar, B. (1998).** Flat-rate taxes, government spending on education, and growth. *Review of Economic Dynamics*, 1(1), 306–325.
- Hanushek, E. A. (1979).** Conceptual and empirical issues in the estimation of educational production functions. *Journal of Human Resources*, 14(3), 351–388.
- Hanushek, E. A. (2011).** The economic value of higher teacher quality. *Economics of Education Review*, 30(3), 466–479.
- Hanushek, E. A., & Woessmann, L. (2007).** The role of education quality for economic growth. *World Bank Policy Research Working Paper*, 4122.
- Hanushek, E. A., & Woessmann, L. (2010).** Education and economic growth. In D. J. Brewer, & P. J. McEwan, *Economics of education* (pp. 60–67). Amsterdam: Elsevier.
- Lutz, W., & Kc, S. (2011).** Global human capital: Integrating education and population. *Science*, 333(6042), 587–592.

- Marginson, S. (2019).** Limitations of human capital theory. *Studies in Higher Education*, 44(2), 287–301.
- Mincer, J. (1981).** *Human capital and economic growth*. Retrieved from <https://www.nber.org/papers/w0803>.
- Mincer, J. (1984).** Human capital and economic growth. *Economics of Education Review*, 3(3), 195–205.
- Psacharopoulos, G., & Patrinos, H. A. (2004).** Returns to investment in education: a further update. *Education Economics*, 12(2), 111–134. DOI: 10.1080/0964529042000239140.
- Psacharopoulos, G., & Patrinos, H. A. (2004).** Human capital and rates of return. In *International Handbook on the Economics of Education* (pp. 1–57). Cheltenham, UK & Northampton, MA: Edward Elgar.
- Psacharopoulos, G., & Patrinos, H. A. (2018).** Returns to investment in education: a decennial review of the global literature. *Education Economics*, 26(5), 445–458.
- Patrinos, H. A., & Psacharopoulos, G. (2020).** Returns to education in developing countries. In *The Economics of Education* (pp. 53–64). Cambridge, MA: Academic Press.
- Sweetland, S. R. (1996).** Human capital theory: Foundations of a field of inquiry. *Review of Educational Research*, 66(3), 341–359.
- Tan, E. (2014).** Human capital theory: A holistic criticism. *Review of Educational Research*, 84(3), 411–445.
- Weiss, Y. (2015).** Gary Becker on human capital. *Journal of Demographic Economics*, 81(1), 27–31. DOI: 10.1017/dem.2014.4.
- Zeng, J., Pang, X., Zhang, L., Medina, A., & Rozelle, S. (2014).** Gender inequality in education in China: a meta-regression analysis. *Contemporary Economic Policy*, 32(2), 474–491.
- Zhang, L., Huang, J., & Rozelle, S. (2002).** Employment, emerging labor markets, and the role of education in rural China. *China Economic Review*, 13(2–3), 313–328.





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Journal of Intercultural  
Management

Vol. **15** | No. **3** | **2023**

pp. **125–147**

DOI **10.2478/joim-2023-0014**

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# Water Resource Management in Poland and Israel – Similarities and Differences

Received: 03-11-2023; Accepted: 14-12-2023; Published: 27-12-2023

## ABSTRACT

**Objective:** The study explores water resource management, including identification of similarities and differences, in Poland and Israel, countries with divergent geographical histories — Poland, historically rich in wetlands, and Israel, originating from a desert landscape. The article presents the current state of research on the level of water resources in both mentioned countries, as well as water resources management systems and who is responsible for this area.

**Methodology:** The analysis is firmly grounded in data sourced from reputable secondary publications. This work draws extensively from scientific literature, including books, papers, and reports. In addition to data-driven insights, it incorporates comparative data analysis, which allows for a nuanced examination of trends and patterns. Furthermore, the inclusion of literature analysis and deductive reasoning provides a comprehensive framework for understanding the multifaceted aspects of the subject matter. This approach not only bolsters the credibility of the analysis but also enables a more robust and informed perspective on the topic at hand. The comparison between Poland and Israel was chosen due to our specific interests and the ongoing scientific collaboration of the authors. Additionally, both countries serve as intriguing case studies given their distinct approaches to water resource management. Poland and Israel hold a special significance as our homelands, affording us a deeper understanding of the local context and water-related challenges. On the other hand, Israel stands out for its reputation for efficient and innovative management of water resources, which piqued our research interests. The comparative analysis aimed to extract best practices and potential areas for further scholarly investigation in the realm of water resource management. Through this comparative examination, we hoped to derive insights that could be valuable, contributing to sustainable water resource management practices.

**Findings:** Poland is currently struggling with periodic and local water deficits, which will deepen due to ongoing climate change (Rączka et al., 2021, p. 8). This requires an immediate and coordinated action. Drawing on the experience of a nation like Israel, which has historically struggled with water scarcity, can provide invaluable insights needed to address this pressing crisis.

**Value Added:** A comparison of the practices of both countries, in this case Poland and Israel, as well as a comparative analysis of water resource management systems, will allow us to list practices that can be initiated to manage water resources more effectively.

**Recommendations:** The subject of water resource management is wide, especially as it belongs to many scientific fields. A broader research context is recommended; the authors made a comparative analysis considering selected reports on the management of water resources. It is a limiting perspective of the research; therefore, to approach the topic holistically, it is necessary to consider other research fields, as well as to deepen the analysis with other countries.

**Key words:** water management, water resources, water resources management, Poland, Israel

**JEL codes:** Q01, Q15, Q25

## Introduction

Effective water management is crucial for fostering sustainable development on a global scale. Recognizing its significance, the United Nations General Assembly has endorsed the Agenda for Sustainable Development, outlining 17 pivotal Sustainable Development Goals. Among these, the sixth goal places a paramount emphasis on the imperative of granting all individuals access to clean water and sanitation through the sustainable stewardship of water resources.

This underlines the fundamental role that ensuring an ample supply of clean water performs in laying the foundation for sustainable progress and advancing prosperity worldwide. Beyond meeting basic human needs, responsible water management also serves as a linchpin for economic growth, environmental conservation, and the overall well-being of communities across the globe (United Nations, 2015).

The United Nations reports indicate that approximately 70% of the total water demand is allocated to agricultural activities. It is important to recognize that implementing a closed-loop economy model transcends mere government actions; it necessitates systemic shifts across various sectors. This holistic approach requires collaboration between governments, industries, and communities to optimize water usage, reduce waste, and foster sustainable practices. By prioritizing water conservation and efficiency in agriculture, we not only ensure food security but also contribute significantly to the broader goals of environmental sustainability and resilient economic systems. Freshwater accounts for only about 3% of the Earth's total water resources, and its volume is estimated at 35 million cubic meters, more than two-thirds of which are retained in glaciers and snow cover. The second largest source is groundwater, which accumulates approx. 29.6% of the resource, while rivers, fresh lakes, and shallow groundwater account for only 0.4% of the volume of all freshwaters (Bajkiewicz-Grabowska & Mikulski, 2013). Freshwater, stored in surface resources and underground, accounts for only 2.5% of the Earth's water resources. Both Poland and Israel are in the group of countries facing a water deficit.

Rising temperatures and fluctuations in the temporal and spatial distribution of precipitation will cause changes in the availability of water for the needs of residents, the environment, and economic activities. In recent years, the problem of water scarcity and the associated drought phenomenon has intensified. This is due to both increasing atheroprogession and climate change. The widespread, chaotic process of urbanization and the accompanying sealing of catchment areas are contributing to changes in the balance of water resources (Zarządzanie Zasobami Wodnymi, 2022). Water management is a complex process with a systemic nature. It has a huge impact on the functioning of many branches of the economy and directly affects society, as well as water and water-dependent ecosystems.

This article seeks to delve into the similarities and disparities in water resource management between Poland and Israel. By examining the current state of research on water resource levels, as well as the systems and stakeholders responsible for their management in both countries, this study aims to shed light on effective strategies and practices. The methodology employed in this analysis relies on a robust foundation of data derived from reputable secondary sources, encompassing scientific books, papers, and reports. Through an extensive review of the existing literature, this work integrates comparative data analysis, offering a nuanced exploration of trends and patterns in water resources management. Additionally, the inclusion of literature analysis and deductive reasoning provides a comprehensive framework for understanding the multifaceted dimensions of this critical subject matter. The choice to focus on Poland and Israel in this comparative study is rooted in the specific interests and collaborative efforts of the authors. These countries serve as compelling case studies, each exhibiting distinctive approaches to water resource management. Through this comparative analysis, the aim is to extract best practices and identify potential areas for further scholarly exploration in the realm of water resource management. By drawing insights from Israel's historical experience with water scarcity, we aspire to provide valuable contributions to address the pressing water deficits faced by Poland. This study endeavors to not only inform policy and practice but also to stimulate broader discussions on sustainable water resource management.

## Water Resources in Poland – Literature Review

The topic of water resources in Poland has been discussed in the literature, but in the context of climate change, environmental pollution, and the use of water for industrial purposes on a massive scale, this topic is gaining in importance.

Water management, and the issues connected to it, dates to the times of the Roman Empire. The work *Flumina Omnia Sunt Publica* (EN. all rivers are

public) mentioned that time in the Corpus Juris Civilis has permanently shaped the way of understanding water as a public asset (Rolinski, 2012). In the Middle Ages, there was a development in the water management laws; it introduced water use licenses, allocation of consumption quotas, taxing irrigation canals and waterways, and positioning water as one of the sources of power. The present-day European water laws are deeply rooted in documents from the nineteenth century collating very fragmented water regulations and decrees dealing separately with every water use (drinking water supply, land improvement, transport, etc.) (Szalinska, 2018, p. 26). In the 20<sup>th</sup> century, there was increased human interference in the natural environment, especially regarding water. Water was one of the main factors of dynamic development, on which the economy was strongly dependent. It is worth mentioning that in the past, actions were taken to promote deforestation and drain lakes and wetlands. The goal was to increase agricultural areas or create new settlement areas. All these activities resulted in a significant deterioration of water quality and a reduction in water resources. Lakes perform an important role in water management and, unlike rivers, provide stability. Despite this, most decisions to drain Polish lakes were considered inappropriate, and the presence of water in the drained areas was more justified than in agricultural areas (Ptak, 2018). Areas of Poland were rich in peat bogs. Wetlands covered approximately 18 percent of the area of the country, but almost all of them, because of degradation, no longer fulfil their former ecosystem functions. As a result of land improvement, approximately 85 percent of peat bogs have lost the characteristics of swamp ecosystems, thus turning from carbon sinks into sources of carbon dioxide emissions into the atmosphere (Nauka w Polsce, 2023).

Poland's water resources are small (54,3 km<sup>3</sup>) (Pawełek, 2015, p. 368). Low water resources and incorrect water conditions result from decisions made in the past regarding drainage, regulation, or interference with the natural activity of water reservoirs. The problems currently faced by entities responsible for water management include drying of river valleys, flood risk management, or the lack of ecological continuity of the stream (Bartnik & Książek, 2007, p. 16). River regulation, the aim of which is, among others, reducing the risk of flooding by "accelerating the outflow of water from the valley floor in a riverbed of

shortened length, taking into account the environmental effects of this procedure, has recently been perceived as a controversial action. The results in terms of regulatory work are even contrary as expected. Shortening the course of rivers which beds are cut in easily erodible material causes their rapid deepening, which increases the volume of full-bed flow and a reduction in the frequency of above-bed water levels” (Łajczak, 2006, p. 18).

Precipitation is low, and annual river flows per capita in Poland typically reach a value three times lower than the average in European countries. A significant area of Poland lies in a zone of low precipitation and high variability in time and space (Łabędzki & Kanecka-Gesze, 2016). Several indicators are worth mentioning: annual resources of surface water flowing away from the territory of Poland in 1980–2010 were on average  $63.1 \text{ km}^3$ , including own resources and inflows from abroad. The minimum resources were  $37.9 \text{ km}^3$  (1990) and the maximum exceeded  $90 \text{ km}^3$  (1981). The average annual precipitation in Poland over the 1951–2000 multi-year period was 617.4 mm, which yields almost  $193.1 \text{ km}^3$  of water. The surface water collection of the country’s own resources is 18.2% (Hungary 333.2%, Sweden – 1.2%). In Poland, per capita, it is about  $1800 \text{ m}^3/\text{year}$ , during the drought this indicator falls below  $1000 \text{ m}^3/\text{year/person}$  (Gutry-Korycka, 2018). Water collection per an inhabitant is  $302 \text{ m}^3/\text{year/person}$  (Pawelek, 2015, p. 368); it is only about 35% of the European average (e.g., Estonia –  $1036 \text{ m}^3/\text{year/person}$ , Denmark –  $120 \text{ m}^3/\text{year/person}$ ). Water deficits periodically occur in 75% of the country (Poland Voluntary National Review, 2018). Climate change is also important, as it significantly affects rainfall. As the climate warms, winter seasons in Poland are becoming warmer. However, the increase in warming is not constant – winter temperatures in the country depend significantly on the type of circulation that takes place in each season. If the so-called North Atlantic Oscillation index (NAO – approximately expressed as the standardized difference in pressure values between the Icelandic Low and the Azores High) is negative, the winter is rather cold (Nauka o klimacie, 2018). Snowfall has been important for the landscape of this part of Europe over the years, and it is decreasing every year. The melting of snow is crucial for the water level in rivers. Poland has fewer freshwater resources than most OECD countries (OECD, 2017). Therefore, more than two-thirds of surface water bodies failed to meet

the 2015 good-status objectives of the EU Water Framework Directive. Seasonal floods occur in Poland, causing long-lasting and heavy rainfall. In Poland, rainfall and snowmelt floods occur most frequently. Ice jams also form often. Polish rivers are characterized by a snow-rain regime, which means that they reach high water levels twice a year. This happens mainly in spring and summer, due to snowmelt and high rainfall. Similarly, there are also low water levels twice a year. This takes place at the turn of summer and autumn and in winter. Frequent floods are typical of Polish rivers. Their causes are varied. The most common of them include heavy rains, sudden spring thaws, traffic jams, and storm winds (ZPE). Snow performs a crucial role in the entire system, serving a distinct purpose compared to rainfall. The characteristic of snow is its slow melting process, allowing water to gradually seep into the soil. Snow serves as the foundation for replenishing groundwater resources, which nourish aquatic ecosystems (rivers, reservoirs, lakes) and water-dependent ecosystems (wetlands, marshes, peatlands). The absence of snow can consequently lead to the emergence and exacerbation of water deficits (PAN, 2020).

Water resources management in Poland is implemented through a range of instruments designed for this purpose, from water management planning through water consents water rights, water management control to information system of water management. The issue of water management was also tackled in the Polish Voluntary National Review in 2018. The Polish Voluntary National Review (2018) claims the increase in available water resources, and improvement of their ecological status and chemical quality is crucial for the government. Therefore, there is an urgent need to create legal and financial mechanisms conducive to the sustainable use of water resources and the implementation of water-saving technologies, as well as the construction and modernization of sewage treatment plants. Polish review implements the provisions of the EU Water Framework Directive – Directive 2000/60/EC of the European Parliament and establishes a framework for Community action in the field of water policy (Official Journal of the European Union 327, 2000) through the implementation of measures aimed at the improvement of the status or potential of water bodies specified in the developed planning documents (river basin management plans, national water, and environmental program,



national municipal wastewater treatment program) (Poland Voluntary National Review, 2018). For the implementation of the comprehensive water policy of the European Union countries, the Water Framework Directive was established to improve the quality of surface water and groundwater, while maintaining a sustainable balance between natural phenomena and human activities, through the principle of sustainable development. As part of the implementation of the Directive, significant progress has been made in Poland in the field of water quality improvement. However, the main goal, which is the *good* status for every water resource in the country has not been achieved.

Polish main goals for further improvement are to increase available water resources and improve their ecological status and chemical quality. Therefore, it is crucial to implement accurate laws like those mentioned above. Also, financial mechanisms for the sustainable use of water resources are needed. In upcoming years, droughts will be progressing, therefore, countries such as Poland should prepare their systems and adjust them to the changing climate reality. One of the means to achieve these goals was also to be the implementation of the Water Law which introduced regulations in the field of water management, taking into account the consideration of the principle of sustainable development, as well as the formation and protection, use, and management of water resources. In Poland, activities related to water resources management were outlined by the Strategy for Responsible Development. The percentage of the population using sewage treatment plants and water supply systems is largely correlated with the rate of technical infrastructure development. In turn, the infrastructure (both technical and social) is co-financed, in most cases, from public funds, including European Union funds (Raszkowski & Bartniczak, 2021). Unfortunately, despite the recommendations, in the recent past, there was, among others, an ecological disaster on the Oder. However, it should be noted that the condition of the Vistula River is also not good. The condition of Polish rivers is influenced by long-term and very low water levels, which enable the inflow of pollutants due to the river's sensitivity, discharges of sewage and waste that contain biogenic compounds, including phosphorus and nitrogen, discharges of saline mines, and industrial waters, and an increase in water temperature or changes in hydrological conditions (PAN, 2022).

Water management is carried out by several organs on many levels. Based on the European Committee of the Regions, the structure is as follows. On the central level, it is the State Water Holding – Polish Waters (Państwowe Gospodarstwo Wodne Wody Polskie) and the Ministry of Climate and Environment, which supervises the management. It holds ownership rights over state-owned waters and establishes and collects water use fees and taxes. The Ministry of Climate and Environment oversees adopting the National Environmental Policy as well as oversees several institutions. Another organ are the Regional Water Management Boards (RWMBs), which are responsible for water management in the water regions. Among their activities, the Boards identify significant pressures and assess their impact on the status of surface and groundwater in the region, develop terms of water use in the water region, prepare flood studies in the water region, develop draft plans for flood protection, and coordinate activities related to the protection against floods and drought. Voivodeships-level institutions are responsible for regional implementation and enforcement of national water policy, permits for investment, including pollution discharges, and regular water monitoring. They are responsible for the protection of drinking water sources, in cooperation with the regional water authorities, and implementation of specific measures set out in the RBMP and FRMP as well as in the National Program for Urban Wastewater Treatment is carried out at the local level. Worth mentioning is the State Water Holding (Państwowe Gospodarstwo Wodne), which is responsible for the protection of water quality and the natural values of the water environment, with the leading role of the special administration for environmental protection under the authority of the minister responsible for environmental protection. This activity is set up by the Polish Constitution against administrative decisions issued by PGW Wody Polskie, Państwowe Gospodarstwo Wodne Wody Polskie (PGW WP) – a state legal entity comprising the structure of Polish water administration bodies, established in 2018. Three basic substantive divisions are the flood and drought protection division, the water services division, and the water environment management division. Part of their activity is education and raising awareness among citizens.

## Water Resources in Israel – Literature Query

Israel has been struggling with a shortage of freshwater since its inception. Moreover, all kinds of economic, political, or natural crises, which the state must deal with in the short period of its existence, necessitate the need for good management of water resources, thus creating a demand for high managerial qualifications among employees.

About 75% of Israel's area is made up of the Judean and Negev deserts. Israel's main water sources are the Jordan River, Lake Tiberias, and several smaller remaining river systems. Groundwater reservoirs are natural sources and must be used very carefully to prevent them from drying out or becoming saline. It should be noted that Israel does not have exclusive control over the tributaries of the rivers within its territory; Israel must share the resources of the Jordan River with Jordan, Syria, and Lebanon (Sodolski, 2020).

Israel's annual water supply is 2 billion cubic meters for its 9 million inhabitants, with a population density of 400 people per square kilometer. There are 300 m<sup>3</sup> of water per inhabitant per year. Renewable water resources in the country amount to 1.7 billion m<sup>3</sup> per year (Embassy of Israel in Poland). The main consumer of freshwater is the agricultural sector, which uses more than half of all domestic water, the rest is intended for municipal and industrial needs. In Israel, the area of arable land is systematically growing through the development of desert areas, which, however, involves huge financial outlays for irrigation, soil desalination, and fertilization. The specificity of Israeli agriculture is also the fact that collective forms of farming (kibbutzim) perform a significant role in it, covering more than half of the orchards and arable land (Bożyk & Grzybowski, 2012, p. 246). Residents and municipal management consume one-third of these resources (Israel National Review, 2019, p. 115). In Israel, saline desalination water currently performs a dominant role in the supply of drinking water (85%), and only 15% is natural groundwater and surface water (Witkowski, 2018, p. 34). To manage water resources in Israel, under the Water Law of 1959, the state and the Water Commission decided to take control of private water resources and all types of water (including sewage and rainwater) (Teschner et al., 2012, p. 460). Despite limitations related to

the terrain or political situation, Israel does not suffer from a lack of water, but it must ensure its proper management.

In the 19<sup>th</sup> century, when modern sewage and water supply systems were being implemented in Europe, Israel still used simple pipes placed on the surface. Under the rule of the Ottoman Empire at that time, there were no plans to modernize waterworks, and there was no desire to modernize agriculture. Most of the land suitable for agriculture belonged to Arab families in Damascus and Beirut, who rented it to Arab farmers within the territory of modern Israel. They, in turn, lacked both the plan and the financial resources needed to improve irrigation. The creation of a new country and the influx of new settlers whose goal was to fertilize the desert initiated the development and implementation of new technologies. Tel Aviv, founded in 1909, was the first to install modern waterworks. Plans for the distribution and management of the limited amounts of water were prepared even before the uprising, as they were the basis for survival in difficult weather conditions. In Israel, the activities of the progenitors are still visible today, because the entire country is covered with a network of waterworks that are responsible for distributing fresh water from natural sources and from installations that desalinate salt water (coming from the sea). The desalination process has become beneficial for Israel; currently, approximately 50% of freshwater comes from this process (Sodolski, 2020).

Water law legislation regulates water matters in Israel in terms of establishing a comprehensive spatial policy and is the most comprehensive legal regulation regarding water management in the country. The water supply process involves several factors. The production segment includes the state-owned water utility Mekorot, seawater desalination plants, and local water utilities that collect water. Local water companies are responsible for water distribution. In 2007, the Israel Water Authority was established to transfer the authority over water management and regulation to a single government body to ensure professional and effective management and supervision. Broadly speaking, the Israel Water Authority is responsible for regulating, operating, and developing the water sector, developing new water sources, and setting prices for related sectors, protecting and restoring natural water sources, and

establishing rules for calculating the costs of water-related services (Fanack Water, 2023).

In Israel, measures are taken to care for the quality of water and the protection of related ecosystems. Pollution prevention measures as well as monitoring of contaminated reservoirs are systematically implemented. An example is a directive on industrial wastewater standards, which imposes heavy penalties on industrial plants which activities exceed the permissible standards of components contained in the directive (Israel National Review, 2016, p. 117).

Climate change also poses a serious challenge to the management of water resources in the country. It is assumed that in the coming decades, due to its influence, the structure of precipitation and average temperatures will constantly change. Higher temperatures in the winter are expected, as well as a decrease in the amount of precipitation and its distribution, which significantly contribute to the increase in water demand in agriculture, for which the most resources are used (Fleischer et al., 2008, p. 508).

The issues of water management were included in the Israeli Voluntary National Review of 2019 (Israel National Review, 2019). The country's water resources are limited as well as difficult to account for in annual national balances due to their volatility. Tailored operational plans, as well as the diversity of water resources, are designed to help achieve water management excellence. The primary goal of the water sector in Israel, which has been approved in the zoning plan, is to guarantee water supply, ensure the quality of water resources, provide sewerage services, and designate the use of treated wastewater, as well as manage runoff and drainage – all for the sustained welfare of all consumers. In addition, it is also important to guarantee the sustainable use of natural resources, to monitor and respond to pollution, to remove point sources of pollution, and to allocate fresh water for the maintenance of biodiversity (Israel National Review, 2019, pp. 116–118).

According to the data of the European Committee of the Region, the areas of the CoR's compulsory consultation policy distinguish between activities related to the environment and the fight against climate change at the central and local levels. The Israeli Ministry of Environment is responsible for activities at the central level Responsibilities include water treatment activities as

well as wastewater cost management and standardization. At the local level, for water-related matters, compulsory powers of local authorities include desalination of water and issues related to sewage services (European Committee of the Region, Israel).

## Water Management in Poland and Israel – Similarities and Differences

Although Poland and Israel differ, inter alia, in the influence of conditions, land-forms, size, the number of inhabitants, and the economic and political situation, both countries struggle with the problem of freshwater operations.

Both countries are characterized by relatively low water resources, and in the face of the deepening climate crisis, it is expected that both in Poland and Israel, temperatures will increase, and the amount of rainfall will decrease. That is why it is highly important to care for the existing water resources. For both countries, care for water quality, its ecological condition, and ecosystems, is crucial. In Poland, the need to develop legal and technological solutions has been expressed. In the case of Israel, a directive has been introduced setting standards for industrial wastewater. This directive regulates the list of components that, after exceeding a certain level, are prohibited, and there are financial penalties for exceeding them, because of which it is not profitable for industrial plants to pollute water (Israel National Review, 2019, p. 117).

Concerning water, the Voluntary National Review distinguishes 12 criteria: drinking water, sanitation, hygiene, wastewater, water quality, efficiency, water stress, water management, transboundary, ecosystems, cooperation, and participation. Based on the above criteria, it is possible to compare the two countries in terms of water resources.

Regarding drinking water, in both countries, residents benefit from safely managed drinking water services. In Poland, this percentage is 98 and in Israel 99. Moreover, this indicator shows progress over time, which means that the quality of drinking water has improved year after year (United Nation,

Poland, Israel). In Poland, the concentration of phosphorus and nitrogen very rarely exceeds the acceptable levels for drinking water. However, it should be kept in mind that the presence of water enables the massive development of phytoplankton, which can cause allergic reactions in human bodies (Rączka et al., 2021, p. 12). In Israel, tap water also poses no risk to the health and well-being of consumers and is safe to drink. However, it is worth paying attention to water desalination, which deprives the water of minerals, including ions of magnesium necessary for the human body and agricultural production. Studies show that in many Israeli cities, deficiencies of magnesium ions were observed in the tested samples of desalinated water, which may expose the consumer to harm in the future (Rosen et al., 2018).

In the case of sanitation, 91% of Poles and 95% of Israelis use safely managed sanitation services, which constantly progresses over time (United Nations, Poland, Israel). Both countries are also undertaking educational activities on water and sanitary hygiene. The degree of progress is very far-reaching, and it can be assumed that it will reach 100% in the coming years. Civilization changes cause fluctuations in the quality of wastewater, which is associated with new forms of pollution that are discharged into water. That is why it is highly important for both countries that new technologies constantly follow the pollutants that arise and that they develop new strategies for the protection of water resources. New forms of pollution, including refractive pollution and those related to pharmacological substances, including antibiotics, hormones, estrogens, and chemotherapeutic agents, require innovative technical and technological solutions that should be created and supported by legal regulations. It is essential to conduct intensive research in this area. Therefore, a research and development program should be established for highly efficient and energy-saving methods of wastewater treatment and the treatment and management of sewage sludge, as well as the renewal of wastewater for various applications (Gromiec, 2020, p. 8).

For wastewater flow, Israel ranks higher, with a 93% (safely) treated wastewater flow. Poland scored 83% (United Nations, Poland, Israel). Pollution of freshwater resources in Poland is a result of negligence in wastewater management in the past. Major sources of pollution are effluents from municipal wastewater

treatment plants and surface runoffs (Mikosz, 2013). Subsequent regulations and increasingly far-reaching modernization have made this condition significantly improved in recent years, but there is still a lot to be done in this area in Poland, especially in rural areas. A good example to follow is Israel where wastewater effluent's reuse and desalination have become the main source of water to compensate for the future water shortage (Icekson-Tal et al., 2003). In sewage recycling, Israel constitutes a unique test case in policy, science, technology, and infrastructure for other countries facing water scarcity that may be exacerbated by growing populations and global climate change (Futran, 2013).

In terms of water bodies with good quality surrounding water in Poland, the result was 96%. As far as Israel is concerned, the result has not been presented. Presented is the performance index that shows changes in water use efficiency over time, showing progress compared to other countries. Israel got 135\$/m<sup>3</sup> and Poland 49\$/m<sup>3</sup> (United Nations, Poland, Israel). Despite this, according to research, Poles are still not able to fully trust drinking water directly from the tap without prior preparation. According to user ratings, the water flowing out of the tap is contaminated, does not have the appropriate consumer values (color, taste, smell), and contains too much fluoride. These opinions are expressed despite the widespread availability of drinking water in taps and assurances about its quality. This is due to the public's lack of trust in the safety of water provided by water companies. Research has shown that these fears have no justification in practice and are deeply rooted in the consciousness of Poles. Tap water meets all the necessary standards, mainly because it is well managed, constantly monitored by water utilities, and appropriate sanitary services, as well as thanks to investments in the modernization of treatment processes. The utility parameters of water (color, taste, smell) differ in individual urban centers, which may raise concerns among users, but their quality is unchanged (Kłós, 2015).

Freshwater shortages directly affect food safety, access to safe drinking water, public health and hygiene, and environmental well-being (Ercin et al., 2019). The water stress level index concerns freshwater abstraction as a percentage of the available freshwater resources in the country. 31% of renewable water resources are being phased out after considering environmental flow requirements.



In recent years, however, researchers have shown possibilities of sustainable management of water resources during periods of drought and the possibility of adapting to future climate changes (Kubiak-Wójcicka & Machula, 2020). In the case of Israel, the figure is 100% (United Nations, Poland, Israel). This creates opportunities to acquire good practices and implement Israeli solutions in Poland.

Considering the Water Management Index, Israel scored 85% for the implementation of Integrated Water Resource Management. Poland achieved the result of 75% (United Nations, Poland, Israel). Real measures in the field of water protection in Poland were not undertaken until the pre-accession period and after Poland joined the European Union. Within a dozen or so years after joining the EU, many investments with the support of structural funds have been implemented. They were mainly concerned with the provision of good quality drinking water, the disposal and treatment plants and sewage treatment plants were built, as well as water supply and sewage networks, especially in previously neglected areas. However, the planned good water status was not achieved by the previously indicated 2015. It is hard to compensate for an age-old neglect (Hakuć-Błażowska et al., 2020, pp. 24–25). Whereas Israel is known for its effective demand management to increase water productivity, reduce per capita potable water consumption, and shift water to higher-value irrigated crops. The allocation of water for various purposes (agriculture, nature, and public gardening) is strictly regulated by annual directives that constantly relate to the hydrological situation, such as continuous drought and the severity of drought in previous years. The necessity to limit water use and to ensure procedures for water reservoir rehabilitation is considered. The need to conserve water sources and the needs of the various sectors are balanced constantly based on hydrological considerations. To promote water conservation, the Water Authority launched media campaigns to encourage people to use water more sparingly. During recent years of drought, a comprehensive and successful nationwide media campaign was launched calling on citizens to save water. Combining regulations with educational and media campaigns, Israel has succeeded in stabilizing domestic consumption below the annual quantity of 90 cubic meters per capita. It saved Israel an investment in another large desalination plant (Israel National Review, 2019, p. 127).

The ecosystem indicator is also worth paying attention to. According to data, 4% of the catchments in Poland experience rapid changes in surface water, and in the case of Israel, the result is 8% (United Nations, Poland, Israel). A significant part of Poland's territory faces threats that are increasingly important for ecosystems, caused by the reduction of surface water resources. The areas at risk of a quantitative deficit of these waters in the early 1990s were very large, also due to inadequate water management in the regions. An increasingly limited availability of resources is a barrier to economic development (Gutry-Korycka et al., 2014, p. 89).

As for hygiene, cooperation, and participation indicators, data were not published for both countries (United Nations, Poland, Israel).

In comparison, in both Poland and Israel, the historical development of water management practices has shaped their present-day approaches. Poland's laws and regulations regarding water management evolved over centuries. Activities such as deforestation and the draining of wetlands for agriculture and settlement led to a significant decline in water quality and resources over time.

Contrastingly, Israel's challenges with water scarcity since its inception spurred immediate initiatives to manage limited resources. The country's early endeavors focused on modernizing water systems and utilizing technologies for survival in arid climates, especially within desert regions like the Judean and Negev deserts.

Poland faces periodic water deficits due to historical decisions on drainage and regulation, resulting in reduced water resources. The country experiences low precipitation, leading to fluctuations in river flows and reduced water availability per capita, often falling below European averages. The management challenges include drying river valleys, flood risk, and lack of ecological continuity.

In Israel, the struggle with water scarcity is constant, given the limited natural resources and the need for careful groundwater management. Despite facing the challenges of sharing water resources with neighboring countries, Israel has adopted innovative measures, including desalination, which currently accounts for a significant portion of its freshwater supply. The agricultural sector consumes a substantial portion of Israel's water resources, with investments in irrigation technologies and the development of arid lands.

Both nations have put in place legislative systems to manage their water resources. Poland's policies are in line with EU directives, with a focus on

modernizing sewage treatment plants, improving ecological conditions, and using water sustainably. Even with improvements in water quality, it is still difficult to get all water bodies to a good state.

Israel’s 1959 Water Law concentrated on regulating all forms of water, including rainwater and sewage, and consolidating control over private water resources. The nation uses strict policies to combat pollution, including harsh fines for industries that do not follow the rules.

Below comparative table summarizes the key aspects of water resource management in Poland and Israel:

**Table 1.** Key aspects of water resource management in Poland and Israel

Aspect	Poland	Israel
Contextual Differences	Influenced by diverse geography and demographics	Challenges influenced by arid conditions
Focus on Water Quality/Ecosystems	Emphasis on legal/technological advancements	Stringent directives for industrial wastewater
Drinking Water & Sanitation	98% coverage; concerns about tap water perception	99% coverage; desalination’s mineral impact
Wastewater Treatment/Pollution Control	83% treated wastewater flow; past pollution	93% treated wastewater; successful recycling
Efficiency/Water Stress	\$49/m <sup>3</sup> efficiency; 31% renewable resources use	\$135/m <sup>3</sup> efficiency; 100% water stress level
Integrated Water Resource Management	75% implementation; recent improvements	85% implementation; efficient demand control
Ecosystem Impact/Development	Threats from reduced surface water resources	Changes affecting ecosystems

Source: own study based on the analysis of secondary sources.

## Conclusion

Having an advanced public and private research and development (R&D) sector helps Israel to arrive at technological and economical solutions in the fields of water production and water treatment (i.e., desalination and recycling) (Netanyahu, 2007). Israel, because of its location, had to reach for the above-mentioned solutions from the beginning. Now, after years of implementing innovative technologies, it has a national water surplus and exports water to its neighbors. Poland was much more privileged; however, it is at the threshold of a serious water supply crisis when it will also have to reach for such solutions. Water and sewage management in Poland has systematically been transformed in terms of quality and quantity since the 1990s (Piasecki, 2019). However, still much must be done especially in rural regions to improve wastewater management and access to sanitation systems. In the coming years, there will be more challenges that Poland will have to face regarding water deficits. Implementing good practices from countries like Israel can significantly ease the situation. It is essential to acknowledge the limitations of this research. The study focused on a specific set of reports and secondary sources, providing a partial view of the broader landscape of water resource management. A more extensive data collection and analysis from primary sources, coupled with on-the-ground field studies, would offer a more robust and nuanced perspective. Furthermore, considering the dynamic nature of water resource management, ongoing research is crucial to stay abreast of evolving practices and technologies in this critical field.

Considering these considerations, further research endeavors should aim to address the identified limitations and build upon the foundation laid by this comparative analysis. By doing so, we can continue to contribute to the development of sustainable and effective water resource management strategies that can be applied on a broader level.

## References

- Bajkiewicz-Grabowska, E., & Mikulski, Z. (2006).** Hydrologia ogólna. Warszawa: PWN.
- Bartnik, W., & Książek, L. (2007).** Regulacja rzek i potoków górskich w warunkach równowagi hydrodynamicznej. *Infrastruktura i Ekologia Terenów Wiejskich*, 4(2), 15–26.
- Bożyk, S., & Grzybowski, M. (Eds.) (2012).** *Systemy ustrojowe państw współczesnych*. Białystok: Wydawnictwo Temida.
- Embassy of Israel in Poland.** <https://embassies.gov.il/WARSAW/ABOUTISRAEL/Pages/srodowisko.aspx>. Access: 11.11.2023.
- Ercin, E., Chico, D., & Chapagain, A. K. (2019).** Vulnerabilities of the European Union's Economy to Hydrological Extremes Outside its Borders. *Atmosphere*, 10(593), 1–19.
- Fanack Water (2023).** <https://water.fanack.com/israel/water-management-in-israel/>. Access: 13.10.2022.
- Fleischer, A., Lichtman, I., & Mendelsohn, R. (2008).** Climate change, irrigation, and Israeli agriculture: Will warming be harmful? *Ecological Economics*, 65, 508–515.
- Futran, V. (2013).** *Tackling water scarcity: Israel's wastewater recycling as a model for the world's arid lands?* GWF Discussion Paper 1311, Global Water Forum. Canberra, Australia.
- Gospodarowanie zasobami wodnymi, OEES nr 5 Gospodarowanie wodami w Polsce – OEES.** [https://oees.pl/magazyny/gospodarowanie-wodami-w-polsce/?doing\\_wp\\_cron=1665074904.3577098846435546875000](https://oees.pl/magazyny/gospodarowanie-wodami-w-polsce/?doing_wp_cron=1665074904.3577098846435546875000). Access: 13.10.2022.
- Gromiec, M. (2020).** *Nowe koncepcje gospodarki wodno-ściekowej-osadowej*. Monografie 166. Lublin: Wydawnictwo Polskiej Akademii Nauk.
- Gutry-Korycka, M., Sadurski, A., Kundzewicz, Z. W., Pociask-Karteczka, J., & Skrzypczyk, L. (2014).** Zasoby wodne a ich wykorzystanie. *Nauka*, 1, 77–98.
- Hakuć-Biażowska, A., Napiórkowska-Baryła, A., & Turowski, K. (2020).** *Wybrane aspekty zarządzania wodą i powierzchnią ziemi ze szczególnym uwzględnieniem planowania przestrzennego*. Olsztyn: Instytut Badań Gospodarczych.
- Icekson-Tal, N., Avraham, O., Sack, J., & Cikurel, H. (2003).** Water reuse in Israel – The Dan Region Project: Evaluation of water quality and reliability of plant's operation. *Water Science and Technology: Water Supply*, 3(4). DOI: 10.2166/ws.2003.0067.
- Implementation of the Sustainable Development Goals, Israel National Review (2019).** <https://digitallibrary.un.org/record/3866775>. Access: 10.10.2022.

**Implementation of the Sustainable Development Goals, Polish Voluntary National Review (2018).** <https://digitallibrary.un.org/record/3866726?ln=en>.

**Komunikat 01/2020 interdyscyplinarnego Zespołu doradczego do spraw kryzysu klimatycznego przy Prezesie PAN na temat zmiany klimatu i gospodarki wodnej w Polsce.** [https://journals.pan.pl/Content/117654/PDF/100-105\\_Stanowisko\\_Woda\\_pol.pdf](https://journals.pan.pl/Content/117654/PDF/100-105_St stanowisko_Woda_pol.pdf). Access: 09.10.2023.

**Kłos, L. (2015).** Jakość wody pitnej w Polsce. *Folia Oeconomica*, 2(313), 195–205.

**Kubiak-Wójcicka, K., & Machuła, S. (2020).** Influence of Climate Changes on the State of Water Resources in Poland and Their Usage. *Geosciences*, 10(312).

**Łabędzki, L., & Kanecka-Geszkel, E. (2016).** Deficyty wody i potrzeby nawodnień roślin uprawnych w Polsce. In W. Dembka, J. Kusia, M. Wiatkowski, & G. Żurek, *Innowacyjne metody gospodarowania zasobami wody w rolnictwie* (pp. 241–260). Centrum Doradztwa Rolniczego w Brwinowie.

**Łajczak A. (2006).** Regulacja rzeki a zagrożenie powodziowe, na przykładzie Nidy. *Infrastruktura i Ekologia Terenów Wiejskich*, 4(1), 217–233.

**Mikosz, J. (2013).** Wastewater management in small communities in Poland. *Desalination and Water Treatment*, 51(10–12), 2461–2466.

**Nauka o klimacie (2018).** <https://naukaoklimacie.pl/aktualnosci/polskie-zimy-w-xx-i-xxi-wieku-cz-2-273>. Access: 02.11.2023.

**Nauka w Polsce (2023).** <https://naukawpolsce.pl/aktualnosci/news%2C95301%2Cnaukowcy-praktycy-ochrony-i-inni-eksperci-o-potrzebie-ochrony-bagien-i?fbclid=IwAR21mlt3b-ZWHR3XSaV12iuWeBvDLKpyySCm5ul8IC2ZumxCiyIAAflG5f74>. Access: 13.11.2023.

**Netanyahu, S. (2007).** Water Development for Israel: Challenges and Opportunities. In C. Lipchin, E. Pallant, D. Saranga, & A. Amster (Eds), *Integrated Water Resources Management and Security in the Middle East* (pp. 62–72). Springer.

**OECD. (2017).** *Diffuse Pollution, Degraded Waters: Emerging Policy Solutions*. OECD Studies on Water, OECD Publishing. Paris. <https://doi.org/10.1787/9789264269064-en>.

**Official Journal of the European Union (2000).** 32, 1.

**Pawełek, J. (2015).** Water management in Poland in view of water supply and sewage disposal infrastructure development. *Infrastructure and Ecology of Rural Areas*, 2.

**Piasecki, A. (2019).** Water and Sewage Management Issues in Rural Poland. *Water*, 11, 625. DOI: 10.3390/w11030625.

**Polska Akademia Nauk PAN (2022).** *Katastrofa na Odrze – geneza, teraźniejszość, zalecenia na przyszłość*. Retrieved from <https://klimat.pan.pl/katastrofa-na-odrze-geneza-terazniejszosc-zalecenia-na-przyszlosc/>. Access: 13.10.2023.

**Ptak, M. (2018).** Odtworzenie warunków wodnych osuszonych jezior w Polsce – wybrane przykłady. *Badania fizjograficzne Seria A – Geografia Fizyczna*, 9(A 69). DOI: 10.14746/bfg.2018.9.14.

**Sodolski, M. (2020).** *Jak użyziono pustynię. Gospodarka wodna w Izraelu*. Retrieved from <https://klubjagiellonski.pl/2020/06/26/jak-uzyzniono-pustynie-gospodarka-wodna-w-izraelu/>. Access: 13.10.2023.

**Szalinska, E. (2018).** Water Quality Management Changes Over the History of Poland. *Bulletin of Environmental Contamination and Toxicology*, 100, 26–31.

**Raszkowski, A., & Bartniczak, B. (2019).** *On the Road to Sustainability: Implementation of the 2030 Agenda Sustainable Development Goals (SDG) in Poland*. *Sustainability*, 11(2), 366.

**Rączka, J., Skąpski, K., & Tyc, T. (2021).** *Zasoby wodne w Polsce – ochrona i wykorzystanie*. Warszawa: Fundacja Przyjazny Kraj.

**Rolinski, M. (2012).** Elementy prawa wodnego w rozwoju historycznym ze szczególnym uwzględnieniem polskich ustaw wodnych (część I). *Studia Iuridica Lublinensia*, 18, 83–91.

**Rosen, V. V., Garber, O. G., & Chen, Y. (2018).** Magnesium deficiency in tap water in Israel: The desalination era. *Desalination*, 426, 88–96.

**Teschner, N., McDonald, A., Foxon, T. J., & Paavola, J. (2012).** Integrated transitions toward sustainability: The case of water and Energy policies in Israel. *Technological Forecasting & Social Change*, 97, 457–468.

**United Nations, Unwater, Israel. (2022).** <https://www.sdg6data.org/country-or-area/Israel?fbclid=IwAR0mWNTFEpYuvGj2jmYSdSzpKyF3UJhcwTLhoffvipL2wGiVR8TJ-ujm7IE>. Access: 10.10.2022.

**Witkowski, A. J. (2018).** *Paradoksy światowej gospodarki wodnej*. Katowice: Monografie Śląskiego Centrum Wody. Tom 1.

**UN General Assembly, Transforming our world: the 2030 Agenda for Sustainable Development (21 October 2015).** A/RES/70/1. Retrieved from: <https://www.refworld.org/docid/57b6e3e44.html>. Access: 20.10.2022.

**Zarządzanie Zasobami wodnymi w Polsce, United Nations Global Compact Report. (2018).** <https://ungc.org.pl/wp-content/uploads/2021/04/raport-zarządzanie-zasobami-wodnymi-www-1.pdf>. Access: 9.10.2022.

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# Sustainability and Fast Fashion from the Executive Perspective – the Case of LPP S.A.

Received: 29-11-2023; Accepted: 22-12-2023; Published: 27-12-2023



## ABSTRACT

**Objective:** This article aims to examine what the CEO of LPP S.A. discloses about sustainability and how sustainability topics vary over time in his communication with the stakeholders.

**Methodology:** We use a machine learning-based topic modelling analysis, specifically latent Dirichlet allocation and keyword analysis, to scrutinize the sustainability disclosure in the sustainability letters to the stakeholders of one of Poland's biggest fast fashion companies, LPP S.A.

**Findings:** The findings of this study suggest that more attention should be placed on sustainability topics in the letters to the shareholders. The information disclosed is selective and mainly aimed at transmitting a positive message. It lacks a comprehensive and holistic disclosure of information concerning sustainable activities that substantially impact environmental and social matters. Comparing the variation of topics year to year, there is a clear shift from dedicating the majority of space in CEO letters to the stakeholders to social topics toward a broader discussion about the environment and responsible energy consumption in the most recent letter.

**Value Added:** The study contributes to the sustainability communication literature by identifying specific sustainability topics disclosed by the analyzed company in its direct message from the CEO to stakeholders that have been very limited and selective, thus underscoring the limited importance assigned to this topic by the CEO, thereby questioning the transparency concerning one of the most critical areas of fast fashion impacts.

**Recommendations:** To keep the stakeholders informed and maintain the transparency of actions and accountability of the disclosure, it is necessary to present the information holistically and comprehensively in the message directed by the CEO to the stakeholders.

**Key words:** fast fashion, sustainability, letters to stakeholders, communication, topic modelling, latent Dirichlet allocation

## Introduction

Sustainability strategy has become a key business and management aspect for the development and success of modern corporations (SanMiguel et al., 2021). This strategy and its outcomes should be disclosed to the stakeholders. The way they are communicated has become increasingly important. There are two principal communication approaches: two-way communication in the form of a dialogue with the stakeholders (Bryl et al., 2022) and one-way communication in the form of disclosing critical information by the organization (Nickerson & De Groot, 2005). This paper will focus on the latter, particularly a powerful, influential tool for one-way direct corporate information communication of companies, that is a formal letter to the shareholders. Consequently, this research aims to study the communication content of letters to the shareholders from the perspective of sustainability information disclosure in an example of a fashion company with the longitudinal approach.

Fashion, and in particular the fast fashion industry, has been chosen, as it has significant implications for the global economy, both positive and negative. This industry has developed dynamically; in the past two decades, global textile manufacturing and consumption have nearly doubled (Shirvanimoghaddam et al., 2020). It has increased production, consumption, and turnover of clothing items, stimulating economic activity. However, the production of textiles and apparel also had negative impacts, encompassing poor working conditions, health and safety concerns, water overconsumption and pollution,

waste generation, greenhouse gas emissions, and hazardous materials. There are widespread anxieties about the effects of fast fashion, especially regarding human rights issues in industry supply chains and those pertaining to waste and recycling.

Recognizing the importance of the topic and stakeholder expectations, companies in the sector are beginning to engage in activities aimed at real or apparent reduction of negative impacts and improving their image in the eyes of customers, investors, and other stakeholders. Consequently, they are also expected to communicate these endeavors to the stakeholders.

The central thesis of this study is that there is a need for transparency in the communication between fashion companies and the stakeholders, with a particular focus on the content of letters to the shareholders. Transparency has been conceptualized as the quantifiable degree of a fashion brand's information disclosure, clarity, and accuracy (Schnackenberg & Tomlinson, 2016), also in the context related to sustainability (Dando & Swift, 2003).

In this research, we adopt the stakeholder theory (Freeman et al., 2010) that manifests through the companies' will in communicating with those that impact and are impacted by the companies. We analyzed one particular form of communication: a letter to the stakeholders that opens the sustainability reports. Numerous academic publications in the literature explore annual letters to the shareholders (CEO letters), an essential element of a CEO's discursive narration (Courtis, 2004). They are an obligatory part of the annual report, but their informational content is arbitrary and at the discretion of their authors, i.e., those in charge of the organization. This characteristic makes them a very gratifying topic of scientific research and analysis. However, with the development of sustainability reporting (under the Directive (EU) 2022/2464, the so-called Corporate Sustainability Reporting Directive) and previous non-financial disclosure (under the Directive 2014/95/EU, the so-called Non-Financial Reporting Directive), some companies have started to publish the second letter written by the CEO in annual reports. This letter is directed to the stakeholders (hereafter CEO letter to the stakeholders), and it opens the sustainability report or disclosure (also named as Non-financial Information Report/Disclosure or CSR Report/Disclosure). Despite the

enormous growing body of sustainability reporting research and investigation of CEO letters to the stakeholders, research is still rarely conducted within the framework of existing empirical studies, which constitutes a remarkable research gap. Most prior literature has neglected the sustainability dimension of the discourse in the CEO letter to the stakeholders, concentrating solely on reports or disclosures. The lack of this type of research raises significant concerns as substantial empirical evidence indicates that the CEO letter to the stakeholders is a significant means of engaging with the stakeholders, representing a textually vibrant expression of the corporate voice. It provides insight into how the organization tackles sustainability matters (Klimczak et al., 2023). Moreover, to the best of the authors' knowledge, research of this type has never been conducted before in the fashion sector, which is particularly important in terms of its environmental impact and other sustainability issues that refer to this industry.

In this study, the research objective is to investigate the characteristics of CEO letters to the stakeholders regarding their content and communication patterns concerning sustainability issues. We indicate the main topics concerning sustainability issues and the changes in time in the communication mode. In our study, we focused on a company from the fashion sector. Using the example of the LPP S.A. company, we analyzed the disclosure of sustainability information in the letters to the stakeholders in three consecutive years. We applied a topic modelling analysis using an unsupervised Bayesian machine-learning approach called Latent Dirichlet Allocation (LDA) to determine the main topics and their distribution in sustainability disclosure. Our data relate to the publicly available sustainability disclosure of those companies.

Our findings confirm that LPP S.A. primarily highlights enhancements related to sustainability, thereby hindering the stakeholders' understanding of the implementation of their sustainability pledges in daily business operations. The CEO, when presenting information on sustainability to the stakeholders, primarily focuses on future strategies and goals, neglecting to address the company's activities that significantly influence environmental and social concerns. Furthermore, there is a noticeable shift in the CEO's letters to the stakeholders, with recent communications allocating more space to a broader discussion on

environmental issues and responsible energy consumption, as opposed to predominantly addressing social topics.

The implications of our study call for making letters to the stakeholders the centerpiece of organizations' one-way communication by focusing on sustainability issues in a more holistic way.

The results show that it is necessary to continue improving the communication of sustainability within the fast fashion industry whilst demonstrating the significant deficiency in communicating it in sustainability disclosure.

This research contributes to an overview of current sustainability practices of the example companies from a critical sector of fashion that has an important, but also significantly negative, impact on the environment.

Implications of this study may be relevant for academia and practitioners preparing sustainability disclosure and regulators developing sustainability report standards.

This article is structured as follows. After the introduction, where the background and research aim are presented, Section 2 presents a theoretical background referring mainly to the literature review of previous relevant studies and critical concepts for this research. Section 3 describes the methodology, including the sample, data collection, and research methods. Section 4 discusses the main findings of the research. Finally, Section 5 summarizes the article with some concluding observations, presents study limitations, and proposes ideas for future work.

## Literature Review

### ***Fashion Industry Impact***

The fashion industry exerts a significant economic influence, constituting a multi-billion dollar sector comprised of various companies. This has a substantial positive effect on the economy by generating numerous employment opportunities and substantial financial returns. The fashion market is

estimated to be worth \$ 1.53 trillion (Statista, 2023). This industry provides employment opportunities to millions of people, from designers and artisans to retail workers and logistic experts. Moreover, it boosts international trade and strongly influences the global supply chain. However, while only representing approximately 2% of the global gross domestic product (Statista, 2023), it is the second most polluting industry in the world, after the oil industry, being responsible for 10% of the production of global CO<sub>2</sub> emissions and 20% of global water waste (Gupta et al., 2019). Scholars highlighted this industry's environmental negative impacts, such as excessive water use and water pollution (Abbas et al., 2020), GHG emissions from processing fossil fuels (Franco, 2017), and the use of hazardous chemicals (Khurana & Ricchetti, 2016). Academics also underline its adverse societal impacts, such as poor working conditions (Haug & Busch, 2015), health and safety issues (Cesar da Silva et al., 2021), abuses of human rights that include child labor, forced low-paid labor associated with modern slavery (Peake & Kenner, 2020; Thorisdottir & Johannsdottir, 2020). The fashion industry is simultaneously responsible for several other ills, including animal cruelty and the fostering of over-consumption (Lundblad & Davies, 2016). Consequently, the fashion industry is labelled as wasteful, polluting, and socially toxic (Hála et al., 2022), and it is emphasized that it leads to mass over-production with horrible social and environmental consequences (Bick et al., 2018). The fashion industry is also blamed for recklessness and inefficient resource management while manufacturing products with extremely short life cycles. It is accused of advancing quantity and fashion over quality and durability (MacGregor et al., 2023). Global clothes consumption is projected to increase from 62 to 102 million tons from 2015 to 2030, which accounts for a 63% increase (CleanClothes, 2023). At the same time, clothing utilization constantly decreases. Less than 1% of the material used to produce clothing is recycled into new clothing, causing a loss of more than USD 100 billion worth of materials each year (MacGregor et al., 2023).

Daily fashion is increasingly referring to the concept of fast fashion. There are many definitions for the fast fashion concept (e.g., Runfola & Guerini, 2013). We adopt the one of Caro and Martínez-de-Albéniz (2015), who

describe fast fashion as a specific business model that combines three elements: (i) quick responses, (ii) frequent assortment changes, and (iii) fashionable designs at affordable prices. Fast fashion companies often prioritize efficiency in production, quick turnaround times, and frequent releases of new collections to meet consumer demand for up-to-date styles. This approach represents, at the same time, a swift to mass-production and mass-consumption model in fashion (Castro-López et al., 2021) dominated by a low cost, efficiency over effectiveness, quantity over quality, immediate financial profit regardless of the exploitation of the workforce, and environmental pollution (MacGregor et al., 2023).

The fast fashion segment grew during the late 20<sup>th</sup> century as clothing manufacturing became less expensive, resulting from more efficient supply chains, new quick-response manufacturing methods, and greater reliance on low-cost labor from the apparel manufacturing industries of Asia (Bick et al., 2018). The environmental and social consequences of fast fashion, including massive abuses, have often been underplayed or even overlooked by the scientific literature, research, and discussions surrounding environmental impact and social justice (Bick et al., 2018). Fast fashion businesses are the primary culprits causing the fashion industry to symbolize wasteful, irrational behavior, greenwashing mastering, and the lack of values or common goals (MacGregor et al., 2023). With the dominance of fast fashion, clothing production has almost doubled over the last 15 years (Freudenreich & Schaltegger, 2020).

It is precisely the fast fashion industry that, while endowed with enormous potential and responsibility related to the development of countries participating in its complex supply chains (Garcia-Torres et al., 2017), creates a high risk of generating sustainability issues related to social and environmental breaches (Krause et al., 2009).

The historical development of the industry toward fast fashion and the recent developments toward ultra-fast fashion present negative, unsustainable transition trends (Maloku, 2020). The spotlight has, therefore, fallen on the fashion industry to expose the ethical and environmental ills of this enormous industry and explore how to address them through the development of sustainable fashion (Mukendi et al., 2020).

## Fast Fashion and Sustainability

One of the most challenging issues facing modern civilizations in coping with the environmental and social consequences of current production and consumption systems is the transition to sustainability. Some view sustainability as a compliance exercise in which companies refrain from undesirable practices. In contrast, others see it as a fundamental change from a narrow focus on investor interests toward balancing the interests of multiple stakeholders (Klimczak et al., 2023).

The awareness of all those negative impacts that refer to the fashion industry, as well as environmental and social sustainability challenges, triggered many changes toward more sustainable and ethical fashion (DiVito & Bohnsack, 2017; Goldsworthy et al., 2018; Mishra et al., 2020; Moorhouse & Moorhouse, 2017). Consequently, sustainability has become increasingly important in this sector (Henninger et al., 2017). The fashion industry cannot continue operating with existing methods threatening the world's finite resources. Recent research has shown more of the concern about the impact of fast fashion that is expressed nowadays. Consumers are becoming more conscious of the ethical concerns surrounding the clothes they buy (Grazzini et al., 2021). For example, more consumers are willing to pay higher prices for clothes with high sustainability content (Centobelli et al., 2022). The latest survey has found that sustainable sourcing at scale is the fashion industry's new must-have (McKinsey et al., 2019), and fashion's commitment to environmental sustainability is becoming the top priority (McKinsey, 2022).

While analyzing the practices present in the fashion industry, it is possible to observe both unsustainable (negative) and pro-sustainability (positive) patterns in its transition journey (Dzhengiz et al., 2023). Promoting natural and recycled textiles, incorporating design principles for reuse and recycling, fostering second-hand retail and clothes repair initiatives, and embracing product-as-a-service models – especially for items with high turnover rates—have been identified as crucial measures for mitigating the fashion industry's environmental impact.

With mounting pressure on fast fashion brands to observe sustainable practices (Auke & Simaens, 2019) and the expected advent of fast fashion (Camargo et al., 2020), there is a need to explain better the activities that refer



to sustainability engagement. Consequently, sustainability in the fashion industry has been a quickly growing area of practice (Henninger et al., 2016) and academic research (Mukendi et al., 2020); however, not much has been researched regarding this sector's communication patterns and contents, especially from the executive perspective.

## The Need for Sustainability Disclosure

It is now nearly impossible to consider business and society without considering the stakeholders and their engagement (Civera et al., 2023). Corporate communication with the stakeholders is pivotal in developing stakeholder commitment (Bottenberg et al., 2017; Fijałkowska et al., 2023a, 2023b; Bryl et al., 2022) and expressing executive perspective (Hadro et al., 2022a). The stakeholder theory postulates that the core of business resides in the relationships between a firm and its stakeholders created through communication. These relationships involve a complex array of interests, expectations, claims, rights, and objectives – ranging from economic to ethical – pertaining to the groups of individuals who impact or are impacted by a company's activities (Bridoux & Stoelhorst, 2016; Freeman et al., 2010). Consumers increasingly expect companies to improve their sustainability practices and communicate sustainability messages (Lee et al., 2023). Particularly in the fashion industry, transparency is essential for attaining accountability, reducing environmental impact, and ensuring that employees' rights are respected.

Communicating about sustainability is challenging (Davies & Doherty, 2019), particularly in the fashion industry, partially due to its abstract and artistic nature and the loss of consumer trust in this sector (Henninger, 2015; Streit & Davies, 2017). Media and consumers have become increasingly aware of discrepancies between fast fashion companies' stated efforts to improve their sustainability and social responsibility and the consequences of their business practices. Many interpret such efforts as "greenwashing," disregarding the fundamental problems of producing and consuming fast fashion products (Kim & Oh, 2020).

The content of the information disclosed and its objectivity and transparency are crucial for the stakeholders. The topics presented not only carry social relevance but also greatly influence consumers' decisions, such as the preference for cruelty-free attire or the willingness to pay a premium for fashion items crafted from sustainable materials and processes. These factors can significantly impact the brand reputation of fashion companies (Hennigs et al., 2013; Miller & Mills, 2012). Purchasing behavior is increasingly prejudiced by various criteria, such as environmental impact, health effects, workers' conditions, and the treatment of animals. These factors shape a brand's reputation, emphasizing the importance of sustainability assessments.

Based on the vast literature on the topic of sustainability reporting, we can formulate ten main reasons why fashion companies should disclose information on sustainability (e.g., Hennigs et al., 2013; Miller & Mills, 2012; Daszyńska-Żygadło et al., 2022; Hadro et al., 2022b, Czinkota et al., 2014; Benn et al., 2006):

- 1. Customer Awareness and Expectations:** With increasing awareness of environmental and social issues, consumers seek sustainable and ethical products. Disclosure on sustainability allows fashion companies to align with consumer values and meet the growing demand for eco-friendly and socially responsible products.
- 2. Brand Reputation:** Transparency about sustainability initiatives enhances a fashion company's brand reputation. Consumers are more likely to support and trust brands that transparently communicate their efforts to minimize environmental impact, promote ethical practices, and contribute to social responsibility.
- 3. Market Differentiation:** Sustainability disclosure allows fashion companies to differentiate themselves. As consumers become more discerning, a commitment to sustainability can set a company apart and create a unique selling proposition in the market.
- 4. Competitive Advantage:** Sustainability disclosure can provide a competitive edge in the fashion industry. Companies that effectively communicate their sustainable practices differentiate themselves from

competitors, attracting environmentally conscious consumers and gaining a competitive advantage over competitors.

5. **Investor and Stakeholder Relations:** Investors increasingly consider sustainability when making investment decisions. Sustainability disclosure can attract socially responsible investors and foster positive relationships with stakeholders who prioritize sustainable business practices.
6. **Supply Chain Management:** Sustainability disclosure encourages fashion companies to assess and optimize their supply chain. This can lead to more sustainable sourcing practices, reduced environmental impact, and improved efficiency throughout the production and distribution processes.
7. **Long-Term Business Resilience:** Adapting to sustainable practices is essential for long-term business resilience. Climate change, resource scarcity, and social issues pose significant challenges, and companies that embrace sustainability are better positioned for long-term success.
8. **Innovation and Efficiency:** Sustainability disclosure fosters a culture of innovation. Companies prioritizing sustainability may find new, more efficient operating methods, leading to cost savings and improved resource utilization.
9. **Risk Mitigation:** Sustainability disclosure helps identify and address potential risks in the supply chain, including issues related to labor practices, resource scarcity, and environmental impact. By proactively addressing these risks, companies can enhance resilience.
10. **Regulatory Compliance:** Reporting on sustainability ensures compliance with evolving environmental standards, labor practices, and supply chain transparency regulations. Staying ahead of regulatory requirements helps fashion companies avoid legal and reputational risks.

Sustainability disclosure for fashion companies is crucial for meeting consumer expectations, enhancing brand reputation, staying competitive, complying with regulations, improving supply chain practices, attracting investors, and ensuring long-term business sustainability.

## The Letters to the Stakeholders as a Tool for Communication on Sustainability

A letter to the shareholders is a formal document that serves as a means for management to present the company's performance and future prospects (Hadro et al., 2021). It is a part of formal communications written by a business or an organization to address and update individuals or groups with a vested interest in the company's activities and performance. This letter aims to provide investors with relevant information about the company's achievements, challenges, goals, and plans. CEO letters should fulfil fundamental accountability functions (Amernic et al., 2006)

They are part of broader communication strategies employed by companies to maintain transparency, build trust, and keep the stakeholders informed about key developments. In Poland, like in other European countries, a letter to the shareholders is mandatory for annual reports. However, its content is loosely regulated and subject to minimal audit requirements. It is a key tool for corporate communication, allowing management to share insights, discuss financial performance, and convey the company's strategic direction to its shareholders. Investors, as evidenced by empirical studies (e.g., Fanelli & Grasselli, 2006), actively read these letters, and their impact extends to influencing investment decisions and stock prices (Keusch et al., 2012).

A letter to the shareholders is also a discursive narration that is a fundamental manifestation of the CEO's leadership (Fairhurst, 2007). It is a public representation of a firm's goals, actions, and results formulated and explained by the CEO. Previous literature has shown how CEOs use language to manage reputation and build organizational identity (e.g., Weick et al., 2005).

On the contrary, CEO letters to the stakeholders have started to appear together with non-financial disclosures and integrated reports. Both their inclusion in sustainability reporting and their structure are on an entirely voluntary basis. Although they also serve as the manifestation of the CEO's shared meaning and culture (Amernic, 2006), above all, they demonstrate the importance of leaders in adapting sustainable goals to corporate reality and their commitment toward a sustainable future (Klimczak et al., 2023).

Deconstructing a CEO's letter to the stakeholders leads to a better understanding of sustainability topics that are of crucial importance to a company leader on the one hand and reflect the desired perception of the company from a sustainable perspective by the stakeholders on the other. CEO letters to the stakeholders are a vital element of corporate communication on sustainability, which needs more attention from the researcher, also considering the unique environmental and social characteristics of industries like fashion. To partially cover that research gap, we post the research questions as follows:

- RQ 1: What are the main topics in CEO letters to the stakeholders of LPP S.A.?
- RQ 2: How do the share of main topics in CEO letters to the stakeholders of LPP S.A. change over time?

## Methodology

For our analysis, we chose the LPP S.A. company. LPP is a company that operates in the fast fashion industry. LPP is a Polish retail company that owns and operates several famous fashion brands, including Reserved, Cropp, House, Mohito, and Sinsay. These brands are known for offering trendy and affordable clothing, following the fast fashion business model of quickly producing and delivering the latest fashion trends to consumers.

As the first step of our research, on the corporate website, we identified LPP S.A.'s six annual disclosures on sustainability (English version): Integrated Report for 2017, Integrated Report for 2018, Integrated Report for 2019/20, Integrated Report for 2020/21, Sustainability Report for 2021/22, and Sustainability Report for 2022/23. We extracted the CEO letter from each report to the stakeholders, which we changed to plain text ready for machine reading.

To answer our research questions, we applied keywords and a topic modelling analysis. In our research, we use the Literary Exploration Machine (LEM) for keyword analysis and Multilingual Topic Modeling (MTM) for topic

modelling – tools developed within CLARIN – PL (Walkowiak & Malak, 2018), which is a Polish research consortium and a section of pan-European Common Language Resources and Technology Infrastructure (CLARIN) (<http://clarin-pl.eu/en/what-is-clarin>).

Keyword analysis is a simple tool that relies on counting a single word's appearance frequency. From LEM, for each letter, we received Excel files with a distribution of words. For further investigation, we selected words related to sustainable matters.

Topic models refer to computer algorithms utilizing the word distribution within a particular corpus to reveal latent word co-occurrence patterns (Van Atteveldt et al., 2019). A commonly employed tool for topic modelling is the unsupervised Bayesian machine-learning method known as Latent Dirichlet Allocation (LDA), introduced by Blei et al. (2003). To this day, LDA remains a cutting-edge method (Jacobi et al., 2016) and has increasingly found application in both financial and sustainability reporting studies within corporate settings (Brown et al., 2020; Bryl et al., 2022, Fijałkowska & Hadro, 2022).

The creators of the technique clarify that LDA functions as a generative probabilistic model for a particular corpus. In essence, documents are depicted as random blends of latent topics, each defined by a word distribution (Blei, 2003, p. 996). The MTM-produced results of the LDA analysis include a compilation of the 30 most prevalent keywords and their respective frequencies for each selected topic. Additionally, it provides the probability of topic relevance for each document, interpreted as the concentration of topics across the entire corpus, considering LDA as a probabilistic measure.

In addition, we used LEM to analyze the textual characteristics of the CEO letters to the stakeholders. We measured the length (number of words), tone (positive words over negative words divided by their sum) and readability (using the Gunning Fog Index (FOG)).

## Findings

Table 1 presents the textual characteristics of LPP S.A.'s CEO letters to the stakeholders. In general, letters are relatively short, with the longest from the Sustainability Report 2022–2023 (1749 words). They have a positive linguistic tone (predominance of positive words over negative ones), with the lowest value in 2020–2021 (0.02) and the highest in 2018 (0.30). The (FOG) as a readability test for English writing indicates that the LPP S.A.'s CEO uses language that is easy to understand when choosing simple words (FOG Index from 9 to 12 means that the text is understandable for high school students).

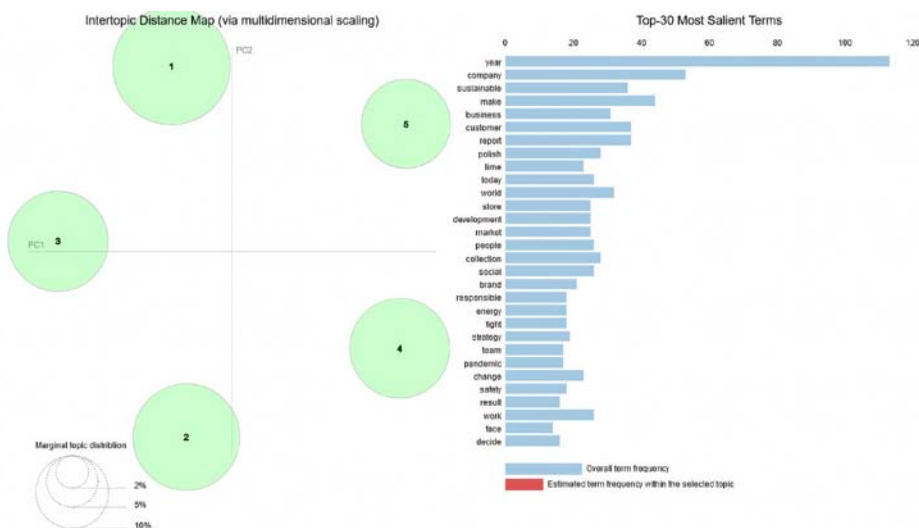
**Table 1.** Textual characteristics of LPP S.A.'s CEO letters to the stakeholders

Year	No. of words	Tone	FOG
2022/2023	1749	0.08	11.70
2021/2022	1311	0.17	12.57
2020/2021	1582	0.02	11.27
2019/2020	1255	0.11	12.78
2018	1152	0.30	9.26
2017	1385	0.17	11.56

Source: own elaboration with CLARIN – PL.

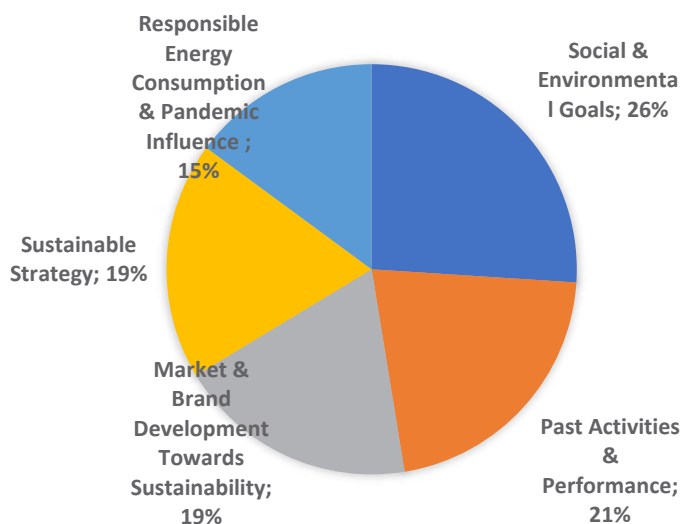
Figures 1 to 8 present the results of topic modelling, and Figure 9 of key-words analysis. To answer our RQ 1, we look at the words with the highest co-occurrence frequency in five identified topics. Among 30, the most frequent words related to sustainable matters are (Figure 1): *sustainable, people, social, responsible, energy, pandemic, safety, and work*.

**Figure 1.** LDA topic analysis visualization with Multilingual Topic Modeling CLARIN-PL. Five Topics in NFI LPP S.A.'s CEO letters to the stakeholders and Top 30 Most Salient Terms



Source: own elaboration with CLARIN – PL.

**Figure 2.** Distribution of topics in LPP S.A.'s CEO letters to the stakeholders



Source: own elaboration with CLARIN – PL.



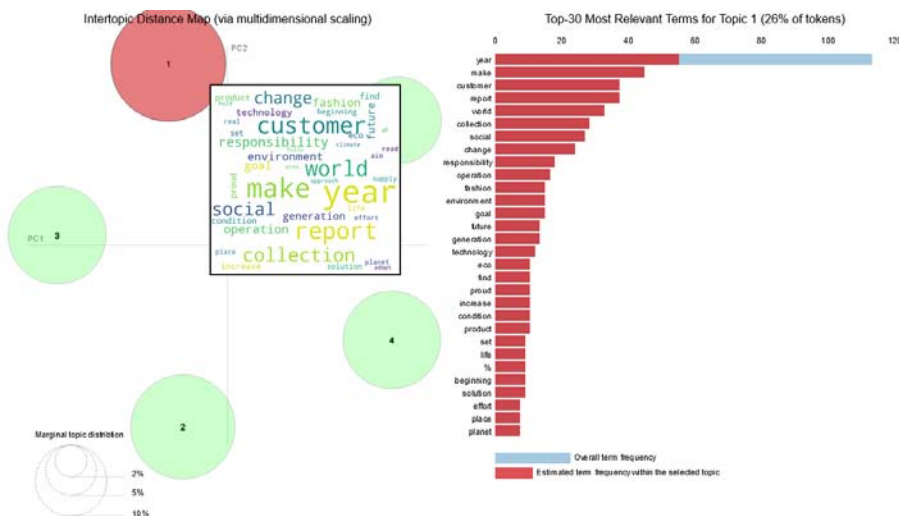
Figure 2 provides the direct answer to RQ 1. In LPP S.A.'s CEO letters to the stakeholders, there are five topics, of which four (79% of all text) talk about sustainability issues:

- Topic no. 1 Social & Environmental Goals (26%);
- Topic no. 3 Market & Brand Development Towards Sustainability (19%);
- Topic no. 4 Sustainable Strategy (19%);
- Topic no. 5 Responsible Energy Consumption & Pandemic Influence (15%).

The only topic in LPP S.A.'s CEO letters to the stakeholders dealing with non-sustainable matters is topic no. 2, Past Activities & Performance (Figure 4), constituting 21% of all text.

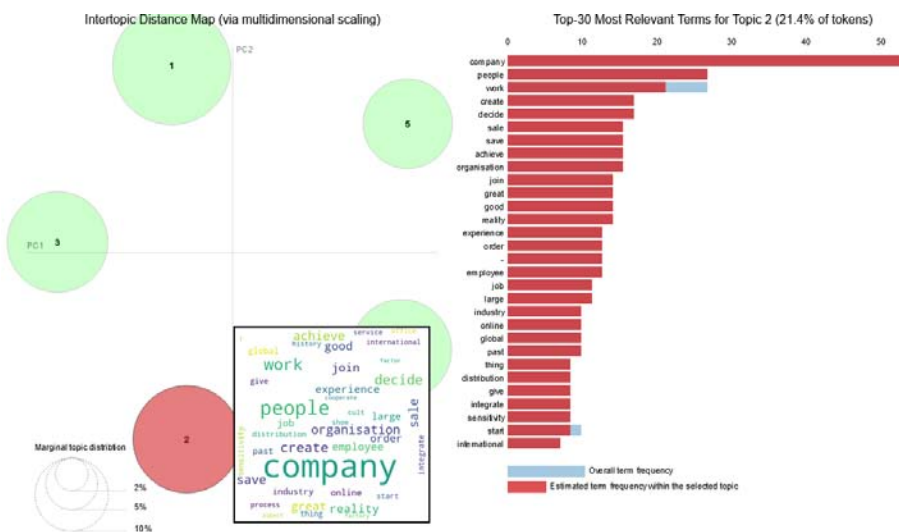
In topic no. 1 (Figure 3), among the ten most frequent words that cooccur together are: *customer, social, change, responsibility, environment, goal, future, and generation*. It shows the CEO's engagement in the broader discussion of sustainable goals for future generations. *Development, market, brand, result, production, respect, economic, and environmental* are words that represent topic no. 3 (Figure 5), which indicates that market and brand development are discussed together with economic and environmental matters. Topic no. 4 (Figure 6) is characterized by expressions such as: *sustainable, business, strategy, safety, challenge, and improve*, which demonstrates the awareness of the market expectation to implement sustainable issues into the strategy, and elucidating its challenging dimension for fashion companies like LPP S.A. *Energy, responsible, pandemic, plastic, decision, action, aware, economy, and impact* cooccur the most frequently in topic no. 5 (Figure 7), what shows the discussion about responsible energy consumption and using plastic and its impact on the environment. In that topic, information about the pandemic and its consequences to companies' condition also appears.

**Figure 3.** Words distribution for topic no. 1 Social & Environmental Goals



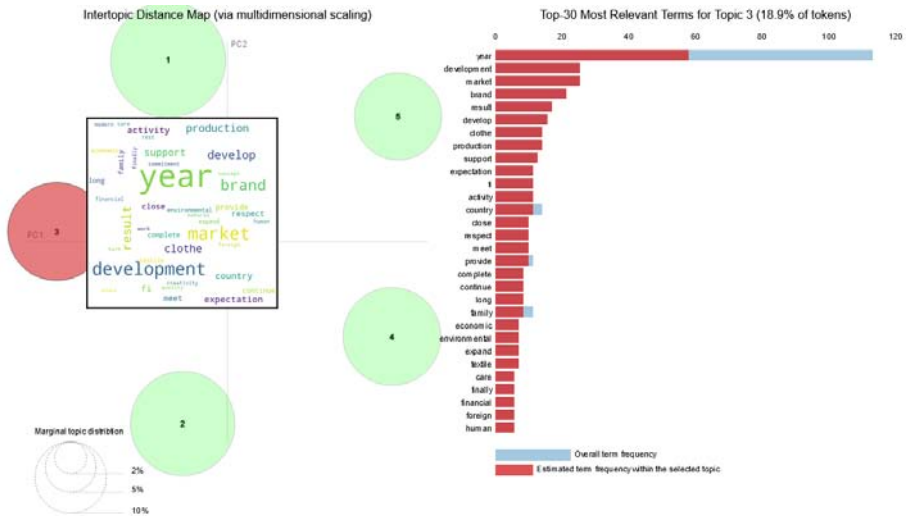
Source: own elaboration with CLARIN – PL.

**Figure 4.** Word distribution for topic no. 2 Past Activities & Performance



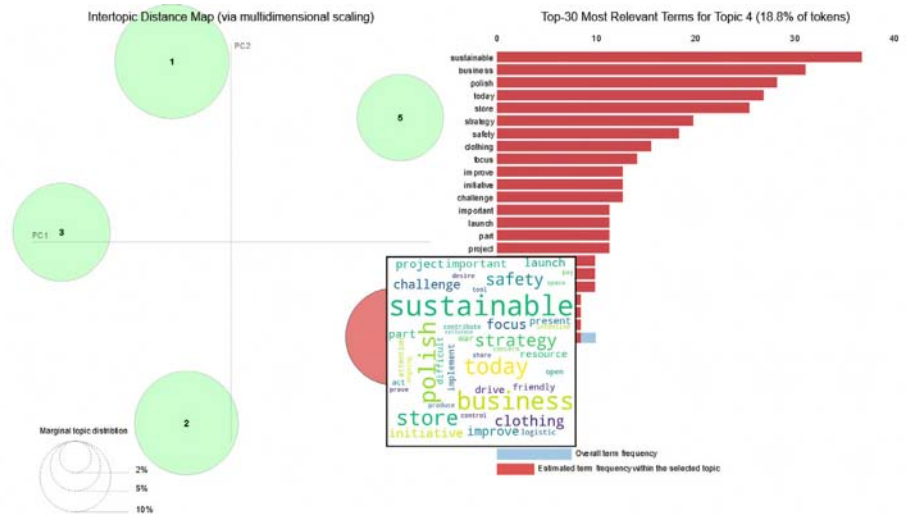
Source: own elaboration with CLARIN – PL.

**Figure 5.** Words distribution for topic no. 3 Market & Brand Development Towards Sustainability



Source: own elaboration with CLARIN – PL.

**Figure 6.** Words distribution for topic no. 4 Sustainable Strategy

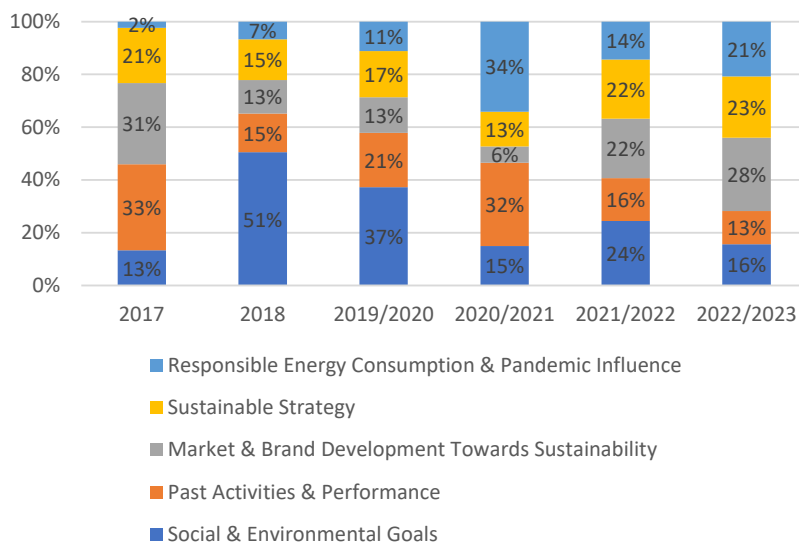


Source: own elaboration with CLARIN – PL.



dedicated the most space to the Market & Brand Development Towards Sustainability topic (28%), Sustainable Strategy (23%), and Responsible Energy Consumption (21%).

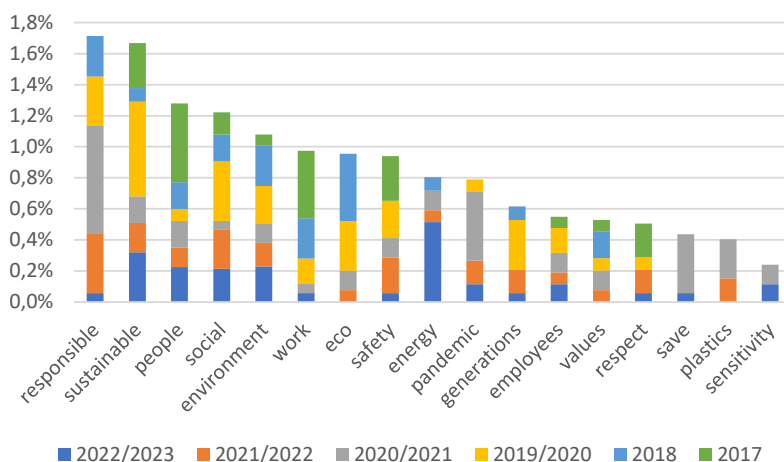
**Figure 8.** Topics distribution in LPP S.A.'s CEO letters to the stakeholders (years: 2017–2023)



Source: own elaboration.

The additional insert to the topics' change in LPP S.A.'s CEO letters to the stakeholders is present in Figure 9, where keyword analysis results are presented. The most frequent word is *responsible* (the root word), yet it does not appear in 2017 but was commonly used in 2020/2021. In the letter from 2017, keywords widely employed indicate the exploration of social matters (*people, work, social, safety*). In 2018, the word *eco* became popular together with the *environment*. Expressions as *sustainable, social, and generation* in the 2019/2020 letter again indicate the importance of social issues. *Responsible, save, pandemic, and plastic*, LPP S.A. used frequently in the 2020/2021 letter. *Sustainable, people, social, environment, and energy* show a balance between social and environmental topics are brought up in the 2022/2023 letter.

**Figure 9.** Distribution of sustainable keywords in LPP S.A.'s CEO letters to the stakeholders



Source: own elaboration with CLARIN – PL.

This study reveals that LPP S.A. discloses mainly sustainability-related improvements, thus preventing the stakeholders from knowing whether and how their sustainability commitments are implemented in day-to-day business operations. The CEO presenting sustainable information to the stakeholders mainly concentrates on the strategy and goals to achieve in the future, omitting the company activities, which have a substantial impact on environmental and social matters. We can also observe a clear shift from dedicating the majority of space in CEO letters to the stakeholders to social topics to the wider discussion about the environment and responsible energy consumption in the most recent letter.

## Conclusions

Despite several initiatives led by either corporations or civil society to promote sustainable practices in the fashion industry, this study's results confirm a notable absence of coherent and consistent disclosure of the sustainability issues in letters to stakeholders of the analyzed company. This study strengthens McVea

and Freeman's (2005) idea that firms must treat the stakeholders not simply as labels but as morally important individuals with overlapping interests and stakes who need to be informed to make rational decisions.

Our research exhibits novelty in various dimensions. Initially, we scrutinized the content of sustainability disclosure through CEOs' letters to the stakeholders of sustainability and integrated reporting within the fast fashion industry that has yet to be explored in other research. Secondly, our analysis employs advanced machine-learning tools that reflect a departure from conventional methods prevalent in numerous other studies. Consequently, we enhance traditional approaches to text analysis, yielding fresh and substantial insights into fast fashion companies' communication with the stakeholders through sustainability reports.

Our study contributes to the stakeholder theory by exploring the one-way communication of companies in the fast fashion industry on sustainability topics. This study also reveals difficulties and challenges in the communication content in the form of a single letter that should employ a multistakeholder orientation (Albu & Flyverbom, 2019; Crane & Livesey, 2017) and is expected to present complete and transparent information (Fijałkowska et al., 2023a). In the fast fashion industry, information on sustainability should be treated as crucial, and our study confirms that it is revealed to a very limited extent.

The limitation of our study lies in investigating only one fashion company. Yet, the company that we selected is a big multi-brand and multinational entity that is full of resources, which leads to the conclusion that it is an example of a company that may have a clear communication strategy, especially on sustainability. This makes it a significant research entity, which by default can be a benchmark for other, smaller and more local companies. In the authors' opinion, this type of company might be treated as a communication leader on sustainability, primarily through the CEO's letters. At the same time, it should be emphasized that the study aims not to diagnose the entire sector but to show the practices of one of the key companies in the market in the sector under study. The aim is also to indicate an original and not commonly used research methodology to carry out the survey and interpret the results, which in further research can be applied broadly to other industries, more companies, or more

extended time periods of analysis. Consequently, the universality and applicability of the methodology presented in our study and its conclusions offer practical implications for all those who are both preparers and users of sustainability information disclosure.

The methodology outlined in our study, along with its conclusions, holds universal relevance and practical implications for individuals involved in preparing and using sustainability information disclosure reports. Our research findings can provide practical insights to guide regulators and various institutions demonstrating interest in the quality of sustainability information.

## References

- Abbas, S., Chiang Hsieh, L. H., Techato, K., Taweekun, J. (2020).** Sustainable production using a resource–energy–water nexus for the Pakistani textile industry. *Journal of Cleaner Production* 271(4), 122633.
- Albu, O. B., & Flyverbom, M. (2019).** Organizational transparency: Conceptualizations, conditions, and consequences. *Business & Society*, 58(2), 268–297
- Amernic, J., & Craig, R. (2006).** *CEO-speak: The language of corporate leadership*. Montreal: McGill-Queen’s University Press.
- Auke, E., & Simaens, A. (2019).** Corporate responsibility in the fast fashion industry: how media pressure affected corporate disclosure following the collapse of Rana Plaza. *International Journal of Entrepreneurship and Innovation Management*, 23(4), 356–382.
- Benn, S., Dunphy, D., & Griffiths, A. (2006).** Enabling change for corporate sustainability: an integrated perspective. *Australasian Journal of Environmental Management*, 13(3), 156–165.
- Bick, R., Halsey, E., & Ekenga, C. C. (2018).** The global environmental injustice of fast fashion. *Environmental Health*, 17, 92. DOI: 10.1186/s12940-018-0433-7.
- Blei, D. M., Ng, A. Y., & Jordan, M. I. (2003).** Latent dirichlet allocation. *Journal of Machine Learning Research*, 3(Jan), 993–1022.
- Bottenberg, K., Tuschke, A., & Flickinger, M. (2017).** Corporate governance between shareholder and stakeholder orientation: Lessons from Germany. *Journal of Management Inquiry*, 26(2), 165–180.



**Bridoux, F., & Stoelhorst, J. W. (2016).** Stakeholder relationships and social welfare: A behavioral theory of contributions to joint value creation. *Academy of Management Review*, 41(2), 229–251.

**Brown, N. C., Crowley, R. M., & Elliott, W. B. (2020).** What are you saying? Using topic to detect financial misreporting. *Journal of Accounting Research*, 58(1), 237–291. Retrieved from: [https://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=2855&context=soa\\_research](https://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=2855&context=soa_research).

**Bryl, Ł., Fijałkowska, J., & Hadro, D. (2022).** Intellectual capital disclosure on Twitter – empirical evidence from the world’s largest companies. *Meditari Accountancy Research*, 30(4), 964–988.

**Camargo, L. R., Pereira, S. C. F., & Scarpin, M. R. S. (2020).** Fast and ultra-fast fashion supply chain management: an exploratory research. *International Journal of Retail and Distribution Management*, 48(6), 537–553.

**Caro, F., Martínez-de-Albéniz, V. (2015).** Fast Fashion: Business Model Overview and Research Opportunities. In Agrawal, N., & Smith, A. S. (Eds.), *Retail Supply Chain Management: Quantitative Models and Empirical Studies* (pp. 237–264). Boston, MA, USA: Springer.

**Castro-López, A., Iglesias, V., & Puente, J. (2021).** Slow fashion trends: Are consumers willing to change their shopping behavior to become more sustainable? *Sustainability*, 13(24), 13858. DOI: 10.3390/su132413858.

**Centobelli, P., Abbate, S., Nadeem, S. P., & Garza-Reyes, J. A. (2022).** Slowing the fast fashion industry: An all-round perspective. *Current Opinion in Green and Sustainable Chemistry*, 100684.

**Cleanclothes (2023).** Climate change. Retrieved from: <https://cleanclothes.org/climate-change> Accessed 2.02.2023.

**Civera, C., Cortese, D., Dmytriyev, S., & Freeman, R. E. (2023).** Letters to stakeholders: An emerging phenomenon of multistakeholder engagement. *Business Ethics, the Environment & Responsibility*. DOI: 10.1111/beer.12639.

**Courtis, J. K. (2004).** Corporate report obfuscation: Artefact or phenomenon? *British Accounting Review*, 36(3), 291–312.

**Crane, A., & Livesey, S. (2017).** Are you talking to me? Stakeholder communication and the risks and rewards of dialogue. In Andriof, J., Waddock, S., Rahman, S., & Husted, B. (Eds.), *Unfolding stakeholder thinking, vol II: Relationships, communication, reporting and performance* (pp. 39–52). Greenleaf.

**Cesar da Silva, P., Cardoso de Oliveira Neto, G., Ferreira Correia, J. M., & Pujol Tucci, H. N. (2021).** Evaluation of economic, environmental and operational performance of the adoption of cleaner production: Survey in large textile industries. *Journal of Cleaner Production*, 278. DOI: 10.1016/j.jclepro.2020.123855.

**CLARIN.** Retrieved from: <http://clarin-pl.eu/en/what-is-clarin>.

**Czinkota, M., Kaufmann, H. R., & Basile, G. (2014).** The relationship between legitimacy, reputation, sustainability and branding for companies and their supply chains. *Industrial Marketing Management*, 43(1), 91–101.

**Dando, N., & Swift, T. (2003).** Transparency and assurance minding the credibility gap. *Journal of Business Ethics*, 44(2/3), 195–200.

**Daszyńska-Żygadło, K., Fijałkowska, J., & Hadro, D. (2022).** Communicating on ESG impacts: The case of the largest European construction industry companies. In Bachnik, K., Kaźmierczak, M., Rojek-Nowosielska, M., Stefańska, M., & Szumniak-Samolej, J. (Eds.), *Corporate Social Responsibility and Sustainability* (pp. 199–213). Routledge.

**Davies, I. A., & Doherty, B. (2019).** Balancing a hybrid business model: the search for equilibrium at cafedirect. *Journal of Business Ethics*, 157(4), 1043–1066.

**DIRECTIVE (EU) 2022/2464 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting.** Official Journal of the European Union, L 322/15.

**DIRECTIVE 2014/95/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups.** Official Journal of the European Union, L 330/1.

**DiVito, L., & Bohnsack, R. (2017).** Entrepreneurial orientation and its effect on sustainability decision tradeoffs: The case of sustainable fashion firms. *Journal of Business Venturing*, 32(5), 569–587. DOI: 10.1016/j.jbusvent.2017.05.002.

**Dzhengiz, T., Haukkala, T., & Sahimaa, O. (2023).** (Un)Sustainable transitions towards fast and ultra-fast fashion. *Fashion and Textiles*, 10(1), 19.

**Franco, M. A. (2017).** Circular economy at the micro level: A dynamic view of incumbents' struggles and challenges in the textile industry. *Journal of Cleaner Production*, 168, 833–845. DOI: 10.1016/j.jclepro.2017.09.056.

**Freudenreich, B., & Schaltegger, S. (2020).** Developing sufficiency-oriented offerings for clothing users: Business approaches to support consumption reduction. *Journal of Cleaner Production*, 247. DOI: 10.1016/j.jclepro.2019.119589.

**Fanelli, A., & Grasselli, N. I. (2006).** Defeating the Minotaur: The Construction of CEO Charisma on the US Stock Market. *Organization Studies*, 27(6), 811–832.

**Fairhurst, G. T. (2007).** *Discursive leadership: In conversation with leadership psychology*. London: Sage.

**Fijałkowska, J., Hadro, D., Supino, E., & Klimczak, K. M. (2023a).** Intelligibility of communication with stakeholders after accounting system change: an exploratory data analysis of Italian universities. *Meditari Accountancy Research*. DOI: 10.1108/medar-01-2021-1175.

**Fijałkowska, J., Hadro, D., Mróz-Gorgoń, B., & Santiago, J. K. (2023b).** Communication about rebranding: the case of Polish listed companies. *Horyzonty Polityki*, 14(49), 93–113.

**Fijałkowska, J., & Hadro, D. (2022).** Risk Information in Non-Financial Disclosure. *Risks*, 10(1), 11. DOI: 10.3390/risks10010011.

**Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B., & De Colle, S. (2010).** Stakeholder theory: The state of the art. Cambridge: Cambridge University Press.

**Garcia-Torres, S., Rey-Garcia, M., & Albareda-Vivo, L. (2017).** Effective Disclosure in the Fast-Fashion Industry: from Sustainability Reporting to Action. *Sustainability*, 9, 2256. DOI: 10.3390/su9122256.

**Gupta, S., Wencke, G., & Gentry, J. (2019).** The role of style versus fashion orientation on sustainable apparel consumption. *Journal of Macromarketing*, 39, 188–207.

**Goldsworthy, K., Earley, R., & Politowicz, K. (2018).** Circular Speeds: A Review of Fast & Slow Sustainable Design Approaches for Fashion & Textile Applications. *Journal of Textile Design Research and Practice*, 6(1), 42–65. DOI: 10.1080/20511787.2018.1467197.

**Grazzini, L., Acuti, D., & Aiello, G. (2021).** Solving the puzzle of sustainable fashion consumption: The role of consumers' implicit attitudes and perceived warmth. *Journal of Cleaner Production*, 287, 125579.

**Hadro, D., Fijałkowska, J., & Stoński, T. (2022a).** Quantum leap or information heap? The study on information quality of integrated reports. In Dietl, M., & Zarzecki, D. (Eds.), *Understanding the Polish Capital Market* (pp. 261–279). Routledge.

**Hadro, D., Fijałkowska, J., Daszyńska-Żygadło, K., Zumente, I., & Mjakuškina, S. (2022b).** What do stakeholders in the construction industry look for in non-financial disclosure and what do they get? *Meditari Accountancy Research*, 30(3), 762–785.

**Hadro, D., Klimczak, K. M., & Pauka, M. (2021).** Management's choice of tone in letters to shareholders: sincerity, bias and incentives: La elección del tono de la dirección en las cartas a los accionistas: sinceridad, sesgo e incentivos. *Revista de Contabilidad-Spanish Accounting Review*, 24(2), 202–219.

**Hála, M., Cvik, E. D., & MacGregor Pelikánová, R. (2022).** Logistic regression of Czech luxury fashion purchasing habits during the Covid-19 pandemic – old for loyalty and young for sustainability? *Folia Oeconomica Stetinensia*, 22(1), 85–110. DOI: 10.2478/fofi-2022-0005.

**Haug, A., & Busch, J. (2015).** Towards an Ethical Fashion Framework. *Fashion Theory*, 20(3), 317–339. DOI: 10.1080/1362704x.2015.1082295.

**Henninger, C. E., Alevizou, P. J., & Oates, C. J. (2016).** What is sustainable fashion? *Journal of Fashion Marketing and Management: An International Journal*, 20(4), 400–416.

**Henninger, C. E., Alevizou, P. J., Goworek, H., & Ryding, D. (Eds) (2017).** *Sustainability in Fashion: A Cradle to Upcycle Approach*. Springer.

**Henninger, C. E. (2015).** Traceability the new eco-label in the slow-fashion industry? Consumer perceptions and micro-organizations responses. *Sustainability*, 7(5), 6011–6032.

**Hennigs, N., Wiedmann, K. P., Klarmann, C., & Behrens, S. (2013).** Sustainability as part of the luxury essence: delivering value through social and environmental excellence. *Journal of Corporate Citizenship*, 52, 25–35.

**Jacobi, C., Van Atteveldt, W., & Welbers, K. (2016).** Quantitative analysis of large amounts of journalistic texts using topic modelling. *Digital Journalism*, 4(1), 89–106. DOI: 10.1080/21670811.2015.1093271.

**Kim, Y., & Oh, K. W. (2020).** Which consumer associations can build a sustainable fashion brand image? Evidence from fast fashion brands. *Sustainability*, 12(5), 1703.

**Keusch, T., Bollen, L. H. H., & Hassink, H. F. D. (2012).** Self-serving Bias in Annual Report Narratives: An Empirical Analysis of the Impact of Economic Crises. *European Accounting Review*, 21(3), 623–648.

**Khurana, K., & Ricchetti, M. (2016).** Two decades of sustainable supply chain management in the fashion business, an appraisal. *Journal of Fashion Marketing and Management*, 20(1), 89–104. DOI: 10.1108/jfmm-05-2015-0040.

**Klimczak, K. M., Hadro, D., & Meyer, M. (2023).** Executive communication with stakeholders on sustainability: the case of Poland. *Accounting in Europe*, 20(1), 1–23.

**Krause, D. R., Vachon, S., & Klassen, R. D. (2009).** Special topic forum on sustainable supply chain management: introduction and reflections on the role of purchasing management. *Journal of Supply Chain Management*, 45(4), 18–25.

**Lee, Z., Gordon-Wilson, S., Davies, I., & Pring, C. (2023).** Communicating about sustainability in fashion: a construal level theory approach. *European Journal of Marketing*. DOI: 10.1108/EJM-09-2021-0701.

**Lundblad, L., & Davies, I. A. (2016).** The values and motivations behind sustainable fashion consumption. *Journal of Consumer Behaviour*, 15(2), 149–162.

**MacGregor Pelikánová, R., & Sani, M. (2023).** Luxury, slow and fast fashion: A case study on the (un)sustainable creating of shared values. Equilibrium. *Quarterly Journal of Economics and Economic Policy*, 18(3), 813–851. DOI: 10.24136/eq.2023.026.

**Maloku, A. (2020).** *Slower Fast Fashion: A Case Study on the Unsustainability Lock-ins in Fast Fashion*.

**McKinsey (2019).** Apparel CPO Survey 2019. Retrieved from: <https://www.mckinsey.com/~media/mckinsey/industries/retail/our%20insights/fashions%20new%20must%20have%20sustainable%20sourcing%20at%20scale/fashions-new-must-have-sustainable-sourcing-at-scale-vf.pdf>. Accessed 7 September 2022.

**McKinsey (2022).** The state of fashion 2022. Retrieved from: <https://www.mckinsey.com/~media/mckinsey/industries/retail/our%20insights/state%20of%20fashion/2022/the-state-of-fashion-2022.pdf>. Accessed 7 September 2022.

**McVea, J. F., & Freeman, R. E. (2005).** A names-and-faces approach to stakeholder management: How focusing on stakeholders as individuals can bring ethics and entrepreneurial strategy together. *Journal of Management Inquiry*, 14(1), 57–69.

**Miller, K. W., & Mills, M. K. (2012).** Contributing clarity by examining brand luxury in the fashion market. *Journal of Business Research*, 65(10), 1471–1479.

**Mishra, S., Jain, S., & Malhotra, G. (2020).** The anatomy of circular economy transition in the fashion industry. *Social Responsibility Journal*. DOI: 10.1108/srj-06-2019-0216.

**Mukendi, A., Davies, I., Glozer, S., & McDonagh, P. (2020).** Sustainable fashion: current and future research directions. *European Journal of Marketing*, 54(11), 2873–2909.

**Moorhouse, D., & Moorhouse, D. (2017).** Sustainable Design: Circular Economy in Fashion and Textiles. *The Design Journal*, 20(sup1), S1948–S1959. DOI: 10.1080/14606925.2017.1352713.

- Nickerson, C., & Groot, E. D. (2005).** Dear shareholder, dear stockholder, dear stakeholder: The business letter genre in the annual general report. In Gotti, M., & Gillaerts, P. (Eds.), *Genre variation in business letters* (pp. 324–346). Peter Lang.
- Peake, K., & Kenner, J. (2020).** ‘Slaves to Fashion’ in Bangladesh and the EU: Promoting decent work? *European Labour Law Journal*, 11(2), 175–198. DOI: 10.1177/2031952520911064.
- Runfola, A., & Guercini, S. (2013).** Fast fashion companies coping with internationalization: driving the change or changing the model? *Journal of Fashion Marketing and Management: An International Journal*, 17(2), 190–205.
- SanMiguel, P., Pérez-Bou, S., Sádaba, T., & Mir-Bernal, P. (2021).** How to Communicate Sustainability: From the Corporate Web to E-Commerce. The Case of the Fashion Industry. *Sustainability*, 13(20), 11363. DOI: 10.3390/su132011363.
- Schnackenberg, A. K., & Tomlinson, E. C. (2016).** Organizational transparency: A new perspective on managing trust in organization-stakeholder relationships. *Journal of Management*, 42(7), 1784–1810.
- Shirvanimoghaddam, K., Motamed, B., Ramakrishna, S., & Naebe, M. (2020).** Death by waste: Fashion and textile circular economy case. *Science of The Total Environment*, 718, 137317.
- Statista (2023).** Global apparel market – statistics and facts. Retrieved from: [www.statista.com/topics/5091/apparel-market-worldwide/#:~:text=The%20revenue%20of%20the%20global,decrease%20on%20the%20previous%20year](https://www.statista.com/topics/5091/apparel-market-worldwide/#:~:text=The%20revenue%20of%20the%20global,decrease%20on%20the%20previous%20year). Accessed 12 October 2023.
- Streit, C. M., & Davies, I. A. (2017).** ‘Sustainability isn’t sexy’: an exploratory study into luxury fashion. In Nayak, R., Panwar, T., & Van Thang, L., Nguyen (Eds.), *Sustainability in Fashion and Textiles: A survey from developing country* (pp. 207–222). New York, NY: Routledge.
- Thorisdottir, T. S., & Johannsdottir, L. (2020).** Corporate social responsibility influencing sustainability within the fashion industry. A systematic review. *Sustainability*, 12(21). DOI: 10.3390/su12219167.
- Van Atteveldt, W., Welbers, K., & Van Der Velden, M. (2019).** Studying political decision making with automatic text analysis. In *Oxford Research Encyclopedia of Politics*. Oxford: Oxford University Press.
- Walkowiak, T., & Malak, P. (2018).** Polish Texts Topic Classification Evaluation. In *ICAART* (2) (pp. 515–522).
- Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005).** Organizing and the process of sense-making. *Organization Science*, 16, 409–421.



eISSN2543-831X



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