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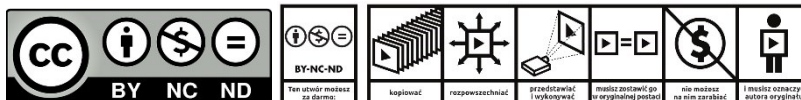
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PILOT STUDY IN THE RESEARCH PROCEDURE

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Introduction/background: The intent of the paper was to verify the hypothesis:

- H0 – Pilot study is an integral part of any research process and directs the research process.
- H1 – Pilot study is not an integral part of any research process and does not direct the research process.

Aim of the paper: The aim of the paper is to verify whether a pilot study is an integral part of any research process and whether it directs research processes.

Materials and methods: In order to verify the hypothesis, a quantitative survey (questionnaire) was conducted, which was addressed to a group of management science theoreticians (401 representatives).

Results and conclusions: The results obtained revealed that:

- 86% of the surveyed scientists, specialising in management science, believe that pilot studies direct the research process,
- 88% of all scientists specialising in management science believe that pilot studies have an impact on the course of the research process,
- 70% of all management scientists believe that pilot studies are an integral part of any research process.

Thus, hypothesis H1 was rejected.

Of key importance, from the point of view of the development of this science, are the needs to develop principles for the application of the methods that make up the pragmatic methodology, and to disseminate methodological paradigms identified in particular in the approach of the contemporary methodology of management sciences.

Keywords: research process, pilot studies, research methodology, management science.

1. Introduction

Research is a complex process leading to finding solutions to a specific problem (Apukem, 2017; Park and Park, 2016). Its result may assume a purely cognitive form (Bryman, 2006), but it may also be implemented on the basis of specific practical objectives (Hessen, 2019; Vaivio and Sirén, 2010). Science focuses on exploring groups of subjects, multiple facts and processes, as well as frequently recurring phenomena (Dźwigoł et al., 2019). Hence, researchers should

not pay all their attention to unique phenomena or single entities (Thomas, 2017). Science strives for generalizations that allow for the development of a theory exempt from individual, personal characteristics that are unnecessary to explore the essence of the phenomenon in question (Hair et al., 2019). ‘In the case of the generalizing approach, a certain object or set of objects is worth knowing and therefore, in so far as it represents a certain broader category of phenomena or objects of a certain type (much broader of its own scope), its cognition is the proper objective of the research procedure’ (Nowak, 1965). According to B. Zeigarnik ‘only generalised thinking, thinking with concepts fully reflects the reality’ (Zeigarnik, 1980).

A theory is a cornerstone of any science. It is viewed as *a description of reality, and in particular a description of more or less regularly repeated, stated or hypothetically assumed relationships between states and changes in circumstances, simplified by omitting those details which, for some reasons, are considered irrelevant in a given case* (Zielniewski, 1969). Scientific research aims to answer questions that do not yet have this answer (Ferran-Ferrer et al., 2017). The degree of the work’s originality or its novelty varies (Williman, 2017). Some researchers understand, by the criterion of novelty, the originality of the work (Apuke, 2017; Hammarberg et al., 2016). Scientific research should primarily involve the pursuit of an explanation for a given phenomenon (Joslin and Müller, 2016), which, at a later stage, leads to the discovery of a new scientific truth (Dźwigoł, 2018). In the management science, combined with the scientific research, the aim is to explore new regularities, methods or ways to increase the effectiveness of management. Research can indeed contribute to the discovery of a new truth, but it can also lead to the modification of a known state or process, or the improvement of what is already there (Park and Park, 2016). E. Wilson rightly points out that *the laws of science are a growing and ever-changing organism, but that change is generally evolutionary in nature and consists much more of modifications, improvements, and extensions than of the ruthless rejection of old things* (Wilson, 1964).

Far from the truth is the claim that every question left unanswered so far should be answered. This means that not every phenomenon that has not yet been clarified can be the subject of scientific research. Research should not be started if the questions asked (unexplained phenomena) are socially meaningless or even too simple to be the subject of research. Concerns about the exhaustion of possible research topics are hardly justified. According to J. Zieleniewski, the number of problems requiring solution is not decreasing. *On the contrary, the more specialists in a given field expand their knowledge, the deeper they penetrate its intricacies, the more questions appear and the more issues open up for research* (Zieleniewski, 1969). Still, the problems faced by contemporary researchers are increasingly complex, multidimensional and interdisciplinary, making them more difficult to solve (Tonidandel et al. 2016).

In order to avoid confusion with an erroneously devised data collection tool, a pilot study should be carried out. The pilot studies, otherwise known as preliminary studies, are carried out prior to the basic (core) studies when a problem, process, phenomenon or mechanism specific

to a given community, location, object or society is scarcely studied – that is, very little is known about it (mfiles.pl/en). Such research is often conducted on a small scale and constitutes the first contact with the analysed reality.

The pilot study allows gathering preliminary knowledge about the studied phenomenon (Mutz and Müller, 2016). The main purpose of such study is to collect information (implicitly incomplete, because only core studies allow collecting all the necessary data to verify the theses adopted in the work) to verify the chosen direction, formulate assumptions for the work, or check the correctness of the developed questionnaire – in the case of surveys (Kaur et al., 2017). Pilot studies also serve to check the usefulness of the adopted research methods and tools to investigate a given problem (Thomas, 2017). By conducting preliminary research, the researcher gains confirmation or negation of the previously accepted connections between the studied phenomena.

Furthermore, a pilot study also allows for the selection of the information collected (Morris and Rosenbloom, 2017). This results in the rejection of information that is irrelevant to the problem under investigation or that is not present in the environment or population. Apart from checking the correctness of the developed questionnaire, it is also possible to obtain knowledge about the duration of basic research or a reliable random sample size (Mutz and Müller, 2016).

A pilot study appears to be necessary if (Dźwigoł, 2018):

- the field of study is being explored for the first time,
- completely new methods and tools are used in research,
- it is likely that the assumptions made in the studies cannot be maintained.

2. Research method

Conclusions derived from the analysis of national and foreign literature on the research process indicate the need to diagnose the impact of pilot studies on the quality of the research process in management science. Thus, the research problem is formulated as follows: Does the pilot study direct research processes?

Therefore, the following research questions were posed in the article:

Q1 Should the researcher provide methods for the implementation of effective solution patterns?

Q2 Does the pilot study direct research processes?

Q3 Does the pilot study affect research processes?

Q4 Is a pilot study an integral part of any research process?

Providing answers to such research questions will allow verifying the following hypothesis: ‘Pilot studies are an integral part of any research process and direct the research process.’

The research was conducted on the basis of an anonymous questionnaire in two formats. One of them is a paper form that was distributed among respondents during scientific conferences on management science, and the other is an electronic form, based on an e-mail database. The research was conducted from October 2016 to April 2018.

The respondents answered questions that were grouped into three parts. The first part was aimed at collecting opinions about the importance of approaches, processes, methods and techniques in a research process within the scope of management science (5 questions). The second part consisted of questions related to the problem of the improvement of a research process (33 questions). The third part contained demographics (3 questions). The structure of the questionnaire involved open, rank questions, and questions based on the 5-point Likert scale.

The target group was 401 management science theoreticians.

3. Research findings

Should the researcher provide methods for the implementation of effective solution patterns?

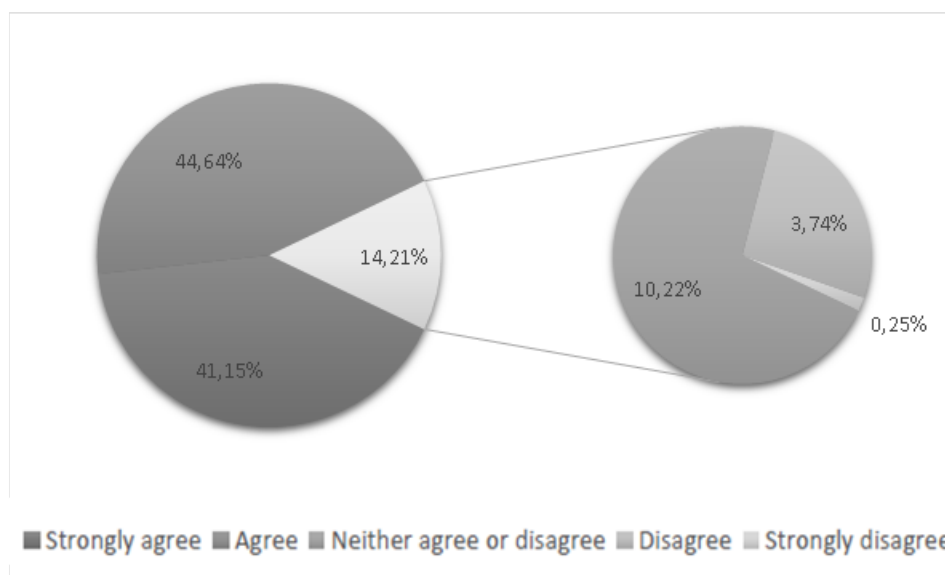


Figure 1. Research findings: Q1. Should the researcher provide methods for the implementation of effective solution patterns? The Author's own research.

Assuming that the purpose of the discipline of management science is to serve the practice of economic and social life through providing models of effective solutions in the area of organisation and management, as well as providing methods of implementation of these models, it should be noted that science and related research works are gradually becoming more and more connected with economic practice than before (Hair et al., 2019).

Therefore, the key to the development of this science is the need to elaborate the principles of application of the methods that constitute the pragmatic methodology, and to disseminate methodological paradigms identified especially in the approach of contemporary methodology of management science, as doing so would make it easier for both theoreticians and practitioners to choose a specific research method more easily and efficiently (Bryman, 2006; Vaivio and Sirén, 2010).

Does the pilot study direct research processes?

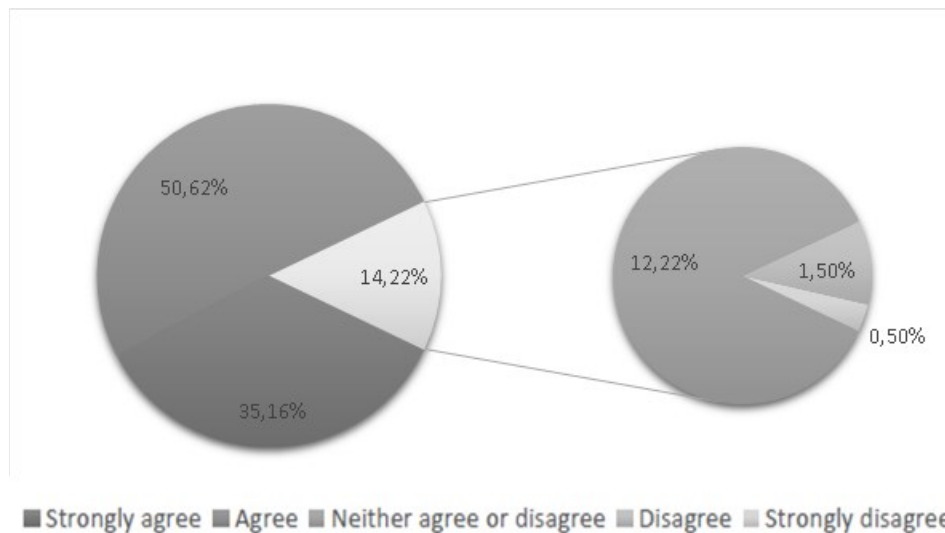


Figure 2. Research findings: Q2. Does the pilot study direct research processes? The Author's own research.

When analysing the results obtained, the vast majority of the respondents (85.78%) believe that the pilot studies steer the research process. Only eight respondents (2%) believe that pilot study does not, or rather does not, direct the research process. The pilot study is carried out in order to test whether the study will be appropriate and will yield specific data. According to Gruszczyński (1999), the tasks of the pilot study include:

- verification of a research problem, including answers to the following questions: does the research problem occur in the community under investigation, has it been properly operationalised, do the indicators fulfil their functions, do the concepts have the same empirical meaning, can the research problem be solved with such a research technique;
- verification of the research tool: evaluation of the questionnaire and individual questions for establishing contact between the researcher and the examined person, evaluation of the questions in terms of their usefulness for solving the problem, checking whether the questions are adjusted to the capabilities of the examined person, checking the degree of accuracy and relevance of the obtained answers, evaluation of the comprehensibility of a question and the adequacy of the criteria (the statements contained in the answer 'Others. Which? ...' are helpful), determining whether the open questions used in the questionnaire could be replaced by closed ones, analysis of the questions and answers in terms of their completeness, checking how many questions remain unanswered;

- determining the organisational and technical aspects of the study: checking the time of research implementation (including arrival, contact with respondents, filling in questionnaires), verification of the survey, estimation of the list of inaccessible entities, checking the ways of reaching the respondents and places where the survey was conducted, determining the costs, checking the network of interviewers;
- development of the collected empirical material: preparation of code instructions, decisions related to tables of results, coefficients and statistical tests.

During the pilot study, not only the test procedure, sample selection, specific questions, but also the answers given by the respondents should be verified, as a seemingly uncomplicated question will provide answers that are radically different, proving that everyone understood it differently. It is also crucial to test the work of the interviewers, whether they are able to properly select their respondents (whether doing so is not too complicated and time-consuming), whether they can complete the questionnaire, etc.

Does the pilot study affect research processes?

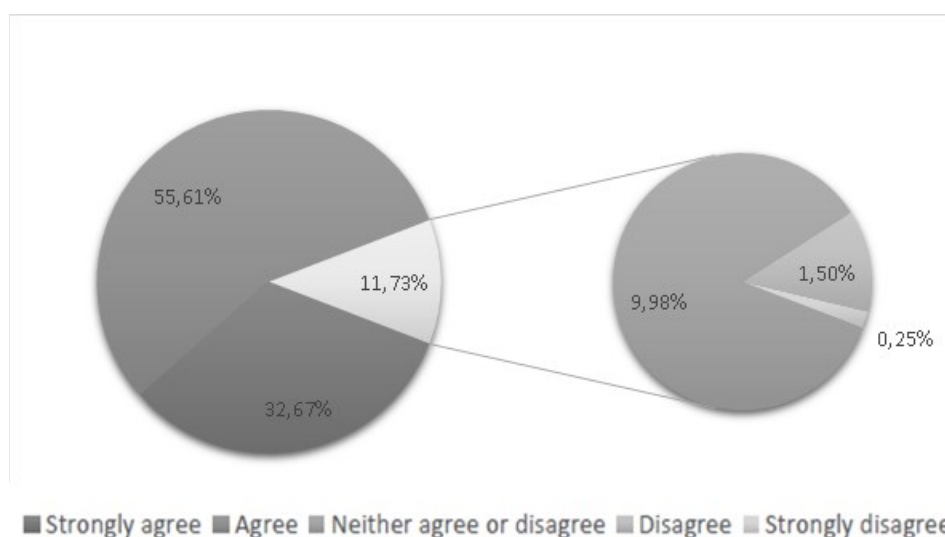


Figure 3. Research findings: Q3. Does the pilot study affect research processes? The Author's own research.

When analysing the results obtained, the vast majority of respondents believe that the pilot study has an impact on the research process.

The main problem that researchers in preparing a pilot study have to face is, therefore, whether to restrict themselves to carrying out the study in the same way as the proper study is run, or to extend the scope and collect additional opinions. On the one hand, the pilot study should be as similar as possible to the basic study, but on the other hand, it is designed to supply all and any information to help improve the said study. It is not easy to solve the problem and it is usually a matter of individual concern for each researcher.

It is assumed that the population for the pilot study should be 5% of the main population to be surveyed. If the target population is scarce, another group can be used for piloting, i.e. a group that is somehow similar to it and represents an alternative for it. It must be

underlined that the respondents who took part in the pilot study should not participate in the basic (core) study.

Is a pilot study an integral part of any research process?

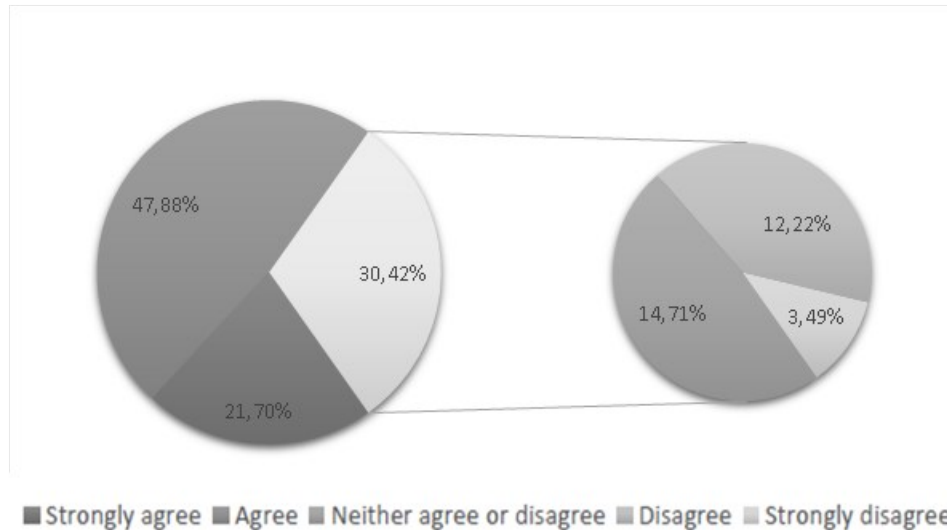


Figure 4. Research findings: Q4. Is a pilot study an integral part of any research process? The Author's own research.

During the pilot study, beyond the test procedure, sample selection and specific questions, the answers given by the respondents are reviewed. In certain situations, a seemingly uncomplicated question will generate radically different answers. This suggests that the respondents understood it differently. A pilot study enables the testing of the work of the interviewers, whether they aptly selected their respondents (whether doing so is not too complicated and time-consuming), whether they can complete the questionnaire, etc. Taking into account the above statements and the achieved research findings, in which a significant proportion of respondents believe that a pilot study is an integral part of any research process, it can be argued that, when structuring the research methodology, each researcher should contemplate carrying out pilot studies to identify the correctness of the selected methods, techniques, procedures, but also the questions posed, and to verify inferencing.

4. Summary and research findings

The aim of the paper was to verify the hypothesis:

- H_0 – Pilot study is an integral part of any research process and directs the research process.
- H_1 – Pilot study is not an integral part of any research process and does not direct the research process.

In conclusion, the pilot study not only directs the research process or has a clear impact on it, but it is also an integral part of it. During the pilot study, not only the research procedure, sample selection, specific questions, but also answers given by the respondents are checked. The researcher should reflect on conducting pilot studies in order to identify the correctness of the selected methods, techniques, procedures, but also the posed questions, and to verify inferencing.

This is corroborated by the results obtained, in which:

- 86% of the surveyed scientists specialising in management science, believe that pilot studies direct the research process,
- 88% of all surveyed scientists specialising in management science believe that pilot studies have an impact on the course of the research process.
- 70% of all surveyed management scientists believe that pilot studies are an integral part of any research process.

Thus, the hypothesis H_1 was rejected.

Of key importance, from the point of view of the development of this science, are the needs to develop principles for the application of the methods that make up the pragmatic methodology, as well as to disseminate methodological paradigms identified in particular in the approach of the contemporary methodology of management sciences.

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HUMANISTIC ENVIRONMENTAL GOVERNANCE: A NOVEL PARADIGM FOR ADDRESSING PLASTIC REDUCTION

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Introduction/background: Single-use plastic (SUP) products, being considered harmful to the environment and public health, are to be banned in the EU by 2021. These bans are required to be put in place by all member states. For other SUP items, member states will have to limit their use through a national reduction in consumption, either ensuring they cannot be provided free of charge, or by making alternative products available.

Aim of the paper: The aim of the paper is to present a grass-root action QUIT PLASTIC (<http://quitplastic.eu/>) initiated by a group of Polish scientists, as an immediate reaction to SUP elimination.

Materials and methods: In April-October 2019, a carefully designed platform on SUP usage was offered as an anonymous survey to be filled in by canteen/take-away style restaurant visitors, the focus being on university students in the city of Kraków (N = 80). In all, a full range of SUP was offered, with the highest representation of take-away-containers, bottles and cutlery (consecutively in 89,23%, 87,50% 60% of the locals). Representation of various SUP items was significantly dependent on the size of university.

Results and conclusions: In results of the research the authors discovered that none of the surveyed canteens/gastronomes displayed information about SUP environmental and health risk, some offered waste selection containers (16/80). This was more often (9/16) evident in smaller universities. A full picture of how to improve implementing and fostering the sharing of responsibility for the environment by means of humanistic approach are discussed in the paper. There are also suggested some recommendations.

Keywords: single-use-plastic, humanistic governance, citizen science.

1. Introduction

1.1. Plastic generation, management and policy

The alarming plastic production growth has opened a public debate about the prevailing environmental crisis. As of 2017, plastic production has increased globally to 250 million tons, generating each year about 400 million tons of CO₂ emissions. The dimension of the related pollution reveals a horrendous global scenario, as it is estimated that, should these rates continue, 12 000 tons of plastic will be in the natural environment by 2050 (Geyer et al., 2017). This seems to be a phenomena, not just in developed countries where the consumption linked with GDP is the highest (e.g. the EU or North America), but plastics can be tracked practically everywhere, even in the remote parts of the Arctic (Ivar do Sul and Costa, 2014). Such plastics reach land and water ecosystems in the form of micro- and nanoplastics (particles of ≤ 5 mm and < 1 μ m in size, consequently) originating from the breakdown of larger plastic items. These particles are characterized by high surface to volume ratios and can sorb environmental contaminants (Vince, and Hardesty, 2018).

When examining the main generator of plastic waste worldwide, evidence points towards the packaging sector. Besides demonstrating the highest plastic production at 42%, followed by the building and construction sector with 19%, it is remarkable that a tremendous difference in the lifetime of end products persists (average lifetime building and construction – 35 years; packaging – typically 6 months or less). Given the global shift from reusable to single-use containers, it is not surprising that the packaging sector represents clearly the top generator of plastic waste, being responsible for almost 50% of the global total (Geyer et al., 2017). Consequently, single-use-plastic (SUP) items are considered as by far the most impactful. Despite this fact, its generation has been constantly growing around the world.

The EU Directive 2019/904 of the European Parliament and of the Council of 5 June 2019, also known as ‘Single-Use-Plastic Directive’, claims that ‘the reduction of the impact of certain plastic products on the environment’ rests upon requesting higher recycling targets and putting more responsibility on plastic producers. Following this directive, several single-use plastic products for which alternatives are easily available and affordable, will be banned from the market. These are: (1) cotton bud sticks, (2) cutlery (forks, knives, spoons, chopsticks), (3) plates, (4) straws, (5) beverage stirrers, (6) sticks for balloons, (7) food containers made of expanded polystyrene (8) beverage containers made of expanded polystyrene, (9) cups for beverages made of expanded polystyrene.

These bans are required to be put in place by all member states by 2021. For other SUP items, member states will have to limit their use through a national reduction in consumption, either ensuring they cannot be provided free of charge, or by making alternative products available. These include ambitious targets for separate collection of SUP beverage bottles of 90% by 2029 (77% by 2025), as well as targets to incorporate 25% of recycled material in SUP

beverage bottles as from 2025 and 30% as from 2030 (European Commission Directive 2019/904, EURlex Document 32019L0904).

In accordance, many businesses have already committed to align their policies, as stakeholders have increasingly required them to share environmental responsibility. However, despite declared environmental efforts, public skepticism persists – referring to scandals of ecolabelling or greenwashing in the past decades. According to Lischinsky & Egan Sjölander (2014), “corporate voices make substantial use of environmental and ecological arguments in their strategic communication, but they provide little useful information about the company's impact and do not usually foster forms of dialogic stakeholder engagement”.

Do plastics make us sick? Every day we are exposed to different kinds of plastic and there is no complete understanding of its effects on human health. However, in view of more definite scientific evidence on already assessed impacts of plastic waste to the natural environment and public health, a tremendous asymmetry persists between citizens' needs followed by so far the extensive and still growing consumption, and the prevailing strategies of policy-makers and business entities (Hoggan, 2016). Unfortunately, a lack of clarity persists of how to develop concrete and sustainable strategies to meet the upcoming regulations, from both the economical and social point of view. Certainly, plastic elimination cannot be completed without the alteration of so far plastic governance to a more humanistic approach covering public understanding, awareness, participation, shared responsibility and, eventually, decision-making.

1.2. Does a humanistic type of governance matter in plastic reduction?

The first article of the Rio Declaration of the United Nations on Environment and Development states: “Human beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with Nature” (UN, 1992). A humanistic perspective directs the focus on the human being, and it underlines simultaneously the need for respect for every living entity and for the whole of Nature. It encourages people to act with a sense of stewardship towards Nature and promotes the sustainable development of humanity characterized by a respectful attitude toward the ecosystem (Mele, 2012). In contrast to the *homo oeconomicus* conception, it directs the view towards value-based social interactions. Herein, people represent the means, but also the aim in themselves of establishing this attitude. Following this, humanistic governance is rather based on an intrinsic motivation to serve humanity than being fixed to preconceived utility functions. Accordingly, decision-makers aim at long-term relationships where their interests, needs and wants take shape through discourse and continuous exchange with all involved entities. As such, the ultimate goal is not determined by the maximization of the utility for specific groups of interest, but balances the interests of all impacted stakeholders in accordance with universally applicable principles (Pirson & Turnbull, 2010).

1.3. Knowledge co-creation and citizen science as an immediate tools to humanistic plastic governance

Following this, policy-making can no longer be content to “push” laws or regulations onto the society, but must instead take into consideration citizens’ interactions and involve them in the research, design and implementation stages of strategic decision-making. Referring to diverse management approaches of co-creation of value (Bhalla, 2011; Prahalad, and Ramaswamy, 2010), we emphasize that close cooperation between policy-makers and the general public fosters the potential of synergy effects. Correspondingly to studies on customers’ engagement into design and production stages (Ballantyne, 2004), we argue that the engagement of involved interest groups enables not only an interactive process of mutual learning, but also represents a desirable goal in view of the highlighting of different points of view and identifying the needs and wants of the different parties involved (Lusch, and Vargo, 2006). Hereby, citizens’ involvement mobilizes the resources of the entire society and the co-creation process generates transformational impacts. Finally, the implementation of co-creative processes sets in motion a process of profound change in a society where citizens are at the center of the process.

The spectrum of citizen participation ranges among different levels of participation and thus influence, from being informed, to the transfer of responsibility (empowering). Structured citizen participation incorporates all citizens' aspirations and concerns, and ensures that relevant aspects are understood and taken into account in the participation process. In a more developed form of citizen participation, politics and administration act as partners of the citizenry, who work together as an alliance on alternatives towards a preferred common solution (Wouters et al., 2011). Balanced and objective information is, therefore, the basis of citizen participation defined often more broadly as a separate discipline – citizen science (CS).

Recently, citizen science has faced remarkable blooming and change, resulting in a growing number of projects in diverse disciplines followed by a shift in its original role from an additional research tool, to an independent research paradigm (Bonney et al., 2014; Cooper et al., 2018). Moreover, beside the evident intrinsic value of CS in the educational field, it has been evaluated in the context of transformative learning in which participants reinterpret the sense of experience for the construction of meaning and learning (UNESCO, 2015).

In the era of novel communication technologies, CS has been engaging a steadily growing portion of the public, predominantly in the basic domains such as environmental sciences. Coincidentally, non-professionals construct with and for academia a new tool to effectively shape a new type of policy governance, not only empowering citizens, but also making researchers more obliged than ever before to decide upon the state of the natural environment, this time collectively (Grodzińska-Jurczak, 2019). Keeping in mind the ethical obligation of scientists to communicate and speak out against major disturbing environmental facts to the general public, academia should especially acknowledge their responsibility, preferably in co-operation with Citizen Scientists, stating example and raise awareness using all available channels

(Grodzińska-Jurczak et al., 2020). Still, the current degree of co-operation among academic and non-academic sectors, although improving, leaves a lot to be desired. Consequently, good cases of a fully trustful and effective collaboration are lacking.

1.4. Goal of the study

Here, we present the results of a grass-root initiative QUIT PLASTIC (NIE! DLA PLASTIKU) (<http://quitplastic.eu/>) developed and operated by a group of four Polish scientists and students at the Institute of Environmental Sciences, Jagiellonian University in Kraków, Poland, as an immediate reaction to how to effectively implement reducing and preventing the impact of Single-Use-Products on the environment and human health. Its primary aim was defined as raising public attention to how the number of SUP enumerated in the EU Directive are actually realized on a daily basis by engaging them in participatory action to examine if and which SUP products are offered in the gastronomic locals they visit. A full picture of how to improve implementation and foster sharing responsibility for the environment are deeply discussed and recommendations suggested.

2. Methodology

A carefully designed bilingual (Polish and English version) platform (niedlaplastiku.pl; <http://quitplastic.eu/>) on SUP usage in Polish gastronomy locals offers an anonymous, short survey to be filled in by restaurant visitors. The survey comprises closed and open questions on type (chain/private/college canteens), category (restaurant/café/bar/others) of business, locality (province and size of village) and type of SUP offered. We asked about: (1) the type of containers (cups) beverages are served in, (2) optional items that accompany drinks (straw, stirrer), (3) type of containers (bottle, can) the drinks on offer come in, (4) type of container take-away is offered etc., (5) availability of information of plastic effect on the environment (see [https://docs.google.com/...](https://docs.google.com/)).

In our study, we focused on two parameters (the presence of SUP/substitutes and university size). Yet, we were aware that other attributes such as location, specialization, educational scope and number of food establishments may have related implications. This paper seeks to make a step towards their exploration.

3. Results

Over 6 months operation (April-October 2019), the project's page was visited 8 471 times, followed by over 361 in total questionnaires returned. 'Quit plastic' received the patronage of the City Council of Kraków, Jagiellonian University and other public, private and NGOs institutions. In a considerable short period of time the action received the interest of radio and TV stations, as well as newspapers of local, regional and national outreach (23 articles in the daily press, 6 radio and several notes) and gained a few public and private supporters. It resulted in setting up a multi-actor network willing to act for plastic reduction.

Over 80 dining establishments (canteens) located at all universities (awarding degrees up to M.Sc.) in the city of Krakow – both public and private, were assessed. Hereby, the focus has been laid on the presence of SUP items/substitutes and related university size effects. For analytical distinction, we compared 'larger' versus 'smaller' universities, wherein size is defined as the number of students enrolled. Hereby, group 1 was defined by universities which enrolled over 20 000 students (N = 46); group 2 by universities which enrolled below 20 000 students (N = 34). The total sample covered all existing dining establishments located on/near university property in Kraków (N = 80). In the case of take-away offer, we considered 65 canteens, as such was not included in the offer of 15 (N in group 1 = 37; N in group 2 = 28).

In the surveyed canteens/gastronomes, SUP consisted of all 10 items (cups, straws, stirrers, teaspoons, lids, bottles, cutlery, bags and containers-to-go) but in a different range, namely: cups were proffered in 42,25% of the locals, straws in 53,75%, stirrers in 53,75%, teaspoons in 37,5%, lids in 55%, bottles in 87,50%, cutlery in 60%, whereas take-away-containers and plastic bags were provided by 89,23% and 41,54% of all canteens/gastronomes, respectively (Figure 1).

Alternatives to SUP items were offered as different types of cups: non-plastic reusable cups, paper single-use-cups and reusable cups brought in by clients, along with straws, stirrers, teaspoons and cutlery sequentially in 71,25%; 50%; 37,50%; 5%; 32,5%; 45% and 75% of all canteens/gastronomes, respectively. In the majority of surveyed locals, beverages were offered in non-plastic containers such as glass bottles (85%) and aluminium cans (53,75%). Alternatives to take-away containers and bags were provided in only 21,54% of all surveyed canteens/gastronomes, whereas none (0/80) of the eating establishments offered substitutes for SUP lids (Figure 1).

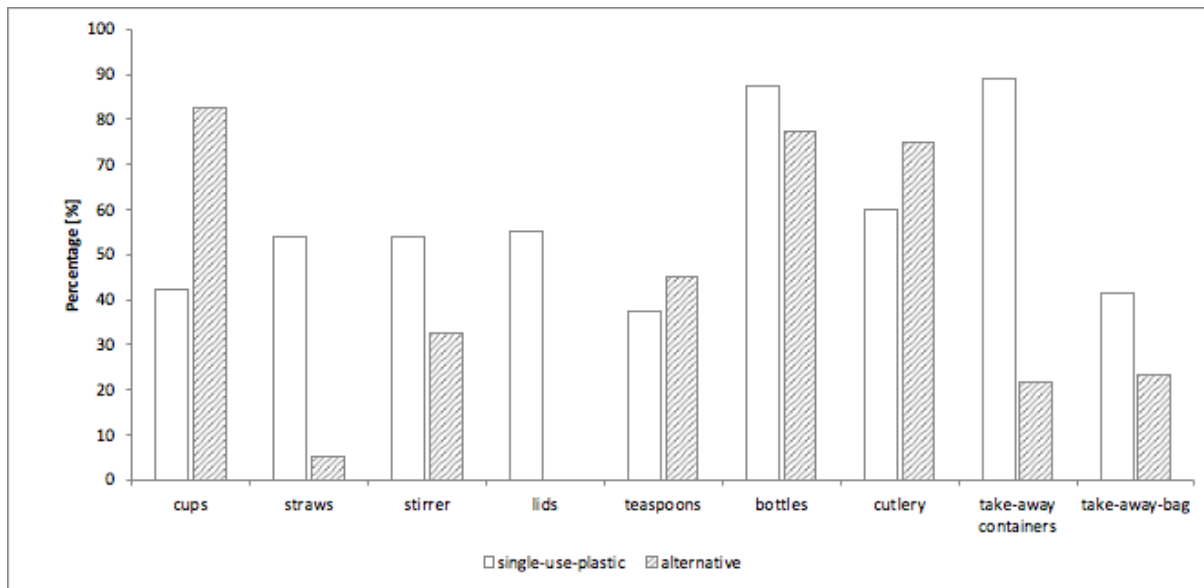


Figure 1. Occurrence of SUP items and alternatives in canteens/gastronomes of universities, incl. take-away offering [%].

The analysis showed a dependency between the distribution of Single-Use-Plastic items (cups, straws, stirrers, lids, teaspoons, cutlery, take-away-containers, bags) and the size of the university. In ‘larger’ universities (group 1), there were more single-use plastic cups (43,48%) and plastic straws (54,35%) proffered than in group 2 (plastic cups – 41,18%, plastic straws – 52,94%) (Figure 2). Meanwhile, there were more alternatives to SUP straws (6,52% vs. 2,94%), cutlery (80,43% vs. 67,65%), stirrers (17,39 % vs. 8,82%), reusable cups brought in by clients (41,30% vs. 32,35%) and non-plastic reusable cups (73,91% vs. 67,65%) (Figure 3). In ‘smaller’ universities (group 2), there were more single-use plastic stirrers (67,65%), plastic teaspoons (47,06%), plastic lids (55,88%), plastic cutlery (64,71%) and plastic bottles (88,24%) than in group 1 (plastic stirrers – 43,48%, plastic teaspoons – 30,43%, plastic lids – 54,35%, plastic cutlery – 56,52%, plastic bottles – 86,96%) (Figure 2). In ‘larger’ universities (group 1) there were more alternatives to SUP such as teaspoons (47,06% vs. 43,48%), glass bottles and cans (79,41% vs. 73,91%) and paper single-use-cups (55,88% vs 45,65%) than in ‘smaller’ universities (group 2) (Figure 3).

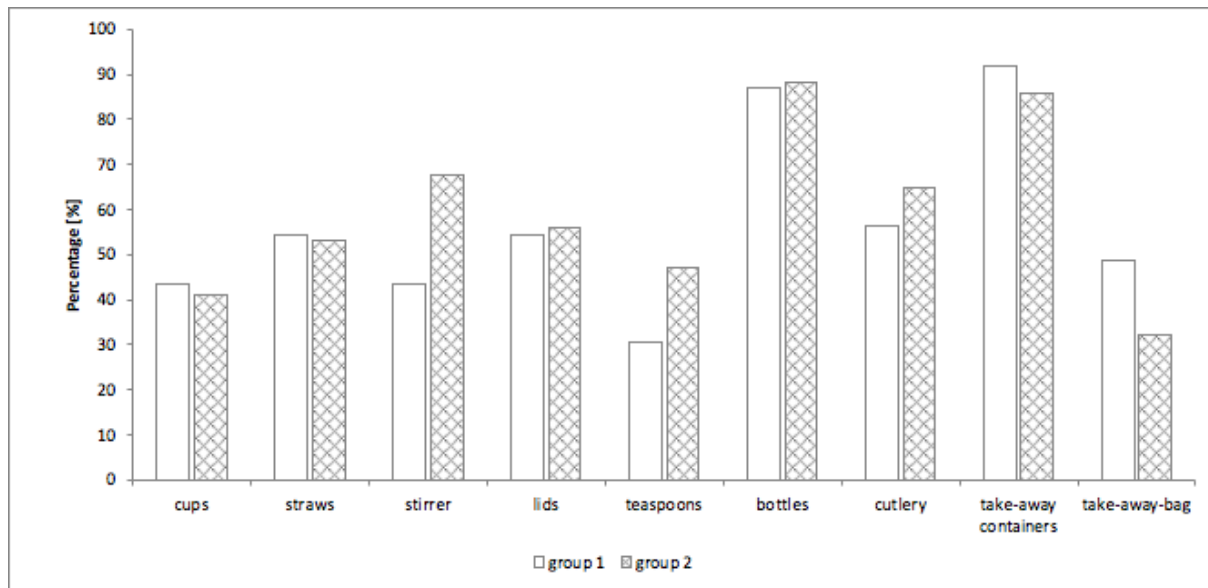


Figure 2. Occurrence of SUP items in canteens/gastronomes depending on the size of university (group 1 – over 20 000 students; group 2 below 20 000 students) [%].

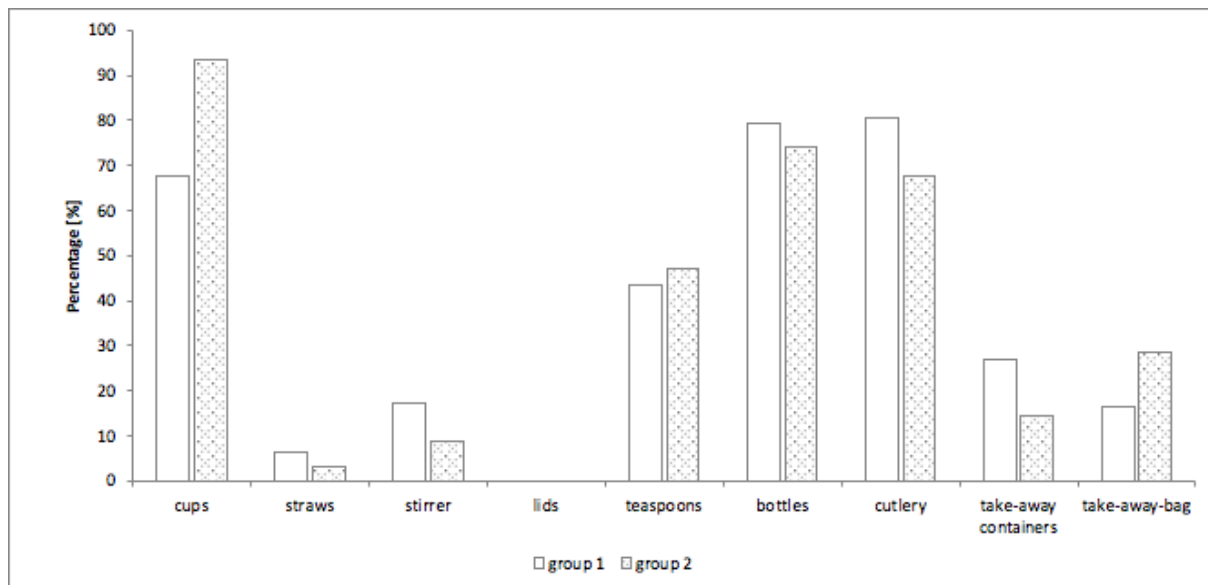


Figure 3. Occurrence of SUP alternatives items in canteens/gastronomes depending on the size of university (group 1 – over 20 000 students; group 2 below 20 000 students) [%].

In the take-away offerings of ‘larger’ universities (group 1), there are more single-use plastic containers (91,89%) and plastic bags (48,65%) than in group 2 (plastic containers – 85,71%, plastic bags – 32,14%). Furthermore, in group 1 there are more alternatives to SUP containers (27,03% vs. 14,29%). In the take-away offerings of ‘smaller’ universities, in contrast, there were more alternatives to SUP bags (32,14% vs. 16,22%) than in group 1.

No canteen/gastronomes, however, displayed information about SUP, and recycling bins were only available in 20% of all the canteens/gastronomes that were assessed. Of note, most of these (9/16) were located in smaller universities (Group 2).

4. Discussion

Single-use-plastic beverage and food containers (including take-away offerings) are of significant concern as they impact upon the environment and harm human health, not only in terms of entering our food chain in the maritime environment, but also through our direct exposure to harmful substances via the consumption of liquids and food. Although the level of exposure to plastic varies depending on several factors, most of us experience persistent exposure to multiple compounds proven to be hazardous to human health (Anbumani and Kakkar, 2018). In addition, according to the Environmental Defense Fund, methane, which is being released during the related decomposing, shows an even higher impact on the environment than carbon dioxide (Alvarez et al., 2018).

Against this background, and as universities represent places where good practices should originate from, the analysis of the gathered results shows rather an opposite scenario than we expected. The majority of the examined canteens/gastronomes showed well-established offerings of different kinds of SUP items, and, what not fully understandable, limited recycling options, as well as no information about the harm of plastic or on upcoming legislation. Although the offering also includes alternatives in case of beverage cups (even to a higher amount than the corresponding SUP offering), conclusions can be misleading. Due to the systemic circumstances, in the majority of Polish waste management installations, alternatives produced mainly of natural resources such as e.g. thermoplastic starch obtained from potato or polylactic acid (PLA) are not perceived as bio-waste and instead of composting they are most often incinerated or landfilled. The same applies to paper cups - which are lined inside with plastic or wax to ensure waterproofness.

Recently, as a follow up of the plastic directive, various proposals were put on the table as substitutes for SUP products. These are fabricated from bio-based and biodegradable materials – PLA, PHAs, bio-PET, bio-PE, PEF, bio-PP, bio-PAs, PTT originating from sugarcane, sugar beet, corn, potato and wheat. However, the production of cups from natural based material is usually less resource efficient referring to raw material and energy used. Moreover, referring to the example of paper, the natural functions of trees, namely, the absorption of carbon dioxide, production of oxygen and filtering of groundwater can no longer be performed when the trees are removed from the ecosystem. Of further concern, Bisphenol A (BPA), classified as an endocrine disruptor and correlated with disruptions in fertility, reproduction or sexual maturation (Gore et al., 2018; Bergman et al., 2013), has been found in many paper products, including paper cups, possibly due to production lines using BPA resin-lined parts. Furthermore, the glue used to hold regular cups together partially dissolves when hot liquid is being poured in, releasing trace amounts of toxins, such as melamine (Roger, 2013).

Studies investigating organizational size effects on the prevalence of practices related to social and environmental responsibility reveal that while large organizations tend to extensively inform about socially relevant matters, corresponding engagement stays limited (Delmas, and Burbano, 2011; Lyon, and Montgomery, 2015). Although smaller organizations may face size related challenges (i.e. lack of resources, lack of possible economies of scale), while simultaneously often experiencing less public pressure (Jenkins, 2004), some studies reveal evidence that smaller organizations are capable of engaging effectively in activities related to social and environmental responsibility. However, due to a lack of reports or corresponding statements for external audiences, the visibility of their engagement often remain limited (Brammer et al., 2012). Although observing some tendencies for single items, our results do not imply a significant dependency between the size of the universities and their engagement in environmental governance. All examined educational institutions showed similar amounts of SUP and alternative items, independent of their affiliation to our size dependent samples.

Deriving from the above-described matters, the sole act of shifting to materials based on natural resources does not represent a sustainable solution. Moreover, keeping in mind that the majority of the so far established means have simply failed the target of halting plastic production increase (Zheng, & Suh, 2019), the need for a novel environmental more holistic collective governance instruments to address this problem becomes obvious.

5. Conclusion

The presented study is novel in the context of prognosing how systemically gastronomic locals are or are not prepared for the implementation of the EU legislation on national or local level. We, as an academic team working on SUP, have already been extending our research to the entire city of Kraków, to be able to show what are the trends of SUP occurrence outside of the academic niche. However, further and more detailed studies at the level of the EU are definitely required.

Following the discussed insights, this paper calls for a systemic rethinking of plastic governance among decision-makers, in the case of universities and the higher education sector in general. Beside the obligation to speak out and inform the public, academia is expected to serve as a good example, to take action and advocate to the best of their ability in the interest of the broad society. This involves not only advancing awareness about the possible impacts of prevailing environmental trends, but also being socially responsible with regard to environmental governance, taking into consideration upcoming legislation. This includes, among others, sustainable decision-making in the course of tender processes for dining establishments operating in general, but in the first instance, located at educational institutions.

Given the described impact of plastic items on the environment and public health, the requirement should clearly include a shift from the offering of single-use-plastic items to corresponding substitutes, and, even more importantly, a strong advocacy towards shifting to a multiple-use glass, ceramic or metal items. Hereby, we recommend integrated multi-channel and multi-way communication such as displayed information about SUP items and suggested solutions, statements on the website and social media and broad information campaigns. These norms need to be implemented as systemic solutions. Hereby, a sustainable communication approach presumes the translation of scientific knowledge into easily understandable information, speaking the same language as the public, to inform, to raise awareness, but also to motivate and engage. Moreover, and crucial, academic peers should also act, in the first instance, as citizens who need to share responsibility for the environment as a common good (Grodzińska-Jurczak et al., 2003; 2006).

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FACTORS AFFECTING FOREIGN ENTREPRENEURS' PERCEPTION OF INVESTMENT ATTRACTIVENESS OF A MUNICIPALITY OR A DISTRICT

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Introduction/background: Local governments try to influence the growth of investment attractiveness of municipalities and districts. They may take direct (e.g. a system of concessions and incentives) or indirect (e.g. extension of infrastructure) activities for this purpose. Research has shown that as far as the employees of institutions supporting entrepreneurs and even the officials themselves are concerned, decisions on the location of business activity are influenced primarily by the infrastructure of localities, availability of labour force, labour costs, and land development. By contrast, the level of municipal services or the favourableness of local authorities plays a much less important role.

Aim of the paper: The purpose of the article is to specify the elements generating foreign entrepreneur interest in the offer of conducting business activity in a designated location in a given commune or powiat.

Materials and methods: The presented advantages of the region have become the starting point for a research conducted among the employees supporting and coordinating investment processes in the Katowice Special Economic Zone and the city with district rights in the Silesian Voivodeship.

Results and conclusions: In the successful efforts of municipalities and districts to attract both foreign direct investments and the execution of projects by domestic business, it seems crucial to formulate a coherent offer. Moreover, further promotional activities must be based on an optimally communicated location, included in spatial development plans, free from legal burdens, social problems and free from hidden flaws such as historical pollution.

Keywords: foreign investments, investment acquisition, municipal services, investment attractiveness of localities.

1. Introduction

Foreign capital in Poland comes from 121 countries, although the vast majority of investments are made by entities from the European Union (Data of the Central...). According to the data of the National Bank of Poland, "the value of foreign direct investment liabilities in Poland at the end of 2017 amounted to EUR 199.1 billion. The largest share of this was held

by: The Netherlands — EUR 38.3 billion, Germany — EUR 35.0 billion, Luxembourg — EUR 27.7 billion and France — EUR 17.9 billion" (Data from the website...). The Central Statistical Office (CSO) states that "entities with foreign capital employed 1,929.1 thousand people" and "almost 70% of the total number of people working in the entities with foreign capital participation were employed in the following four voivodeships: Masovian [Mazowieckie] (32.4%), Greater Poland [Wielkopolskie] (15.8%), Silesian [Śląskie] (11%) and Lower Silesia [Dolnośląskie] (8.9%)" (Report of the Central Statistical Office). The acquisition of foreign direct investment, regardless of controversies concerning e.g. the convergence of investors' goals with the interest of the country receiving the capital, is seen as a determinant of economic development.

The determinants of investment decisions given in the literature do not usually refer to the conditions formed by municipalities and districts. Nevertheless, local government entities create investment incentives, and within their structures they designate positions or departments aimed at supporting investors. That way, they join in building the investment climate, understood as a whole set of conditions that encourage investments or create barriers against them. This term is most often used in relation to the national atmosphere. However, "analyses of the investment climate on a regional scale are much less frequent. While considering the diversity of the investment climate within one country, for example, according to voivodeships or municipalities, it is assumed that the macroeconomic conditions are similar everywhere. Such an assumption can also be made for Poland, which is a unitary state" (Domański, Jarczewski, 2006, p. 7). Based on the uniformity of the administrative system of the country, in this article, it has been assumed that the regional investment climate in Poland may be influenced in a differential way by the activities (or inactions) of municipalities and districts. It must be noted, however, that, "local government authorities (municipalities and districts) do not have to carry out their own activities to support entrepreneurs, including attracting and maintaining foreign investors. The voivodeship local government has the most competences and possibilities in this respect. [Still,] what is worth emphasising is that local authorities can do it, both indirectly and directly" (Dorożyński, Urbaniak, 2011, p. 11).

The aim of the article is to identify the elements that make foreign entrepreneurs interested in the offer of running a business activity in a designated location in a given municipality or district.

In order to confront the findings with the opinions gathered among the representatives of local government entities aiming at attracting investors, the impact factors mentioned by the employees of institutions organising and coordinating investment processes were identified and ranked. As a result, differences in the understanding of investment incentives were indicated, depending on the type of organisations analysing them, and conclusions were drawn concerning the principles of functioning of municipal and district institutional support entities for investors.

2. Description of research on investment attractiveness of municipalities and districts

Considering the possibilities of direct and indirect activities undertaken by local government entities, a hypothesis has been formulated that for a foreign investor, not only are the parameters characteristic for a given property (e.g. price, area, transaction conditions) significant, but the level of investment attractiveness of the place where the property is located is also a crucial criterion.

This should be understood as the infrastructure of the municipality or district that meets the investor's expectations. From the strategic point of view, it is about the existence of an extensive road network, as well as the proximity of motorways, airports, railway stations or waterways. However, in the tactical area, it also refers to e.g. bus and tram-lines, availability of car parks and bicycle paths, etc. For this reason, research questions have been formulated to determine whether, apart from the level of infrastructure of the municipality on a macro scale, the high quality of other, widely understood municipal services offered by a local government entity is also important for the investor. These include services that not only are administrative in nature, but also infrastructural, ecological and social.

What is worth specifying is that, in a narrower sense, the quality of public administration services on offer may be perceived by the investor in general terms as a measure of the efficient functioning of the local administration, which is indicated in the way, time and atmosphere of issuing the necessary approvals, permits or concessions, as well as the fulfilment of other procedures provided by law. Assessment of high quality with regard to these services is understood in terms of settling the matter without undue delay and within statutory deadlines, but in an investor-friendly climate. This is built on the kindness of the representatives of the local government entities, expressed by their interest in proffering comprehensive support in carrying out formalities, in their readiness to advise and consult on the possibilities of implementing specific projects, and in their indicating optimal solutions specific to a given municipality or district.

The research assumptions predicted that the investment decision is also influenced by such factors as the state of public safety, the form of technological advancement of the energy and heating infrastructure and the waste management solutions applied. Further research questions were to determine the impact on investment decisions of additional criteria positioning the attractiveness of a given locality as an area for creating a workplace. Among them, a variety of cultural, sports, educational and recreational offerings were mentioned, including the existence of places or facilities allowing for attractive spending of free time for the staff. With regard to the personnel aspect, the analysis also included the existence and quality of local higher education, specialised health care institutions and shopping centres in the city.

The basic aim of the research was to identify the motives of entrepreneurs who decided to choose a specific location for their business. Specific objectives were also set, included in the research questions, to determine the preferred factors shaping the opinion about the place, which is subject to business analysis by investors.

2.1. Determinants of investment inflow in the opinions of KSSE (Katowice Special Economic Zone) support employees

The authors of the report "Regional Investment Attractiveness 2017" prepared by the Warsaw School of Economics, headed by Hanna Godlewska-Majkowska, use the concept of potential investment attractiveness defined as "a set of regional location advantages that affect the achievement of the investor's objectives (e.g. in the form of business costs, sales revenues, net profitability and competitiveness of a given investment)" and "real investment attractiveness, understood as the region's ability to create customer-investor satisfaction and to cause absorption of financial and physical capital in the form of investment. It can be measured by the efficiency of capital expenditure" (Report 2017, pp. 3-4). The quoted report states that one of the main advantages of the Silesian Voivodeship is "the largest urban complex in Poland, creating exceptional investment potential". It also mentions the existence of a transport node that favours "the development of industry with numerous cooperative links". Strong industrialisation, with the emphasis on effective restructuring, numerous economic subzones and the existence of highly ranked technical university centres were classified as an asset. It was stated that the Silesian Voivodeship "has a wide range of investment opportunities, which is confirmed by very high potential and real investment attractiveness for: the national economy, capital-intensive and labour-intensive industry, trade, tourism, financial intermediary services for business and education".

The presented advantages of the region have become the starting point for a research conducted among the employees supporting and coordinating investment processes in the Katowice Special Economic Zone (KSSE) and the city with district rights in the Silesian Voivodeship [The author's own research was conducted from 19 to 23 August 2019 and consisted of in-depth interviews with KSSE employees responsible for providing services to investors and representatives of local government entities (cities with district rights) from the department responsible for attracting and supporting investors].

The research focused on the reasons for choosing the location for investment as declared by entrepreneurs conducting business activity in the KSSE, which was established by a regulation of the Council of Ministers of 18 June 1996 to support and facilitate restructuring processes and the creation of new jobs in the region.

The research field consists of four subzones (Gliwice, Jastrzębie-Żory, Sosnowiec-Dąbrowa and Tychy) of the Katowice Special Economic Zone, which covers the "Silesian Voivodeship and six districts of Opole Voivodeship. At present, there are over 390 enterprises operating in the zone, which have invested about PLN 36 billion in total and created 80,000

jobs". According to the KSSE data, the automotive sector dominates among investors (over 61%), followed by glass-making, construction, metal and food industries (5% each). Regarding nationality, the KSSE is dominated by French investments (almost 21%) and Italian investments (over 17%). The survey was conducted in mid-2019.

After the research was conducted in a group consisting of KSSE employees, it was concluded that the main criteria for selecting a location for investment activities included the level of development of transport infrastructure (in the case of KSSE: road and rail) and availability of qualified staff in the region. The development of the land for investments was also of importance. In the final aspect, most of the questions of company representatives considering the purchase of real property concerned the supply of potable water and electricity for the time of construction and operation of a given facility, with particular attention paid to ensuring continuity of supply, while the issue of the existence of a road or railway network meeting the expectations (referred to as the maintenance of logistic relations with suppliers, partners and customers) was a further determinant for location selection. Still, the lack of infrastructure ensuring proper transport network connections and lack of guarantee of the performance of the planned transport operations brought an end to the investment recognition. Therefore, in a high number of the concluded transactions in the KSSE, selectors were first attracted by the assertion of the existence of good transport connections provided by "Katowice International Airport, A4 motorway, E40 road (European route) and E75 road (European route)", A1 motorway, direct railway links "with such cities as: Berlin, Vienna, Budapest, Bratislava, Prague, Moscow, Hamburg", and additionally by the advertisement stating "an inland port is located in Gliwice, one of the elements of the Silesian Logistics Centre [Śląskie Centrum Logistyki]. It is considered to be the most modern and universal inland port in the country. It is also worth mentioning the International Logistics Centre in Sławków, which, with its wide track gauge terminal, is connected via Lviv with the Ukrainian and Russian railways to the Far East" (www.ksse.com.pl, 2019).

In the opinion of the respondents, following a macro-scale analysis, including the above parameters, the investors select regional offers in order to then specifically focus on available locations that meet the expectations in terms of (1) area, (2) the time of transaction and (3) price.

With regard to the perception of access to qualified staff, this was determined by the presence of two public universities of technical profile and high ranking, i.e. Silesian University of Technology and Częstochowa University of Technology. In the opinion of foreign entrepreneurs, the fields of study, corresponding to the needs of the labour market, are an important element of personnel stabilisation for the investments that prepared.

The further positions of the list of preferences of entities willing to start the investment process included a broadly understood image aspect. This referred both to the reputation of the special economic zone and the prestige of other companies that already conduct their business there. The brand criterion perceived in such a way was particularly important for smaller

companies. The reputation that then influenced investment decisions was most often acknowledged by entrepreneurs asked by the KSSE staff, by publications in international business media and by the analysis of other investors' behaviour. There were also occasional cases when the final choice of a subzone was influenced by the quality of service provided to stakeholders, the willingness to facilitate the performance of activities provided for by the procedures, professional advice and generally understood goodwill towards investors.

Moreover, the employees responsible for providing services to investors in the Katowice Special Economic Zone point towards the interest in the problem of ecological degradation of the natural environment. This was particularly true of land contamination, because if it is revealed, the new owner is obliged to remove the harmful substances, together with bearing the costs of remediation.

In Poland, the statutory provisions stipulate that "the costs of carrying out preventive or corrective actions shall be borne by the entity using the environment" that caused the pollution, these provisions shall not apply to "an imminent threat of environmental damage or environmental damage which occurred before 30 April 2007 or results from an activity that was completed before 30 April 2007, and where more than 30 years have passed since the emissions or event which caused the imminent threat of environmental damage or damage, including historical pollution of the earth's surface".

It should be noted that in Upper Silesia, environmental degradation as a result of industrial activity, is of frequent occurrence. Therefore, questions about the level of soil contamination or the effectiveness of reclamation activities are in the well-understood interest of the investor. Determining whether the land intended for sale is not located on ecologically degraded areas is also in accordance with the applicable regulations that stipulate that "the public authorities are obliged to provide the necessary assistance and guidance when seeking information on the environment and its protection"[Article 8, point 2 of the Act of 3 October 2008 on making the information about the environment and its protection available, public participation in environmental protection and environmental impact assessments]. However, it should also be noted that potential investors assessed natural environment criteria not only with regard to pollution issues. The matters classified in this research group include questions about e.g. flood safety, the possibility of natural disasters, fire danger and even the presence of wild dangerous animals. As stated by the KSSE employees participating in the research, questions concerning wild and dangerous animals were formulated by a foreign investor considering the acquisition of property near significant forest areas. For this reason, the company's representatives were concerned about difficulties during the factory construction.

The criterion of availability of qualified staff, mentioned as of high importance, was also related to further questions about the level of public services in the places around the location under consideration. These included queries concerning the housing market, availability and quality of recreational areas, as well as transport possibilities from particular places to the planned investment location. However, it most often referred to inquiries with respect to the

functioning of educational institutions conducting classes in English, the presence of international schools and kindergartens of such character. Questions related to educational institutions were dedicated to foreign management staff and specialist personnel who were to come to Poland as a result of the planned investment. Among further reasons mentioned by KSSE employees that determined interest in specific locations, were also particular issues concerning the future recruitment policy, such as the structure of the employment market with respect to gender division. As explained by KSSE employees participating in the research, the question was asked by a foreign investor seeking a location for the assembly plant of equipment consisting of small elements. The manufacturing technology was largely based on manual labour, and the investor's experience gained in other countries showed that these tasks are performed much more efficiently by women than men. Therefore the investor's interest in the gender determination among the unemployed in the area under analysis.

Following the research in which KSSE employees participated, it was established that in the case of offering real property that meets the demand, convenient time of transaction execution and acceptable price, the matters of greatest interest to foreign investors were:

1. Real property access (infrastructure).
2. Availability of skilled staff.
3. Land development (improved or unimproved plot).
4. The image aspect of the location.
5. Environmental threats.
6. Quality of public services.

2.2. Determinants of investment inflow in the opinions of local government entities' employees

Apart from such institutions as KSSE that organise, coordinate and support investment activities, the local government also provides support for entrepreneurship. It conducts a variety of activities aimed at encouraging entrepreneurs to invest. According to a study published in 2014, "the largest group of local government authorities in order to attract a foreign investor changed their spatial development plan (24%). A slightly smaller group of respondents developed the area (17%) and provided assistance in solving matters in various types of institutions (14%), as well as prioritised foreign investor cases (13%). In establishing informal contacts, 10% of the surveyed municipalities provided assistance, and 8% changed local regulations by taking into account the needs of a foreign investor" (Marks-Bielska, Lizińska, Serocka, 2014). The authors of the study also found that 3% of all local governments declared that the existing law was interpreted to the benefit of the investor. On a national scale, local administration entities also establish special departments, offices or representatives to attract investors.

The next part of the research was conducted with the participation of highly skilled city workers of Katowice – a city with district rights in the Silesian Voivodeship. The research field was also located in the KSSE area.

After the in-depth interviews it was found that among the reasons convincing the decision-makers to purchase real property were the parameters strictly related to the given offer, i.e. availability of land of the required area, expected price, and possible time to conclude the transaction.

However, the investment attractiveness of a particular location depended on three basic factors: the level of access to the location, availability of labour and the price of labour force acquisition. The first factor, allowing for optimal planning of deliveries, setting an appropriate time for assembly and transport of products, was particularly crucial.

For some investors, who chose real property with a suitable level of development, it was also essential to recruit skilled staff. And again, it was only in this aspect that social, ecological or recreational services provided by the local administration became more meaningful.

In the case of implementation of the strategy intended to capture personnel directly from competitors, organisations operating in the surrounding area or educational centres training the desired specialists, the investors carefully analysed the specificity of a given city. The existence of a thriving academic centre, functioning of enterprises in similar sectors of the economy and the attractiveness of the location expressed in access to services related to housing, recreation, sport or health care had an impact on the increase in the ratings of a given centre.

The next places in the ranking of factors influencing the investment attractiveness of a locality were taken by the attitude of local authorities and residents to business activity, especially industrial activity that is conducted in a given area. In this context, a certain role was played by the existence of organisations, associations or movements that could lead to a crisis situation that is associated with the construction, launch or operation of a plant.

Some investors, before making the final decision on the location of a new company, would establish significant contact with the local administration. The goal was to obtain reliable opinions from a credible source of information about local favourableness towards investors. This was especially true for companies from the USA and Japan, whose representatives wanted to obtain confirmation that their presence in a given locality would be welcomed by the local community before starting formal procedures.

As far as field administration is concerned, the reasons for investment decisions were as follows:

1. Locality infrastructure.
2. Availability of labour force.
3. Labour costs.
4. Land development (improved or unimproved plot).
5. Access to qualified staff.

6. Quality of public services.
7. The favourableness of local authorities.

The reasons influencing investment decisions presented by representatives of local government entities mostly matched the motivation perceived by KSSE employees. The officials participating in the research made a distinction between qualified staff and labour force, with the emphasis on labour costs. However, they omitted environmental issues and failed to notice the impact of the place's image on investment decisions. At the same time, they pointed out the important role of local authorities' favourableness towards entrepreneurs considering the possibility of purchasing real property.

3. Institutional investment support for local governments in the light of empirical research

The research conducted confirmed the hypothesis that the factors which significantly influenced the buyers' interest in the property made available for sale within the special economic zone were not only the factors determining its unitary character, including – in the given order of importance – the area of land, the possible time to conclude the transaction and the price.

Investment decisions were also determined by the transport infrastructure being convenient for entrepreneurs, proper land development, availability of personnel with desired qualifications and, as reported by local government services supporting the acquisition of entrepreneurs, labour costs.

The research verified negatively detailed hypotheses assuming significant importance for investors of the degree of development of housing, recreation, sports and medical infrastructure and the quality of other public services provided by local government entities, including cultural and academic offers. It was only in the case of the educational base that the existence of schools or kindergartens of international profile raised interest.

The area of vocational and higher education, however, was already within the scope of investment analyses, due to the impact on the previously mentioned parameters related to the recruitment policy of individual companies.

While discussing the results obtained, it is worth considering external factors influencing investors who, for example, are aware that "making economic decisions in a complex, volatile market environment is inherently accompanied by risk. This is particularly significant in the case of investment decisions based on future business conditions that are always unknown. This results in forecasting errors, and, consequently, obstacles to anticipating the final outcome of the decision-making process" (Bijańska, Wodarski, 2014). This is particularly so when preparing the investment process in countries with different political, social, economic and

cultural conditions. Therefore, detailed analyses are conducted that cover such aspects as e.g. the expected sale of manufactured products, the method of investment financing, including the availability and cost of acquiring external funds, as well as stabilisation of the legal, tax or currency system. It is also worth adding "the amount of expected demand can be estimated based on GDP forecasts. The impact of interest rates on investments is primarily through determining the level of cost of capital and generally the correlation between the level of interest rates and investments is negative. Likewise, inflation, which can be treated as a variable that expresses the level of uncertainty in the economy, has a similar negative impact" (Kasprzak-Czelej, 2013). This all shows how crucial macroeconomic conditions are. The role of institutional support for investors, performed by municipalities and districts, appears marginal in this context. However, this does not imply the need to give up activities aimed at attracting investors, although local governments have to be aware of the scale of difficulties of these undertakings.

The research on investment motivation was conducted e.g. as part of the "Regional Operational Programme of the Łódź Voivodeship for the years 2014-2020". From this research it was clear that the majority of local government entities assessed the available areas in specific localities as difficult to attract investors – even in the segment of small and medium enterprises covered by the research (59%), where only "one to five" investors (46% of all those surveyed), were interested "in recent years" in the location offers put forward. Indeed, some local governments, despite their efforts to attract investment "did not notice any new investors at all"(15% of all those surveyed). Furthermore, representatives of municipalities and districts claimed "entrepreneurs more often look for developed areas ready for immediate investment (36%) than those that are not necessarily developed (14%). However, one in five municipal government entities did not register any interest in the areas or did not have any areas that are of interest to SMEs. In addition, every fourth municipal government entity had no knowledge in this respect, as investors located their activities without contact with the office" (Report 2019, p. 36). This indicates, first and foremost, the need for municipal government entities to implement a significant scale of investment support activities.

4. Targeting institutional support for municipalities and districts

A strategic decision made by an investor, accompanied by a in-depth analysis of macroeconomic factors, to invest the capital, may mean the necessity to choose a specific property that is located in a group of many similar locations. In this case, the role of the municipal government entity is growing, because "in the case of investment attractiveness, we are talking about specific relations between municipalities and the investor, which are defined by two characteristics: (a) separateness of particular administrative entities in contacts

with investors, and here particular municipalities have a key function (an investor maintains contact with a given local government, however when analysing the local market an investor may take into account the potential of the area as a whole), (b) competition between municipalities within one agglomeration" (Report, 2009, p. 55).

According to the researchers conducting research in the Łódź region, local government entities may undertake four types of actions determining the investment climate in their area. They may, therefore: "(1) create and develop the infrastructure which facilitates launching, running and developing business activity; (2) promote it and provide a comprehensive information service for potential investors; (3) provide efficient and professional administrative services; (4) create favourable financial conditions for undertaking and expanding business activity, e.g. through public assistance programmes" (Dorożyński, Urbaniak, 2011).

Meanwhile, the role of municipalities, or in fact their unexploited potential in attracting investors, is shown by the research conducted in the Kuyavian-Pomeranian Voivodeship [Kujawsko-Pomorskie]. The research conducted in 2015 included 144 local government entities of Kuyavian-Pomeranian Voivodeship. It appeared that "a significant percentage of local government entities did not have an offer concerning investment opportunities, with rural municipalities performing worst in this aspect. About half of the municipalities — regardless of their type — did not benefit from the support of other municipalities effectively seeking a foreign investor to verify their investment attraction strategy. Unfortunately, the examined municipalities do not establish cooperation with neighbouring municipalities in the field of municipality promotion or other activities aimed at attracting foreign investors. In half of the cases – regardless of the type of municipality– responsibility for providing investor service rests with the most important person in the municipality. However, there are still too few municipalities that assign a special employee for this purpose, and the municipal districts excel in this respect"(Jaworek, Kuczmarska, 2016).

5. Conclusions

In the successful efforts of municipalities and districts to attract both foreign direct investments and the execution of projects by domestic business, it seems crucial to formulate a coherent offer. Further promotional activities must be based on an optimally communicated location that is included in spatial development plans which is free from legal burdens, social problems and free from hidden flaws such as historical pollution. Research on real property management usually show the correlation between the price and land development, which is a "significant element influencing the real property value. According to the data published by Real Experts, an association of property appraisers, land development is the second most crucial factor after the location that affects the price of land property. The same research has shown

that the transaction prices of improved plots are on average 30-40% higher than those of unimproved plots" (Surówka, 2018). The improvement of the site, allowing for further investment works, also seems to be an important component of such an offer.

Considering the diversity of investors' needs, representing the various sectors of the economy, and bearing in mind that "physical investments involve the company's capital over a long period of time and concern specific types of decisions at operational level. It is thereby necessary, when taking an investment decision, to identify the elements that are relevant to a particular undertaking and to use market information that takes into account the specific circumstances of the business entity" (Kokot-Stępień, 2016). It also implies the need to report data on the site so that the investor can be aware of the advantages of the potential location.

In this context, it is crucial to point out the legitimacy of effective activities in the field of territorial marketing. The mass media of sub-local, local or even regional range will not be an effective medium of content directed to business audience. The investment promotion justifies the contact of a municipality or district with media of national or even global range. Nevertheless, the scale of such activities should encourage municipal government entities to strengthen their cooperation so that advertising campaigns are coordinated by entities with increased potential, i.e. inter-municipal associations or metropolitan areas.

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RESEARCH OF RISK TAKING AND DEVIATIONS FROM RULES AT AN OPEN PIT MINE IN SERBIA

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Introduction/background: The paper pointed out the main elements of the human risk factor in coal mining. The obtained result that life satisfaction affects the observance of rules and procedures shows the complexity of human risk factor management.

Aim of the paper: The aim of this paper is to analyze the human risk factor in open pit mining, especially on compliance with safety rules and regulations.

Materials and methods: The presented survey, in the form of a questionnaire, was conducted in an open pit coal mine involving 476 mineworkers. The goals were to determine factors with the biggest influence on risk and to create a model for predicting the behavior of mining workers.

Results and conclusions: The obtained results indicate that leadership plays an important role in worker behavior. A supportive leadership style results in more responsible employee behavior and a lower probability of deviation to rules and procedures. The result also indicates that the safe behavior of workers is strongly influenced by the difficult to control factor of "life satisfaction". It has also been found that riskier work and longer work experience increases the likelihood of breaking the rules.

Research limitations/implications: The obtained results are partly influenced by national culture.

Practical implications: The obtained results indicate the need for continuous improvement in the risk management process and the rules and procedures by applying worker feedback.

Keywords: human factor, risk perception, rules, deviation from rules.

Category of the paper: Research paper.

1. Introduction

Risk management aims to provide a controlled work environment and ensure the safe functioning of the system. It is a dynamic process that works in a continual state of change and is built upon High Reliable Organizational theories and normal accidents theory (Sagan, 1993). Since the end of the 1990s, research has been conducted on building trust in the work process and increasing risk awareness, as well as providing supportive leadership, education and disaster response (Rowan, 1994). Colas (1995), for example, has pointed out that the problem of safety culture is now dealt with through a new approach, through the need of developing teamwork, as well as through the support of employee cooperation within their work units.

Clarke (2000) notes that government safety commissions often suggest and encouraged companies to improve their safety performance through creation of "positive safety culture". However, the concept of safety culture is not quite precise and clear. It consists of many social and organizational factors and needs empirical validation. She states that safety partly depends of "satisfaction with safety measures – procedures, rules and regulations" and underlines the importance of properly organized teamwork.

Among the adapted viewpoints of High Reliable Theories, he pointed out the importance of good organizational design and management, and developing a "culture of reliability" which enhances safety by supporting a uniform operator-level hazard response and error learning from accidents. According to the Normal Accident Theory, accidents are inevitable in complex systems. Partially this is due to organizational cultures following models of intense discipline, as well as faulty reporting and denial of responsibility (Moura et. al., 2017).

According to Kirin (Kirin et al., 2015a), risk management cannot be based only on the reaction to past accidents, but must be increasingly proactive. In doing so, the desired level of security in a given period must be defined and a flexible strategy based on feedback from measuring or monitoring current security levels must be implemented. People make mistakes, but people are also a very important source of security because of their flexibility and creative intellectual ability. The important part of risk management is the human factor, which is difficult to measure and predict: people may not succeed in a particular operation, they may feel tired or have health problems during their work day. It is also difficult to assess the possibilities arising from the uniqueness of human possibilities.

The human factor risk assessment includes the collection and analysis of information on human capabilities, limitations and other characteristics related to the work being observed, information about mutual interactions of people and their interactions with machines, systems and the environment in order to achieve a safe work process. People start machines, determine and adjust the organization of work processes and define and apply rules and procedures. Today's times are characterized by rapid change of technology and relatively easy change of work processes, but that does not apply to people (Kirin et al., 2015b).

Parker et al.'s (2017) researched mine worker perceptions of safe climate "between workgroups and worksites, and across age groups, experience levels and job categories". He underlined "management commitment" and "management caring" as factors of safety climate in the mines.

In addition, the individual behavior of employees can cause critical situations and thus lead to a catastrophe in high-risk workplaces. According to many researchers, unsafe behavior of workers in critical process sites in various high-risk industries is considered a direct factor contributing to workplace injuries and accidents (Xia et al., 2018).

Taking human and cultural factors into account in order to create effective risk management is one of the 11 principles of ISO 31000:2009 (The International Organization For Standardization). Human factor risk analysis also includes psychosocial risks, which are widely recognized today as the main challenge at work. Many organizations find this risk difficult to manage in practice. The OHSAS 18001 standard provides a framework for occupational health and safety risk management, including psychosocial risks (Helbo Jespersen et. al., 2016). Bell and Healey, (2006) states that the root causes of accidents are similar in major hazard industries. In most catastrophic accidents, there is a complex chain of events, which includes an organizational climate with defined policies and decision-making processes, the behavior of individuals, and technical and technological shortcomings, that in combination, results in an incident. Specific factors contributing to the occurrence of dangerous incidents are stated as: inadequate supervision of critical processes, pressure to meet set production goals, inadequate existing safety management systems, communication problems, e.g. between workers in different shifts and between staff and management, inadequate reporting systems, lack of indication of omissions that can cause danger, inadequate procedures, violation of rules and procedures, inadequate training, lack of rules and training on emergency response, lack of competence, lack of commitment attention to previous incidents and not learning from them, excessive working hours resulting in mental and physical fatigue, modifications of equipment without operator training, inadequate / insufficient maintenance, as well as maintenance errors (Bell and Healey, 2006). Herein, employee skills are usually divided into hard, which is related to job-specific, technical and technological skills, and soft – "connected with emotional intelligence" Synowiec (2020).

Chapelle points out that companies should also improve risk-reporting efficiency. One of the great challenges of risk-reporting is how to filter information and in what form to send it to improve risk management. An additional challenge in operational risk and its reporting is the analysis of qualitative data (Chapelle, 2018). Modern approaches to risk research include "interconnections among risk management, emotion, and performance metrics" (Carlsson-Wall et al., 2020).

The issue of human factor risk and rules and regulations in open pit mine is the main focus of this paper, and the intent is to develop predictive models of behavior of workers in relation to compliance with the procedures and rules. Rules and procedures are key features for

a modern organization to function (Bourrier and Bieder, 2013). Policies and procedures are an important segment of risk management to ensure worker safety, process safety and environmental security of modern industrial systems. Modern management system promotes a wide scope of norms, rules and procedures in all activities. Post-incident reports are most often associated with procedures or rules: either to report about bending of rules, or to initiate improvements.

Human factor risks have been discussed and analyzed in many industries, including mining. This paper presents and discusses human factors from the perspective of risk perception, as well as perception of the existing risk and safety-related procedures in open pit mining.

2. Research methodology

The presented survey was conducted in an open pit coal mine involving 476 mine-workers, out of a total number of 2162 employees. The sample size makes up 22% of the total number of employees, and the sample represents all levels of education and all levels of the work process in accordance with their number. Given the size and construction of the sample, it is considered as representative. The survey was in the form of a questionnaire, consisting of 45 questions.

Three main goals were set: to determine factors with the biggest influence on risk, to examine workers' perceptions of rules and regulations and to create model for predicting the behavior of mining workers.

This survey also aimed to examine: (a) major human risk factors at a specific open-pit mine site (b) mine workers' opinions about policies and procedures; (c) the manner in which mine safety rules and regulations are perceived and understood; (d) the frequency of deviation from rules and regulations; (e) attitudes related to risk-taking and their interaction with rules and regulations; and (f) to anticipate the behavior of mining workers with respect to compliance with policies and procedures. The variables were constructed specifically for this research, taking care to cover the stated goals of the research. The obtained results were compared with the results of the work of Laurence (2005) and Parker (Parker et al., 2017).

In an aim to provide more holistic and better models for risk management, modern scientific methodology is increasingly looking for the complex relationships between variables. In doing so, the estimates of interrelationships and impacts are the most often iterative and stochastic. The complexity of factors that affect the attitude of employees towards risk is emphasized through a survey. The key concept of factor analysis is that multiple observed variables have similar patterns of responses because they are all associated with a latent and not directly measured variable. In order to determine the main factors influencing the risk of human factor, a statistical method of factor analysis was applied to a group of 33 variables. The obtained

factors were then used as input variables for binary logistic regression in order to determine the predictive model of the miners' behavior with respect to the rules. IBM SPSS Statistics 25 was used to process the data and the results were presented in MS EXCEL

The research sample consisted of 476 mineworkers from a random selection of open pit mines extracting coal. Information about examinees and their personal attitudes provided data which are considered most relevant for the problem being researched, and are related to the following five variables: gender, age, employment status, education, hierarchy level in the mine and work in shifts are presented in Table 1.

Table 1.
Sample description

Characteristics	Description	Frequency	Percent
Gender	Male	443	93.1
	Female	33	6.9
	Total	476	100.0
Age	20-29	24	5.0
	30-39	126	26.5
	40-49	205	43.1
	50-59	107	22.5
	over 60	14	2.9
	Education level	Elementary school	57
Qualified worker		207	43.5
Highly qualified worker		164	34.5
High school		10	2.1
Faculty		30	6.3
Master		5	1.1
PhD candidate/PhD		3	.6
Service (years)	less than 5	29	6.1
	10-14	50	10.5
	14-24	158	33.2
	25-34	182	38.2
	over 35	57	12.0
	The hierarchical position of the employee	Worker in a coal mine	339
Administrative worker		38	8.0
Logistics worker		12	2.5
Lower-level manager		49	10.3
Medium-level manager		26	5.5
High-level manager		12	2.5

3. Results

3.1. Determining the main factors

In aim to determine the main factors that influence people's behavior in terms of risk-taking, the following variables are observed:

- age,
- years of service,

- the description of my job is clear to me,
- I have enough knowledge for my job,
- the nature of my workplace is at increased risk for me,
- the nature of my workplace is at increased risk for others,
- my manager supports me; my manager controls security,
- the manager tells me if I'm doing well,
- I work in a group / team of colleagues,
- when I notice something that may lead to a problem or an accident, my reaction depends on my assessment of the danger,
- I feel the support of my colleagues at work,
- I communicate well with my colleagues and there is no problem to understand each other,
- colleagues are generally predictable, competent and well-meaning,
- we all strive to work safely; rules and regulations are important for my safety,
- I know that people violate rules and regulations,
- sometimes it is necessary to break the rules to get the job done,
- executives are aware of violations of rules and regulations,
- being careful will reduce the chance of an accident,
- communication about rules and regulations is generally pretty good,
- managers explain why rules or regulations are necessary,
- improved training and introduction to job will help in understanding and implementing rules and regulations,
- I consider myself effective,
- I have a high degree of self-esteem,
- I'm always focused on work; I'm social,
- I'm ready to work together; I'm an extrovert,
- I feel good in my skin; I am happy,
- I am happy with my overall life,
- I plan to work at the mine for the next 5 years.

In order to determine the main factors that affect risk behavior, an exploratory factor analysis was applied, along with the Extraction Method: Principal Component Analysis.

On checking if the data set is appropriate for the factor analysis: since $KMO = 0.841 > 0.6$ and the level of significance, $Sig = 0.000 < 0.05$, the justifiability condition is fulfilled.

Based on the criterions of eigen values, Cattell criterion (scree plot) and the rule of retaining any eigenvalue that accounts for at least 5% of the variance, it was decided to retain four factors for further research. These will approximately explain 48.86% of the variance. These factors are named as:

Satisfaction with life, related to items: I'm ready to work together, I'm always focused on work, I'm an extrovert, I consider myself effective, I feel good in my skin, I'm social, I am happy, I am happy with my overall life, I have a high degree of self-esteem, I plan to work at the mine for the next 5 years, Being careful will reduce the chance of an accident, Rules and regulations are important for my safety, When I notice something that may lead to a problem or an accident, my reaction depends on my assessment of the danger, I have sufficient knowledge for my job, Improved training and introduction to job will help in understanding and implementing rules and regulations.

Supportive leadership style, related to items: My manager controls security, The manager tells me if I'm doing well, My manager supports me, I feel the support of my colleagues at work, Colleagues are generally predictable, competent and well-meaning, I communicate well with my colleagues and there is no problem to understand each other, We all strive to work safely, I work in a group/team of colleagues, Managers explain why rules or regulations are necessary, The description of my job is clear to me.

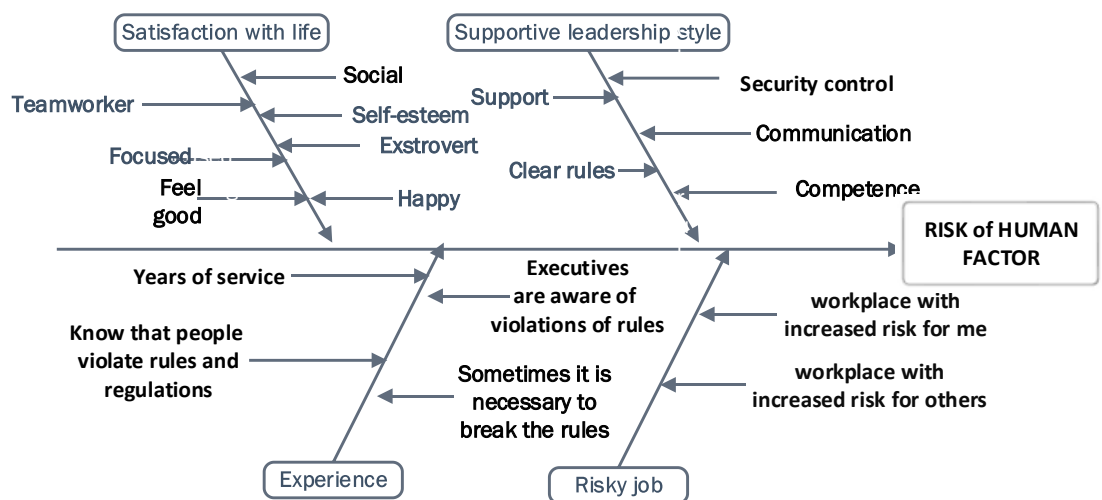


Figure 1. Main human factors.

Experience, related to items: Years of service, Age, I know that people violate rules and regulations, Executives are aware of violations of rules and regulations, Sometimes it is necessary to break the rules to get the job done.

Risky job, related to items: The nature of my workplace is at increased risk for me, The nature of my workplace is at increased risk for others.

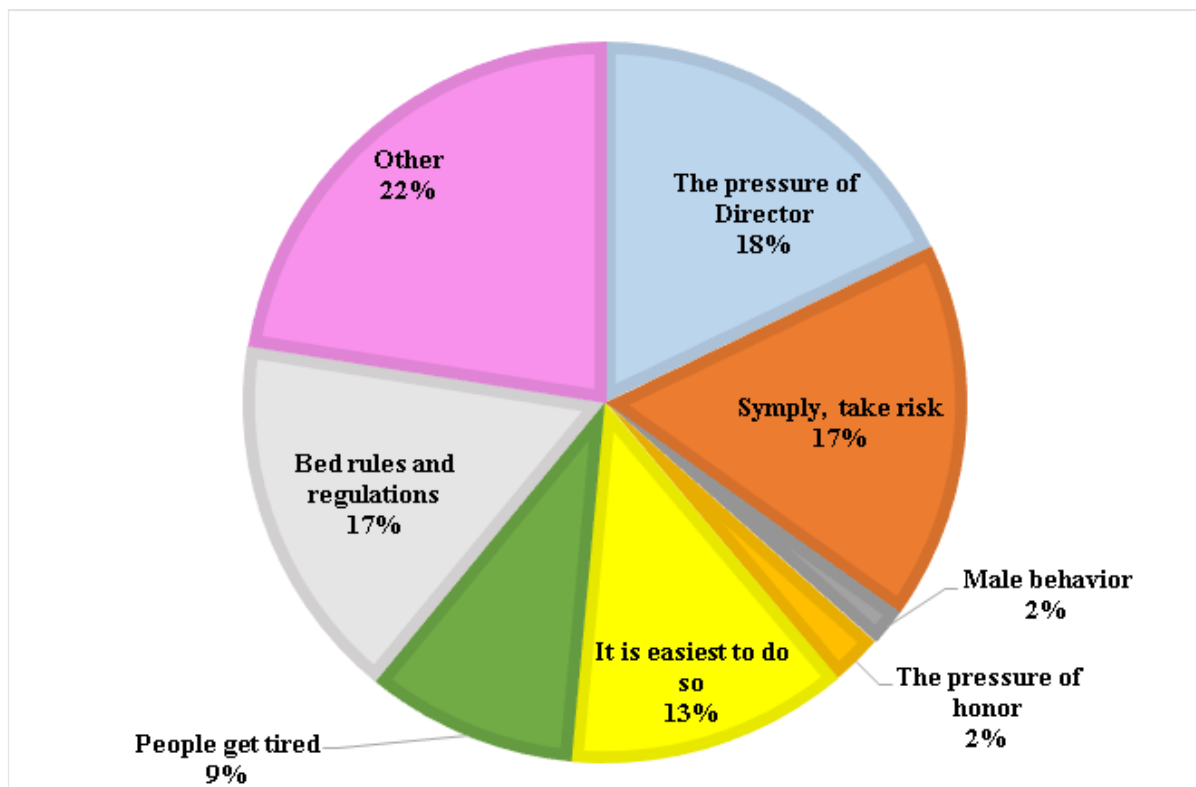
3.2. Rules and regulations

The analysis has shown that 109 (22.9%) claimed that they break rules and regulations, whereas 367 (77.1%) claimed that they do not break rules and regulations, Table 2.

Table 2.*Number of examinees according to rule breaking*

	Frequency	Percent	Valid %	Cumulative %
I deviate	109	22.90	22.90	22.90
I don't deviate	367	77.10	77.10	100
Total	476	100	100	

Figure 2 shows the answers of the mine-workers about reasons for risk-taking: “the pressure of director”, 18%, “simply, people take risk”, 17%, “bad rules and regulations” 17%, “it is easiest way to do it”, 13%. It is important to note that 22% of all respondents answered “other reasons for risk taking.” This means that the list of reasons needs to be improved.

**Figure 2.** Reasons for risk taking.

In comparison to similar research conducted by Laurence (2005) in several different mines in Australia, the obtained results are different. In his research, the most important reason was “people get tired”, 25%, and “it is easiest way to do it”, 21%. He had less than 4% “other” answers.

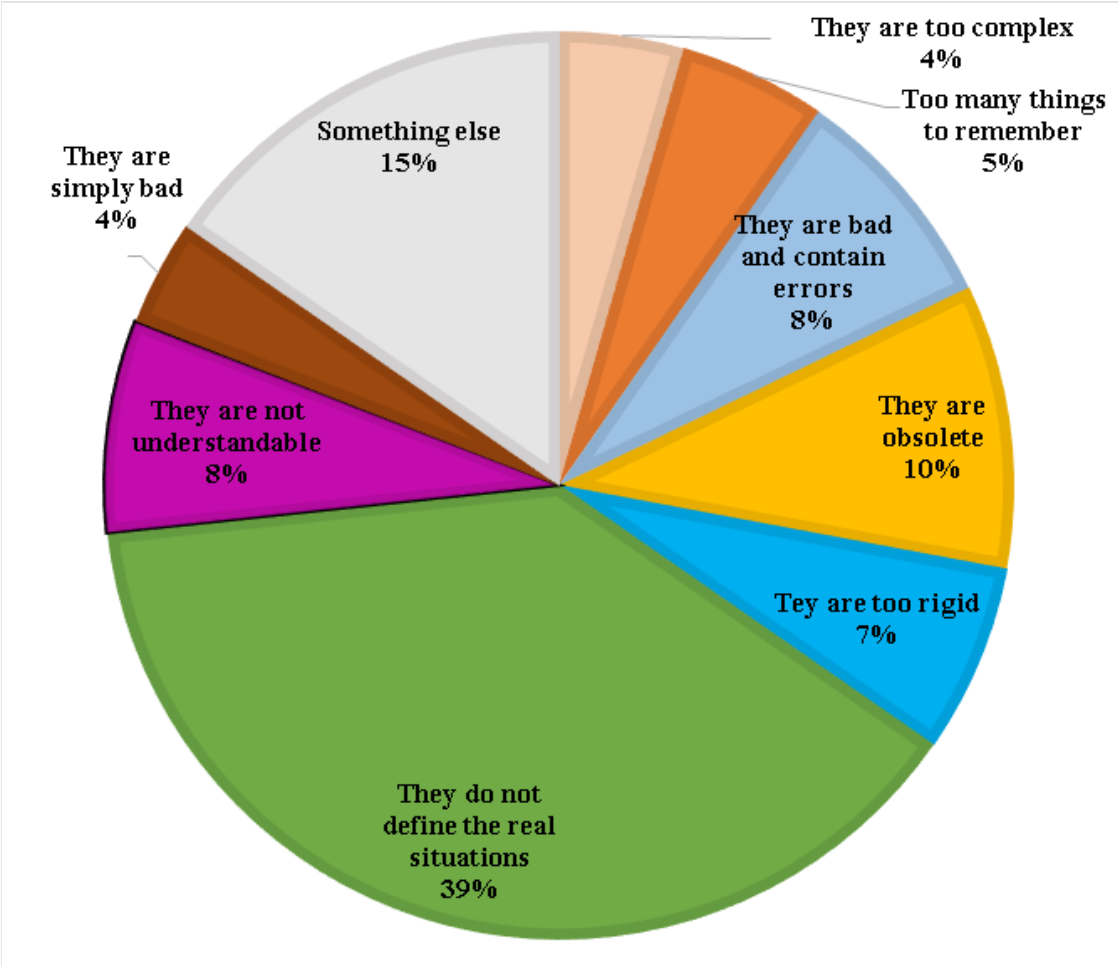


Figure 3. Problems with the rules and regulations.

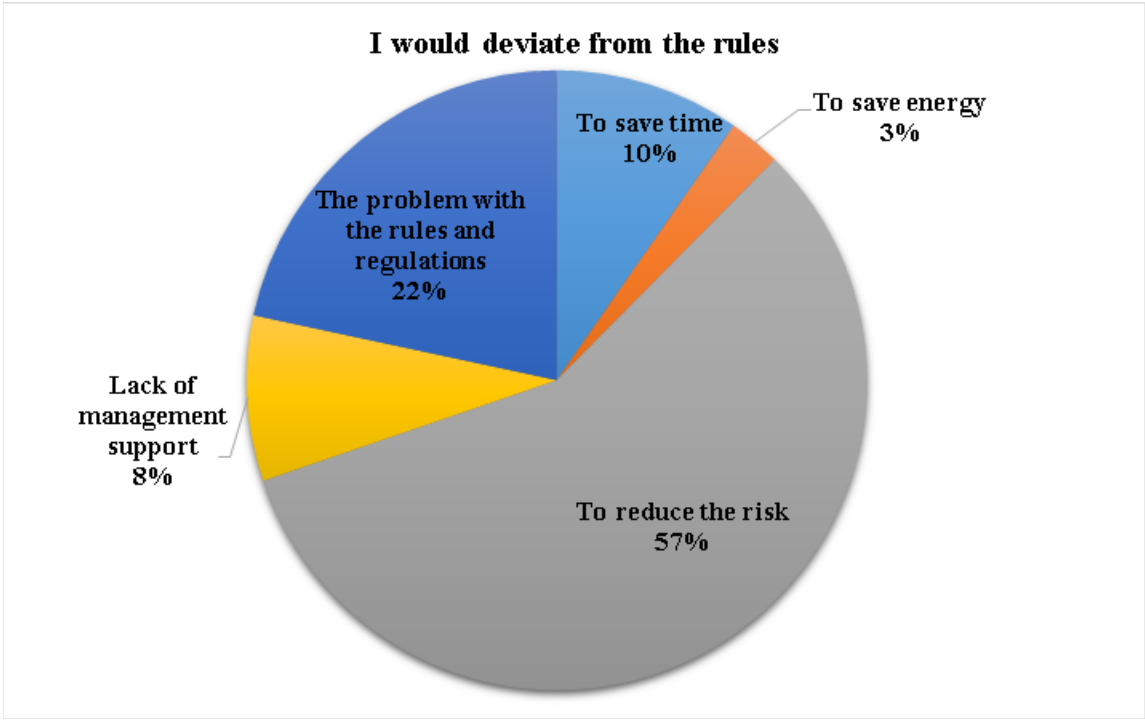


Figure 4. Attitude to the rules.

The results obtained show that 39% of all workers consider that the set rules do not define the real situation on the job; 8% think the rules are not understood, 8% think “rules are bad and contains errors”, while 7% of workers think that the rules are too rigid. Results presented by Laurence are different: about 19% of all workers hold that there is a lack of real world in the rules, 18% think “there are too many [rules] to remember”, 18% consider the rules too complex, while 16% respondents think the rules are too rigid.

3.3. Prediction model

Situations where **the criterion variable**, i.e. the variable we want to explain or **predict, based on one or more predictor variables, is dichotomous or binary**, are relatively common in studies. Binary logistic regression enables the examination of outcome prediction models given in two categories. Examples of binary variable-based categories that are sometimes used as criterion variables are: hired – not hired, follows the rules – does not follow the rules, has learning problems – no learning problems, buys a specific product – does not buy a specific product, leave the country – do not leave the country.

We used the **IBM SPSS Statistics 25** Binary Logistic Regression technique to create the predictive model.

Dependent Variable → Deviation of rules

Predictor Variables: Satisfaction with life; Supportive leadership style; Experience; Risky job

By default, SPSS logistic regression does a list-wise deletion of missing data. This means that if there is missing value for any variable in the model, the entire case will be excluded from the analysis. We have 476 cases, but 467 were used in the analysis.

Table 3.
Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	467	98.1
	Missing Cases	9	1.9
	Total	476	100.0
Unselected Cases		0	0.0
Total		476	100.0

a. If weight is in effect, see classification table for the total number of cases.

Table 3 lists the block 1 logistic binary regression (Block 1: Method = Enter) with predictors included.

The Omnibus Tests of Model Coefficients was applied to ascertain whether the new model (with explanatory variables included) is an improvement over the baseline model (without predictors) Omnibus Tests: $-2LL = 80.104 = \text{Model } \chi^2 df = 4, p < .001$. In this case there is a significant difference between the Log-likelihoods of the baseline model and the new model (sig < 0.001).

Hosmer and Lemeshow (1980) proposed grouping cases together according to the predicted values drawn from the logistic regression model. Specifically, the predicted values are arrayed from lowest to highest, and then separated into several groups of approximately equal size.

Goodness-of-fit (GOF) tests are used in deciding whether the model is correctly specified. They produce a p-value—if this is low (say, below .05), the model is rejected. If it is high, then the model is supported.

Table 4.
Hosmer and Lemeshow goodness of fit test

Step	Chi-square	df	Sig.
1	1.,240	8	0.249

Sig = 0.249 > 0.05. The nonsignificant chi-square is indicative of good fit of data with linear model.

Table 5.
Contingency Table for Hosmer and Lemeshow Test

		Deviation from rules = Not deviate		Deviation from rules = Deviate		Total
		Observed	Expected	Observed	Expected	
Step 1	1	44	45.660	3	1.340	47
	2	44	44.344	3	2.656	47
	3	42	42.538	5	4.462	47
	4	41	40.936	6	6.064	47
	5	40	39.145	7	7.855	47
	6	37	37.456	10	9.544	47
	7	36	35.347	11	11.653	47
	8	40	32.248	7	14.752	47
	9	24	27.739	23	19.261	47
	10	14	16.587	30	27.413	44

For each of ten groups the observed number of deviate and non-deviate events was calculated, as well as the expected number of deviate and non-deviate events. The expected number of deviate events is just the sum of the predicted probabilities over the individuals in the group. For each bin and each event, we have a number of observed cases and an expected number predicted from the model.

The Classification table shows the stacking of the empirically obtained (Observed) categorical affiliation of observation units on criterion variables and their predicted (Predicted) categorical affiliation based on a logistic model containing all the predictors introduced in block 1. This table is the equivalent to that in Block 0, but is now based on a model that includes our explanatory variables.

Table 6.
Classification table^a

Observed			Predicted		Percentage Correct
			Not deviate	Deviate	
Step 1	Deviation from rules	Not deviate	352	10	97.2
		Deviate	77	28	26.7
Overall Percentage					81.4

a. The cut value is .500

As can be seen, our model now correctly classifies the outcome for 81.4% of all cases. The model variables are presented in Table 7.

Table 7.
Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Satisfaction with life	-0.612	0.118	27.054	1	0.000	0.542	0.430	0.683
	Leadership	-0.292	0.118	6.071	1	0.014	0.747	0.592	0.942
	Experience	0.506	0.135	14.116	1	0.000	1.658	1.274	2.159
	Risky job	0.797	0.134	35.280	1	0.000	2.219	1.706	2.886
	Constant	-1.547	0.140	121.767	1	0.000	0.213		

The table contains the logistic coefficients estimates for the model with the predictors introduced in block 1 (column B). In this case, there is a coefficient b0 in the Constant row, S.E. The asymptotic standard errors for the individual logistic coefficients are shown.

The Wald column contains Wald's H^2 statistics, the df degree of freedom column, and the Sig column (to test the hypothesis that the logistic coefficient for the predictor variable is zero).

Column exp (b) contains exponential logistic coefficients that are very important for interpreting logistic regression outcomes. These are the values for the logistic regression equation for predicting the dependent variable from the independent variable. The logistic model estimated from a given sample is shown by formula (1).

$$\ln(ODDS) = \ln\left(\frac{\hat{Y}}{1-\hat{Y}}\right) = \ln\left(\frac{P(\text{deviate})}{1-p(\text{deviate})}\right) = -1.547 - 0.612 * \text{Satisfaction with life} - 0.292 * \text{Leadership style} + 0.506 * \text{Experience} + 0.797 * \text{Risky job} \quad (1)$$

If we expose the logistic coefficient for "Satisfaction with life", we obtain the value -0.612 in the "B column" and the column Exp (b) of the Variables in the Equation table. Here:

$\exp(b_1) = \exp(-0.612) = 0.542$ is a odds ratio (2 no deviate responses for every 1 "deviate from rules", $p = 0.33$),

Thus, the chances of answering the question with "deviate from rules" (according to non deviated) are twice-times decreased when the "value" on the "Satisfaction with life" predictor variable is "increased" by 1 and the other three predictors in the model are kept constant.

Likewise, if we expose the logistic coefficient for "Risky Job", we obtain the value in the row "Risky Job" and the column Exp (b) of the Variables in the Equation table: $\exp(b_4) = \exp(0.797) = 2.219$.

This actually means that the chances for the answer "deviated from rules" is 2.219 times higher for the "Risky job" predictor.

4. Discussion

According to ISO 31000, effective risk management should be an integral part of all organizational processes and should take into account human and cultural factors, (Purdy, 2010). In our work, a survey was conducted to identify the major human risk factors. These then served as predictors for workers' behavior with respect to adherence to rules and procedures.

The obtained results indicate that leadership plays an important role in worker behavior. A supportive leadership style results in more responsible employee behavior and a lower probability of deviation from rules and procedures. Leadership is a category that can be managed. The results also indicate that worker pro-safety attitudes are strongly influenced by the difficult to control factor of "life satisfaction". However, our research indicates that riskier work and longer work experience increase the likelihood of rule breaking.

According to the results of the empirical research, satisfaction with life, supportive leadership style, experience and risky job are the main factors that influence people's behavior in terms of risk-taking. Life satisfaction in the context of risk reduction is a category that is difficult to objectively assess and therefore measure. Helbo Jespersen et al. (2016) "investigated how two Danish municipalities have transformed the general audit guidelines into internal audit practices capable of targeting the psychosocial risks". They found it is "difficult to assess psychosocial risks", "because the psychosocial risks appear less directly visible" and "because managing these types of risks is more complicated".

Due to its complexity, interconnectedness with other areas of the human life and the reflection it gives on work performance, life satisfaction is a topic of modern research related to risk. Siebert et al. (2020) noted that "goal-directed behavior driven by effective decision making is a meaningful determinant of life satisfaction". With this notion in mind, by the end of 2016, standard ISO 45001 was developed to supplement OHSAS 18001, "with regard to managing and auditing psychosocial risks" (Helbo Jespersen et al., 2016). ISO 45001 fosters the development of "a culture of prevention" (AFNOR, 2018). The results of ESENER 2 showed that psychosocial factors are a huge challenge for risk management in Europe (EU-OSHA, 2015). Here, employee participation (either informal or formal) appears to be important in diminishing psychosocial risk.

Our research revealed that the main reasons for risk-taking are "the pressure of the director", "simply, people take risk", "bad rules and regulation", "it is easiest way to do it", and other reasons which needs to be explored more deeply. The obtained results are comparable to results from a similar survey of Australian mine-workers by Laurence (2005). Here, accordingly, the reasons for risk-taking are "people get tired" and "it is easiest way to do it" (at 21%). In his conclusions, he underlined the relationship between safety culture and "greater awareness, understanding, and compliance with rules and regulations".

The results our work generated show that leadership support is an important safety factor. This is also in line with the research of Parker et al. (2017), who indicated that the support and commitment of management, as well as the maintenance of open communication channels are extremely important for ensuring security. Indeed, Weissbrodt, and Giaque (2017) suggest “the possibility of positive outcomes of inspectors’ interventions on psychosocial risks in supportive contexts and with appropriate training and resources”.

In this paper, we set out to gain understanding of the views of mine-workers on rules and procedures. The obtained results show that 39% of all pit employees consider that rules are not adequate and do not define the real situation on the job; 8% think the rules are not understood, 8% believe that “rules are bad and contain errors“, while 7% of all workers think that the rules are too rigid. Laurence (2005) notice similar views. Accordingly, the main problems with the rules and procedures were as follows: lack of real world reality, too many to remember, complexity, rules too rigid. He suggested that more efficient rules by themselves are not a sufficient response to achieve a safe working environment. Laurence underlined the importance of a thriving safety culture and holds that open and working communication channels are crucial in enabling mine site safety. Weissbrodt, and Giaque (2017) reinforce this notion, as in their work they saw that security is enhanced by a mine-site employing an experienced and stable workforce. Our research supports the findings of both Laurence and Weissbrodt and Giaque.

Problems of compliance with rules and regulations and the issue of their quality have been recognized as a topic worthy of research by researchers. To better deal with uncertainties regarding beliefs and values, policymakers should strive for robust rules which “need to be adaptive and flexible so that they are easy to revise as new information becomes available” (Hallegatte, 2015).

5. Summary

Regulatory requirements for workplace safety represent factors that force companies to devote considerable attention to considering the human factor in risk management and improvement of safety at work. The reduction of risks related to the human factor represents the most important step in risk reduction in industrial systems

The introduction of rules and procedures raises the level of security in high-risk systems, but risk management should be a "live" process that must not be rigid, but rather be open to innovation in the formation of more effective, efficient and clearer policies and procedures, with the aim of increasing safety.

The obtained results indicate the need for continuous improvement in the risk management process and in set rules and procedures, by involving workers and applying feedback from them.

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HUMANISTIC HEALTH MANAGEMENT PROGRAMS IN ANTHROPOCENE – A VECTOR-BORNE DISEASE CASE

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Introduction/background; Aim of the paper: Management of employee health is extremely important in the context of anthropogenic climate change. We examined the costs and benefits of implementing employee health management programs in the case of the vector-borne disease Lyme disease and its comorbidities (encephalitis, myelitis, and encephalomyelitis), taking sensitivity analysis into account. We have also examined the economic burden of these diseases and their comorbidities.

Materials and methods: In order to estimate the costs and benefits of implementing employee health management programs in the case of vector-borne diseases as well as the economic burden of these diseases, the following data were used: data from the National Health Fund (NFZ) with related etiological fraction calculus and sensitivity analysis; and datasets from the Social Insurance Institution and the Central Statistical Office, using the human capital method (which includes, among others, the number of sick days).

Results and conclusions: The total cost of Lyme disease and its complications, taking into account sensitivity analysis, amounts to EUR 16.2-16.3 million. The implementation of employee health management solutions would reduce the costs of Lyme disease's complications by at least EUR 2.5 million and decrease employer losses. The results of this study show that treatment costs for patients with complications are higher than those for patients with well-controlled diseases (without complications). Moreover, the conducted analysis indicates that the implementation of employee health management solutions similar to solutions implemented by the Polish National Forest Holding is associated with a reduction in the incidence and costs of serious complications.

Keywords: Humanistic Management, Vector-Borne Diseases, Employees' Health, Climate Crisis, Anthropocene.

1. Introduction

The current period of Earth's history, which has the proposed name Anthropocene (i.e., the time the readers and authors of this publication live in), is a time of significant and dangerous changes for all animals and has been compared by many authors to the five previous

great extinctions, "when the Earth lost more than three-quarters of its species in a geologically short interval" (Barnosky et al., 2011). In addition to the extinction of many species, anthropogenic climate changes have already had a proven effect on the prevalence pattern of organisms ranging from microorganisms (Cavicchioli et al., 2019), though insects (Wilson et al., 2007), to mammals, with examples such as "coyotes (*Canis latrans*) and crab-eating foxes (*Cerdocyon thous*) in the Americas, and golden jackals (*Canis aureus*) in Europe" (Somsen & Trouwborst, 2019). Both microorganisms and animals could gain new territory due to anthropogenic climate changes, by being introduced (in many cases unwillingly by humans) to previously non-occupied areas, or by moving in from neighboring areas where the species was already present. This also applies to vectors, which are defined as living organisms that transfer diseases between humans or from animals to humans. Vectors as a group include different insects, arachnids, and even snails, but the most important are mosquitoes, sandflies, and ticks.

Impacts of anthropogenic climate change on human health is in part caused by changes in areas of occurrence of vector-borne diseases (VBDs; Campbell-Lendrum, Manga, Bagayoko, & Sommerfeld, 2015; Schulte & Chun, 2009) as "anthropogenic climate change exacerbates the global spread of vector-borne pathogens and their diseases" (Cavicchioli et al., 2019, p. 579) through "vector abundance, longevity and biting rate, and pathogen replication rate in the vector" (Cavicchioli et al., 2019, p. 580). As such, "millions of people are predicted to be newly at risk due to climate change" (Cavicchioli et al., 2019, p. 580). This is confirmed by recent findings that show that temperature increases together with changes in humidity and rainfall levels can lead to the emergence of VBDs in new areas, for example zoonotic cutaneous leishmaniasis in Tunisia (Bellali, Hchaichi, Talmoudi, Harizi, & Chahed, 2018) and numerous others in various countries (Ogden, 2017). Furthermore, people in developed countries are not "immune" to re-emerging infectious diseases - this has been observed in the southern United States where hookworm is taking a toll on poorer populations (McKenna et al., 2017) – and newly described diseases such as Zika (Gulland, 2016). A special example here could be the "state of Florida [which] has not only experienced local transmission of Zika but also of the dengue and chikungunya viruses, which are transmitted via the common vector *Aedes specie*" (Dinh, Chowell, Mizumoto & Nishiura, 2016).

2. Macroeconomics and health

At the macroeconomic level, malaria can limit business activity by eliminating certain areas from cultivation, as well as by eliminating other human activity such as tourism or mining (Gallup, & Sachs, 2001; Sachs, & Malaney, 2002). It is worth stressing here that at the beginning of the 20th century, the spread of malaria also affected some countries in southern Europe (Gallup & Sachs, 2001). In addition, poor health conditions could prevent the transfer

of members of the workforce, especially women (Sachs & Malaney, 2002), from low- to high-productivity industries (Gill & Kharas, 2007), and therefore block the transition between phases of economic development (Ohno, 2009). However, long-existing economic and managerial paradigms ignore the biological aspects of the human condition; this leads to even Nobel laureates being criticized for focusing on the problems of deep biological determinants of economic growth, which, according to the neoliberal view, "are not...essential for analyzing changes in history over the last 2000-3000 years" (Balcerowicz, 2014). Still, many authors, including the Nobel prize winner in economics alluded to above, Douglass C. North, note that "malaria and tsetse flies harass human settlements" (North 2014, p. 292) and suggest that "micro-organisms absent in the native environment" may have an influence on human history and economics.

Many authors see the relationship between health and economic growth as complex and mutually influential, as low levels of economic development could have a negative influence on health, and poor levels of health could have a negative influence on economic development (Subramanian, Belli, & Kawachi, 2002). This two-way influence, however, may not be the case for malaria. In contrast to and independent from other factors (including other tropical diseases as well as history and geographic location), malaria is clearly negatively correlated to economic growth. Based on this finding, some authors believe that malaria is not a derivative of poverty but rather a derivative of biologic and environmental conditions (Gallup & Sachs, 2001; Sachs & Malaney, 2002). Other infectious diseases have not been shown to have an impact on today's economic growth in previous studies (Gallup & Sachs, 2001; Sachs & Malaney, 2002), but this may be explained by the high effect size of malaria. This seems to be confirmed by recent research using molecular techniques that suggests that both mosquitoes, which are vectors, and plasmodium, which is the cause of malaria, have deep evolutionary relationships with primates and humans (Bhumika, 2017; Guelbéogo et al., 2018; Robinson et al., 2018). This can be seen on the genetic level where mutation leading to cause sickle cell anemia, that could be lethal for homozygotes (carrying two mutated genes) is beneficial to heterozygotes (with only one mutated gene) in regions devastated by malaria (Sachs & Malaney, 2002). Other publications that focus on prehistory and history suggest that plague – transmitted by fleas from rats to humans – had multiple important effects, for example on Neolithic decline (Rascovan et al., 2019), urbanization in the Middle Ages (Voigtlander & Voth, 2013), the creation of a gap between Western Europe and the Islamic world (Findlay & Lundahl, 2017), and the development of modernity in countries including Poland (Pobłocki, 2017). Such a relationship between health and economic growth is an important topic in macroeconomics, as health is an integral part of human capital (Grossman, 1972, p. 225) and may be considered a consumption good (as it has a direct impact on the formation of the utility function), as well as an investment good (as it determines the amount of time available for market and nonmarket activities).

3. Employee health and managerial science

Health is also inseparably linked with productivity and the economic viability of individuals, populations, and nations. As described before, poor health has a negative impact on the productive capacity by escalating the cost burden on business, industry, and governments, and it is a performance driver. These complex and mutually influential relations can be summarized in two statements. First, employees do not leave their personal health and health risks at home; and second, employees cannot leave behind the impacts of their workplace exposures (including occupational exposure to diseases) when they return home. Despite this, the effects of infectious disease on business activity was mostly absent from managerial literature during the early years of the HIV-ADIS epidemic; there is clearly a research gap, especially in the light of the ongoing Covid-19 pandemic and the need for social distancing. Costs due to both health-related inability to work (absenteeism including both short-term disability and long-term disability) and health-related limited productivity levels while at work ("presenteeism") and the cost of establishing employee support programs was described as the "ADIS Tax" by Sydney Rosen and colleagues in the seminal work *AIDS Is Your Business*, which clearly stated "If you've got global operations, you've got an HIV-infected workforce. Doing something about it will save lives – as well as money" (Rosen et al., 2003). This *doing something* could be understood as a call for employee health management programs (EHMPs) with the goal of health improvement combined with a better control of expenses, protection of human capital, support for human capital, and human capital enhancements.

EHMPs are defined in managerial science by Wolfe, R.A., Ulrich, D.O, and Parker, D.F. as "long-term organizational activities intended to promote the adoption of personal behavior and organizational practices conducive to employees' physiological, mental, and emotional health." At the same time, EHMPs could be divided, as seen in Tables 1 and 2, into:

- primary prevention strategies and actions that focus on helping people stay healthy and productive,
- secondary prevention strategies that focus on identifying medical conditions earlier than they would be by typical clinical manifestation,
- and tertiary prevention strategies focused on evidence-based quality care management, return to work programs, disability management, and vocational rehabilitation,

Table 1.*Types of employee health management strategies*

Strategy type	Employee health management strategies	
	Focus	Examples
PRIMARY PREVENTION	Helping people stay healthy and productive	Health promotion, health education, lifestyle management, safety engineering, job ergonomics and organizational design, nutrition, prenatal care, immunizations, and other wellness services
SECONDARY PREVENTION	Identification of medical conditions earlier than by typical clinical manifestations	Screening and early detection programs, health coaching, and proactive work disability prevention programs
TERTIARY PREVENTION	Evidence-based quality care management, return to work programs, disability management, and vocational rehabilitation	Providing earlier interventions, limiting the destructive and often disabling impact of serious medical conditions on the ability to function in daily life and at work; this can protect or restore productive lifestyles and reduce future costs

Adapted from: "Primary, secondary and tertiary prevention", <https://www.iwh.on.ca/what-researchers-mean-by/primary-secondary-and-tertiary-prevention> 15.09.2019 23:22.

Table 2.*Types of employee health management actions*

	Employee health management actions	
	Goal	Examples
PRIMARY PREVENTION	Reducing the risk of injury or illness before the absence occurs (while the person is still healthy)	Modifying factors known to increase the risk of work disability by directly controlling a specific hazard or set of hazards, for example by increasing a worker's skills or modifying the work environment
SECONDARY PREVENTION	Occurs after illness or disability has occurred and aims at reducing long-term disability	Screening programs, biometric testing
TERTIARY PREVENTION	Occurs after illness or disability has occurred and aims at restoring productive lifestyles	Active absence or return-to-work management

Adapted from: "Primary, secondary and tertiary prevention", <https://www.iwh.on.ca/what-researchers-mean-by/primary-secondary-and-tertiary-prevention> 15.09.2019 23:22.

The workplace may be a key contributor to the health and wellbeing of individuals ("work and leisure should be a source of health for people" – World Health Organization, 1986) but also to the loss of health and wellbeing, as in the case of exposure to a VBD such as malaria (Gallup, & Sachs, 2001; Sachs, & Malaney, 2002). Workplace health initiatives that go beyond law requirements, as legal frameworks for employee protection exist in many countries, may be very important and uniquely positioned to leverage health and productivity. Still, such a strategy creates additional costs for companies that are higher than the costs for precautions that are required by law. This leads us to question whether the implementation of EHMPs in the case of VBDs is associated not only with improving workplace morale, but also reducing the incidence and costs of serious complications and costs for the company. Taking the second part of the above-cited Sydney Rosen quote into consideration together with the statement that "the most developed catalogue of human dignity elements developed by Nussbaum (1999) include, among others, 1) life, 2) bodily health, 3) bodily integrity"

(Pirson, 2013) and the *primum non nocere* principle, these questions should be addressed in a wider context. It is due to the nature of VBDs, which depend on exposition to vectors and transmission probability. This is also visible in Europe due to "high seroprevalence rates of antibodies to *Borrelia burgdorferi* in risk groups [e.g. forestry workers, authors' addition) ... found in Europe, as much as 61.5% in northern Poland" (Haeberle, 2018). Such high prevalence led to the development of EHMPs in Poland within the Collective Work Agreement for State Employees of the National Forest Holding, which give employs the right to:

- a) "vaccinations against tick-borne diseases, with a frequency resulting from medical requirements;
- b) annual tests for antibodies to Lyme disease, according to medical indications;
- c) group vaccinations against tick-borne meningitis at a frequency resulting from medical requirements and, in the case of Lyme disease threat, an annual check-up" (Ponadzakładowy Układ Zbiorowy, 2016).

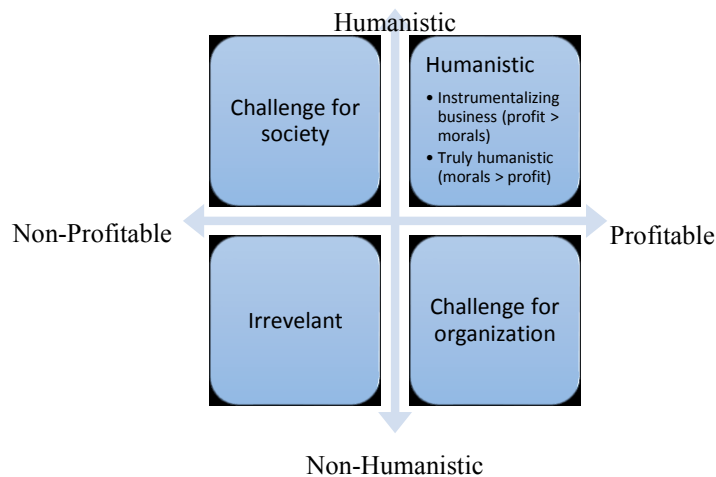
Such EHMPs in the case of VBDs are not only theoretical but also practical phenomena; they are examples of humanistic management understood as the "philosophy of management that emphasizes the interests of the employee in the manager-employee partnership" and treating employees as important stakeholders (Ferris, 2013). Therefore, EHMPs clearly lie within the managerial sphere (Wolfe, et al., 1987), as they integrate both "financial profitability as well as humanistic objectives" (Spitzeck, 2011) on the company level where "profitability is a necessary but not sufficient condition for humanistic management" (Spitzeck, 2011).

Still, such a program should be subject to ethical review in similar ways as all other medical interventions, especially those with unknown benefits. We can learn from the history of the development of new medical interventions, where good intentions can lead to harm to program participants (Brodniewicz et al., 2015). The Integrated Model of Humanistic Management (Spitzeck, 2011), as shown in Table 3, may be a valid tool for assessing employee health management programs with a VBD focus. Due to nature of VBDs, such a model should take the following points into consideration: the probability of infections; the casual relation between occupation and infection; and the severity of diseases.

4. The limitation of analysis

It should be underlined that the research analysis has some crucial limitations, including use concepts and methodology typical in macroeconomics on organization level. Therefore, they should be taken into consideration. The first is connected with the profile of Lyme disease. It is a multi-system and highly variable disease.

Table 3.
Integrated Model of Humanistic Management



Adapted from: Spitzneck, H. (2011). An Integrated Model of Humanistic Management. *Journal of Business Ethics*, 99(1), 51–62. <https://doi.org/10.1007/s10551-011-0748-6>.

Any organ system can be affected and healthcare providers may report health service data connected with the comorbidity to the National Health Fund (NFZ) as a result.

The second limitation is connected with the requirements for the billing codes in the documentation of healthcare providers and payers (NFZ) in Poland. Healthcare providers are not obliged to report full ICD10 codes (of more than three characters), which means that the incidence of a VBD and its complications (e.g. encephalitis) are understated.

The third limitation, as described in Sections 2 and 3, is the interdependence between health- and organization-related issues; this has not been sufficiently explored, in our opinion, within managerial science. This can be observed when looking at the effects of the Covid-19 pandemic.

In view of the above-mentioned limitations of the research analysis, this study included a sensitivity analysis.

5. Methods

Design

Loss of productivity during cures of infectious diseases could be associated with absenteeism, sickness levels, and decreased working times, and later with managerial time, social costs, and the need to replace employees in the last phase of a disease (Rosen et al., 2003). Taking into account that it is not possible to analyze all existing VBDs, the authors chose as a model Lyme disease, which is the most widespread VBD in Europe and Poland, especially among forestry workers (Haeberle, 2018). Furthermore, EHMPs with a VBD focus are already in place. Lyme disease is characterized by high rates of neurological abnormalities.

Encephalitis, myelitis, and encephalomyelitis affect 5% to 30% of patients; therefore, some non-communicable diseases are comorbidities of this communicable disease and impose a large economic burden on the national healthcare system and the economy.

This study is a prevalence-based top-down cost of illness study, which analyzes direct and indirect costs of Lyme disease and its complications. Prevalence is defined as all patients suffering from Lyme disease and its complications living on December 31, 2018. The research was based on data acquired from the NFZ, the Social Insurance Company (ZUS), and Poland's Central Statistical Office (GUS).

We examined the costs of a VBD (i.e., Lyme disease) together with its comorbidities (encephalitis, myelitis, and encephalomyelitis), taking sensitivity analysis into account. Analysis was performed on the country level (Poland) to avoid possible bias, which could arise from different forms of reporting infections and a disease's economic burden, as these factors are reported differently between countries. Still, it is estimated that one million people are affected by Lyme disease in Europe. The WHO estimates that annually there are 300,000 cases in the United States and 85,000 cases in Europe, and that there were 8000 cases in the UK and 22,000 cases in Poland in 2018. As per the International Association for Medical Assistance for Travelers, "the risk of Lyme disease is present in Poland. [The] risk is elevated in the Warmia and Mazury Lake regions, Western Pomerania, the Białowieża National Forest, and the Carpathian Mountain Forest. Katowice province has the highest percentage of infected ticks." But such a statement "may be biased by over-reporting and over-diagnosis" (Czupryna et al., 2016). However, according to Paradowska-Stankiewicz and Chrześcijańska, "In 2017, 1.48% more Lyme disease cases were registered in comparison to the previous year. A slight increase and lack of a clear trend in individual voivodeships may indicate a very high level of sensitivity." This is a similar situation to the well established case of coral reef bleaching, where "the disease mechanisms are not absolutely clear for all the different syndromes" (Cavicchioli et al., 2019, p. 580).

Direct costs

The direct costs assessed in the research in the case of Lyme disease include medical care (e.g., outpatient consultations, hospitalization) without drug reimbursement. They are calculated from the payer's perspective on the basis of data acquired from NFZ. Due to the marginal share of co-payments in the public healthcare system, the costs calculated from the payer perspective are a good estimate of social cost. Due to the lack of data, intangible costs and costs of informal care have been omitted.

In the case of complications, the calculation of direct costs was also carried out on the basis of data acquired from NFZ. These costs do not include costs of primary healthcare (PHC) or drug reimbursement. Data were extracted from the NFZ in two stages. First, patients with primary and comorbid Lyme diagnosis were selected. Then, episodes containing primary or Lyme-related comorbidity were identified for these patients. The direct costs of complications

were calculated using etiological fractions (EF) to estimate the share of comorbidity costs attributable to Lyme disease. Determining the impact of Lyme disease's complications on the healthcare system and the economy was thus based on the attributable risk methodology (Walter, 1976, pp. 829-831). In our analysis the attributable risk methodology estimates the risks of having a particular medical condition (i.e. encephalitis, myelitis, and encephalomyelitis) by Lyme disease status, then combines these risks with estimates of the proportion of the population with Lyme disease to calculate an etiological fraction (EF).

The EF is calculated based on the following:

$$EF = \frac{P(R-1)}{P(R-1)+1},$$

where:

P stands for the Prevalence Rate of Lyme disease among patients treated in Poland and R stands for the Relative Risk of suffering from encephalitis, myelitis, and encephalomyelitis among people with Lyme disease (Hogan et al., 2003, pp. 917-925).

We used panel data of patients within inpatient and outpatient care as a sample (data was received from the NFZ to calculate Relative Risk and Prevalence Rate values).

Indirect costs

The indirect costs assessed in the research include the costs of productivity losses due to premature death, work absences, or the inability to work. The indirect costs were estimated using data from the ZUS and GUS. The human capital method was used to estimate the indirect costs.

The human capital approach uses the present value of expected future earnings, often adjusted for nonmarket productivity, to estimate the potential loss to society if an individual becomes disabled or dies. In the human capital approach, morbidity costs are calculated as the value of lost productive time due to acute illness and short- and long-term disabilities (Pike, Grosse, p. 4). Future market production is typically projected based on labor force participation and employment rates, life table survival probabilities, and hourly gross earnings, generally categorized by age and sex or by age alone. Productivity costs associated with premature death are calculated as the loss of productivity estimated as the present value of future economic production over the expected remaining lifetime for someone of a given age and sex.

The costs of lost productivity due to sickness absence were calculated using ZUS data (i.e., the number of days taken off for sickness caused by diseases) and the average daily gross wage in the economy.

The costs of lost productivity related to work incapacity were calculated on the basis of the ZUS data concerning the volume of transferred social security benefits, along with GUS data on the average gross salary in the economy. These data were corrected using employment rates in the workforce.

Lost productivity caused by premature death was also included in the analysis. A calculation of these costs was carried out on the basis of data acquired from the GUS. This data included the number of deaths due to Lyme disease and its comorbidities (encephalitis, myelitis, and encephalomyelitis) divided by age, sex, and Poland's average gross monthly wages.

Indirect costs of complications were calculated using EF, as in the case of direct costs.

Sensitivity analysis

In our study, we applied point estimates of EF for Lyme disease complications. Variables used to calculate EF are subject to uncertainty; therefore, we provided limits of direct and indirect costs resulting from adjusting Relative Risk values. It should be underlined that, according to the NFZ data, encephalitis, myelitis, and encephalomyelitis affect only 2% of patients with Lyme disease. However, according to Polish physicians (experts), encephalitis, myelitis, and encephalomyelitis affect 5% to 30% of patients. Therefore, the Relative Risk value of 20% has additionally been applied (R+20%).

Costs and benefits of implementing employee health management solutions

We examined the costs and benefits of implementing employee health management solutions in the case of VBDs and their comorbidities (i.e., Lyme disease and encephalitis, myelitis, and encephalomyelitis) taking into account sensitivity analysis. As described in Section 3, EHMP can be divided into primary, secondary, and tertiary strategies. Taking available data into account, we focused on primary and secondary strategies. It should be underlined that secondary strategies are mainly based on screening programs. In Poland, the most widely used screening test is the ELISA test. It is a highly sensitive but non-specific test and may lead to false results. Therefore, employers should co-finance the use of more specific tests used by their employees, e.g. the PCR test (cost: EUR 37-46) and the LTT test (cost: EUR 116-197).

In order to estimate the costs and benefits of implementing employee health management solutions in the case of Lyme disease, the following data were used:

- data from the NFZ with related etiological fraction calculus and sensitivity analysis,
- datasets from the Social Insurance Institution and GUS using the human capital method (which includes, among others, the number of sick days).

6. Results

Costs of Lyme disease and its complications – EF standard and sensitivity analysis

The total cost of Lyme disease and its complications, taking into account sensitivity analysis, amounted to EUR 16.2-16.3 million in 2018 (Table 4).

Table 4.

The values of costs related to Lyme disease and its complications in Poland in 2018 (in millions of euros)

	DIRECT – total	INDIRECT – total	TOTAL
	Total	Total	Total
Model value	6920	9331	16251
Sensitivity value	6964	9380	16344

Source: Authors' elaboration based on ZUS, NFZ, and GUS data.

The results of this study show that there is a prevalence of indirect costs in the structure of total costs of Lyme disease and its complications.

It should be underlined that the implementation of employee health management solutions will enable earlier interventions and, as a result, limit the destructive and often disabling impact of serious medical conditions on the ability of a person to function in daily life and at work. It should be noted that the number of sickness-related absence days due to Lyme disease amounted to 145,000 in the year 2018. The implementation of employee health management solutions would reduce employers' expenditures and the costs associated with Lyme disease complications by at least EUR 2.5 million.

7. Discussion

As mentioned before, due to its nature, assessment of EHMPs with a VBD focus must take into consideration not only profitability but also the probability of infections, the causal relation between occupation and infection, and the severity of the disease. Considering all these points, National Forest Holding employee health management should be considered profitable as well as truly humanistic; as a link between seroprevalence and the occupation is limited but existing.

In managerial literature, employee health management was discussed during the early years of the HIV epidemic (Rosen et al., 2003) but was not widespread due to the short-term interests of corporations. National Forest Holding employee health management is an example of a socially and humanistically responsible agreement between employees and an employer (and not in an industry where you might expect to find such an agreement), which gives hope and could serve as a blueprint for similar actions in other organizations with climate change-

related VBD risks. Still, there is a need to obtain more data to prepare a full, valid, and longitudinal model to compare data from different timepoints of the Anthropogenic era.

8. Conclusions

This is the first attempt in evaluating the costs and benefits of implementing employee health management solutions in the case of VBDs and their comorbidities. The study shows that a significant share of the total costs (57%) of Lyme disease and its comorbidities is constituted by indirect costs. The results of this study show that the implementation of employee health management solutions similar to those implemented at the Polish National Forest Holding will decrease employer expenditures and losses, as well as reduce the costs of Lyme disease complications by at least EUR 2.5 million. The societal and long-term perspective is crucial in the process of implementing employee health management solutions.

Still, outside such a program, companies should take into consideration the following opinions from experts and physicians (Legal Alert for Supervisors, February 1, 2013) on how to deal with people suffering from Lyme disease:

- If any workers are experiencing joint pain, heart problems, or central nervous system issues, it is possible that they are suffering from Lyme disease. Most sufferers claim that they never knew they were bitten in the first place, so the disease may go untreated for a long time. People with Lyme disease can be left with a host of symptoms that sometimes last a lifetime.
- It is necessary to manage fatigue. Tiredness is the hallmark symptom of the condition. Allow Lyme disease sufferers to have flexible work schedules and, if possible, consider allowing rest breaks and providing ergonomic equipment.
- It is necessary to be aware of pain. People with Lyme disease may have chronic pain. Talk to affected staffers to see if they would benefit from changing to less physically demanding jobs. Consider whether workers' pain medications could affect their ability to work in safety-sensitive positions.
- It is necessary to cut down on stress as stress can exacerbate symptoms. Set reasonable deadlines and assist sufferers in prioritizing tasks.

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COMPARATIVE ANALYSIS OF THE CURRICULUM AT SCIENCE AND TECHNOLOGY (STEM) HIGH SCHOOLS IN POLAND AND THE UNITED STATES

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Introduction/Background: The knowledge-based economy in Poland and the United States (USA) requires highly trained engineering professionals to stay competitive and to secure economic development. In recent years, some initiatives have been undertaken to better prepare high school graduates for engineering and technology-related programs. One of these initiatives has been the creation of science, technology, engineering, and mathematics (STEM) high schools in Rybnik, Poland, and Hazleton, Pennsylvania (PA), USA.

Aim of the Paper: The comparative analysis of the curriculum was conducted by selecting two similar high schools, one in Hazleton, PA, USA, and one in Rybnik, Poland. The purpose of this research project was to identify the similarities and differences in the curricula at both high schools.

Materials and Methods: The authors of this article have firsthand experience with the curricula at both high schools. Both curricula are available in their respective catalogs. A comparative analysis of the curricula was done by identifying the best practices in both countries. Dual enrollment opportunities available to high school students in PA, is also discussed.

Results and Conclusions: This paper describes the different methods used for promoting interest in engineering and technology among high school students. These initiatives are necessary to provide a highly qualified workforce to meet the demands of the knowledge-based economy. This paper includes a comparative analysis of the STEM-oriented high school curricula in Poland and the USA.

Keywords: Engineering careers, technical education, promoting science, STEM schools.

Introduction

The knowledge-based economy in Poland and the United States (USA) requires highly trained engineering professionals to stay competitive and to secure economic development. Engineering programs have difficulty in recruiting qualified students despite the ever-

increasing demand for Engineering graduates. Historically elementary and secondary schools were putting more emphasis on the arts and humanities at the expense of the sciences and mathematics. In recent years, some initiatives were undertaken to better prepare high school graduates for engineering and technology-related programs. Part of these initiatives was the creation of science, technology, engineering, and mathematics (STEM) high schools in Rybnik, Poland and Hazleton, Pennsylvania USA (Program of Studies). The purpose of both high schools is similar. Both high schools have the same educational objectives, that is, to better prepare high school graduates for engineering careers.

Literature analysis

Literature analysis of the different methods for promoting STEM

The literature lists different methods to promote interest in STEM careers. Han (2017) has studied the association between student interest and STEM careers and the public attitude towards science and technology. The research indicated that educators, such as teachers and the school principal need to pay attention to fostering individual level of interest in science and technology. Educators' attitudes towards science and technology plays a role in the development of STEM career expectations.

A study conducted by Zajac, et. al. (2017) indicted that graduates of disciplines, such as mathematics, technology and pharmaceutical have outshined others in the labor market. Graduates from biology and earth science programs did not perform as well.

Chirikov, et.al. (2020) evaluated the lack of qualified STEM instructor at the university level in Russia (Chirikov, I., Semenova, T., Maloshonok, N., Bettinger, E., and Kizilce, R.F., 2020, pp. 1-65). The largest global producers of STEM graduate China, India, Russia, and the United State are actively seeking policy alternatives to increase the cost-effectiveness of STEM education. Their research model relied on national online education platforms that were recently established in many countries, including China (XuetangX, WEMOOC, and CNMOOC), India (Swayam), and Russia (National Platform of Open Education/OpenEdu) to address challenges associated with the shortage of qualified instructors and growing demand for higher education.

Standardizing course content and random assignments were also studied. Qualitative and quantitative analysis were used to analyze the different conditions.

Erdogan and Stuessy (2015) did a literature analysis of sixty articles, reports or workshops. These sources had various focal points including, but not limited to demographics (race, gender, age) and types of schools. The methods of assessment included, but were not limited to open-ended questions, multiple choice tests, essays, reports, portfolios, presentations, and oral examinations.

To improve STEM education and other facets of education in the United States, the Obama task force identified the different methods for promoting STEM (Education..., 2012).

Building partnerships among educators, businesses and community partners to support advances in STEM education was a priority for fortifying STEM education. Improving the coordination of STEM education initiatives between the Department of Education and National Science Foundation; and promoting over 100 industry partners in their efforts boost STEM learning. The STEM Master Teacher Corps was also an important component for promoting STEM education.

Li, et. al. (2020) used one hundred twenty-seven projects to research the trends in STEM education. Quantitative evaluation of STEM education focused on the expenditure (% of GDP per capita) for STEM education, while the qualitative data focused on student and adult attitudes toward science and technology (Han, 2017). Statistical data also included categories, such as gender, immigration status, school characteristics, country characteristics, student ability and occupation of parents. Data was collected from fifty-five countries and sixty-six articles were referenced.

Literature analysis of the effectiveness of different methods for promoting STEM

Chirikov et.al. (2020) sited that the research at the university level indicated that to successfully master the university-level engineering courses, students must have a high school-level knowledge of physics, mathematics, and chemistry.

Erdogan and Stuessy (2015) focused their research on STEM school ecosystem as including advanced curriculum, expert teachers, policy makers, community leaders, role models, mentors and researchers as well as internships and immersion within STEM environments. In addition, the research also considered learning environments, curriculum, instructional strategies, advanced coursework, technology use, (teaching, learning, immersion, communication, partnering, mentoring, support, and assessment. The effectiveness of the different methods was analyzed in three types of schools which are categorized as selective/specialized, inclusive and STEM-focused career and technical education (CTE).

Li et. al. (2020) used one hundred twenty-seven projects to research the trends in STEM education and the effectiveness of the methods used in the projects, while Zajac, et.al. (2017) tracked graduates from STEM disciplines for twenty-one months after they entered the labor market. The effectiveness of STEM education has taken on significance in Poland since there is a 400% increase in secondary school students entering universities. This research provided conflicting data about the economic benefits of STEM disciplines versus Humanities and Social Science disciplines.

Purpose of the research/research hypothesis

The comparative analysis of the curriculum was conducted by selecting two similar high schools, one in Hazleton, Pennsylvania (PA) USA and one in Rybnik, Poland. Both high schools have the same purpose of preparing students for an Engineering program at the university level. The purpose of this research project was to identify the similarities and differences in the curriculum at both high schools. The comparison of the curriculum was done from the perspective of identifying the best practices at both high schools for the purpose of the continuous quality improvement (CQI) process. The best practices need to be shared and duplicated. There will also be a need to learn from both the positive and negative experiences at the two schools.

There are two main research hypotheses, H1 and H2.

H1 – There are differences in promoting Science, Technology, Engineering and Mathematics (STEM) in Poland and the United States (USA).

H2 – There are best practices at both high schools, Liceum Ogólnoszkolne Politechniki Śląskiej, and Hazleton Academy of Science which can be identified and shared for the purpose of continuous quality improvement.

Methodology

The research methodology consisted of the following:

- Literature analysis of the different methods for promoting STEM.
- Literature analysis of the effectiveness of the different methods for promoting STEM.
- Comparative analysis of the curriculum in the two STEM high schools in Rybnik, Poland and Hazleton, PA USA.

The curricula of the two high schools are available in their catalogs. The authors of this article have had first hand experience with the curriculum at both high schools, Hazleton, PA USA and Rybnik, Poland. A comparative analysis of the curricula was done by identifying the best practices in both countries. Dual enrollment opportunities available to high school students in Pennsylvania is also being investigated. Students in Poland do not have the dual enrollment opportunity.

Comparison of the curricula of the STEM high schools in Poland and the USA

A detailed educational plan for the STEM high school (Liceum Ogólnoszkolne Politechniki Śląskiej) in Rybnik is shown in Table 1.

Table 1.

Educational plan STEM high school Grades 9-12 (Liceum Ogólnoszkolne Politechniki Śląskiej)

Mandatory Subjects	Grade Level			
	I (9)	II (10)	III (11)	IV (12)
Hours/Week				
Polish Language	4	4	4	4
Foreign Language and Second Foreign Language	5	5	5	5
Philosophy or Art or Music	1	0	0	0
History	2	2	2	2
Social Sciences	1	1	0	0
Entrepreneurship	0	1	1	0
Geography	1	2	1	0
Biology	1	2	1	0
Chemistry	1	2	1	0
Physics	1	1	2	0
Mathematics	3	4	3	4
Information Science Technology	1	1	1	0
Physical Education	3	3	3	3
Safety Education	1	0	0	0
Etiquette	1	1	1	1
Total Hours for Mandatory Subjects	26	29	25	19
Hours/In-depth Subjects	4	5	7	6
Total Hours for All Subjects	30	34	32	25

Students are enrolled in all required basis-level courses. They are also selecting two-to-three courses which are explored in-depth. The list of those in-depth courses is prepared by the school principal in consultation with the faculty as well as the students and parents. Faculty availability as well as the cost factor is also being considered. The typical courses offered in-depth are as follows:

- Polish Language.
- Social Sciences.
- History.
- Art History.
- Philosophy.
- Geography.
- Biology.
- Chemistry.
- Physics.
- Mathematics.
- Information Science Technology.

The in-depth courses are offered throughout the entire high school curriculum (Grades 9-12).

As shown in Table 1, the students spend 25-35 hours/week in the classroom with an average of 30 hours/week.

The principal has the right to add four hours during the duration of the high school.

In addition to the subjects listed in Table 1, students are taking the following supplementary subjects:

- Religion/Ethics.
- Family Education.
- Minority Language (if the student belongs to an ethnic minority).
- Geography of the Student's Origin (if the student belongs to an ethnic minority).
- Sports Education/Professional Sports.
- Psychological and Pedagogical Assistance.

The time spent for those supplementary subjects may vary.

Career guidance for students needs to be at least ten hours during the four years of high school.

A detailed educational plan of the STEM high school (Hazleton Academy) is shown in Table 2 (Program...).

Table 2.

Educational plan STEM High School – Grades 9-12 (Hazleton Academy)

Mandatory Subjects	Grade Level			
	I (9)	II (10)	III (11)	IV (12)
	Hours/Week for Mandated Subjects			
English	5	5	4	4
Foreign Language	5	5	4	4
Fine Arts	2	2	1	1
Social Sciences	4	4	3	3
Biology	3	3	0	0
Chemistry	4	4	0	0
Physics	0	0	3	3
Mathematics	5	5	4	4
Communications	0	0	0	3
Information Science Technology	0	0	3	3
Physical Education	2	2	2	2
Total Hours for Mandatory Subjects				
Electives				
Elective #1	0	0	3	0
Elective #2	0	0	0	3
Elective #3	0	0	3	0
Elective #4	0	0	0	3
Hours/Week for Electives	0	0	6	6
Total Hours for All Subjects	30	30	30	30

In addition to the required courses, students need to take four elective courses. The accepted electives are as follows:

- Principles of Engineering.
- Computers and Robotics.
- Introduction to the Engineering Design Process.
- Computer Science and Programming.
- JAVA I.
- JAVA II.
- Digital Web Design.
- Managing Computer Information Systems.
- Organic Chemistry.
- Biochemistry.
- Anatomy and Physiology.
- Genetics.
- Astronomy.

Students have thirty hours/week in the classroom (six hours/day of instruction).

In addition, students are encouraged to participate in extracurricular activities after the school hours. Those activities are as follows:

- Engineering and Science Club.
- Sports' Activities.
- Marching Band.
- Concert Choir.
- Art Club.
- Other Clubs.

Analysis of the similarities and differences of the STEM high school curricula in Poland and the United States

Comparing the curricula of the STEM high schools in Poland and the United States (USA), the following similarities and differences have been identified (H1).

The similarities are as follows:

- The average time that students spend in the classroom is thirty hours/week.
- The mandatory subjects taken by the students are very similar. (History and Geography are offered under the Social Studies umbrella in the United States.)
- Both schools emphasize the foreign language requirement.

The differences are as follows:

- The STEM high school (Hazleton Academy) in Hazleton, PA USA allows students to take more Engineering courses within the four electives. Students can select those four electives based on their interest and future academic plans.
- The STEM high school in Rybnik (Liceum Ogólnoszkolne Politechniki Śląskiej) offers instruction in Entrepreneurship, Career Guidance as well as Etiquette.
- The STEM high school in Rybnik requires two-to-three courses to be taken in-depth.

Dual enrollment opportunities

Students enrolled at the Hazleton Academy (and other high schools) are eligible to take college courses while they are still in high school (Cassady, Keating, Young). This option is only available to students in the III and IV classes (Grades 11 and 12). The student must have an adequate grade-point average as determined by the university (H1).

Most engineering programs usually offer some introductory engineering courses which can be taken by STEM high school students. Those freshman college courses are taught by university faculty. They can be taken at a high school location during the school hours or at the college location after the school hours. STEM high school students enrolled in dual enrollment classes are required to pay a discounted college tuition based on an agreement between the university and the school district. Dual enrollment high school students are being considered college students as well. They receive a university identification card. The students can use the university library as well as the university computer system including a university email address. Their grades are also posted on a university transcript. After successfully passing the course(s), the course(s) appear on the university transcript as a college credit toward the engineering requirements. Most of those courses are transferrable between universities. If the student decides to change the university or decides to change the major/field of study, the course will be transferrable. Most students at a STEM high school take advantage of the dual enrollment opportunity (Cassady, Keating, Young).

The principal of the STEM high school cooperates with local college and university engineering programs on establishing the dual enrollment opportunities. Most university programs are very open and supportive of the dual enrollment concept. The university programs view dual enrollment program as a part of their recruitment and retention strategies.

From the university perspective, the tuition that the student is paying for taking college courses normally offset the expenses of offering the courses. The tuition is normally discounted by 50-75%.

Periodically there are state and federal grants available to help STEM high school students pay the college tuition. The school district in conjunction with the Engineering program offering the dual enrollment course can submit a grant proposal for funding (STEM...; The Framework...).

The students enrolled at the Hazleton Academy can take two college-level courses at Penn State Hazleton which are as follows:

- Introduction to Engineering Design,

This course is offered as a freshman course in most engineering programs which are ABET accredited. The course has a project component and requires six contact hours per week for fifteen weeks. The six contact hours per week include two hours of lecture and four hours of hands-on projects. *Introduction to Engineering Design* also contains a graphics component including computer-aided design and drafting. Penn State Hazleton had a very positive experience in offering this course as a dual enrollment option.

- Speech Communication,

A speech communication course is normally a required course in any engineering curriculum. The course satisfies a general education requirement. A speech communication course requires three contact hours a week for fifteen weeks. The content of the course is focusing on the development of oral and written communication skills which are very important and helpful in preparing and delivering engineering presentations. Based on the experience at Penn State Hazleton, this course was considered the second choice for dual enrollment offerings (after the engineering design and graphics choice).

From the perspective of the Engineering program at Penn State Hazleton, this is an effective method to recruit well-prepared students into the Engineering program. Historically those students were hardworking and dedicated. Penn State Hazleton offers dual enrollment opportunities at four different school districts. A dual enrollment opportunity does not exist in the Polish educational system.

Suggestions and recommendations based on best practices (H2)

Based on the analysis of the similarities and differences between the two STEM high schools and best practices, the authors' suggestions and recommendations are as follows:

- Allow junior and senior high school students (Grades 11 and 12) in Poland to take selected college courses while they are in high school (this concept has been tested in the United States and it has produced positive results).
- Create at Liceum Ogólnoszkolne Politechniki Śląskiej in Rybnik elective courses to allow the students to customize the curriculum according to their interests and future academic plans.
- Require students at the Hazleton Academy to take Entrepreneurship as a mandatory course.
- Incorporate instruction in Career Guidance and Etiquette into the Hazleton Academy curriculum.

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SUCCESS OF PUBLIC PROJECTS ACCORDING TO STAKEHOLDERS

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Introduction/background: It is highly probable that the criteria for assessing the implementation of public projects as successful will be different, depending on the point of view of the representatives of individual groups of stakeholders. In the paper, we present, after a brief introduction to the problems of design and the specifics of public projects, the results of surveys conducted among representatives of local governments, representatives of local communities (city citizens) and representatives of people professionally involved in project management.

Aim of the paper: The aim of the paper is to capture the criteria and conditions for the success of public projects common to various groups of stakeholders.

Materials and methods: Surveys were used as the research method and the questionnaire contained two open-ended questions. The research took the form of a direct interview. The analysis was performed using cross tables and a weighted average.

Results and conclusions: Research results indicate that criteria and conditions common to all groups of stakeholders exist and the most important are the fulfillment of basic project parameters (time, quality, costs) as a success criterion, and reliable examination/identification of the residents' needs (social consultations) as a condition for success.

Keywords: local development, sustainable development, project management.

1. Introduction

Nowadays, cities are units capable of determining their own future, because they are less dependent on national authorities and centralized decisions than in the past. Not only are they entrusted with the responsibility of meeting current social needs, but they also hold the rights to decide on directions of local economic development (Shannon, 2018). In cities (communes), many projects are usually planned and implemented simultaneously. The subject of public projects is often non-productive investments, the implementation of which aims to improve the working and living conditions of the population (housing, social and cultural facilities).

Speaking about this type of public project, it is assumed that the result of the economic profitability calculation does not affect the decision whether to invest or on what scale to meet current and future public needs (Brandenburg, 2011). Also, the political aspect of choosing this type of projects for implementation cannot be neglected. The need to take public opinion into account when choosing a public project for implementation is highlighted, among others, by M. Magdoń, according to which "in the case of public projects, next to the implementation period, costs and technical characteristics, the society's attitude should be taken into account – expressed through support for such projects" (Magdoń, 2011, p. 34). The aim of implementing public projects is, thus, to meet current and future public services.

According to F. Kuźnik, the term "public service" is not defined in literature in direct and unequivocal ways, and he questions whether the most common classification is truly that divided into market and non-market or public services (Kuźnik, 2012; see also Spicker, 2009). Kuźnik goes on to provide a definition: "In other words, a public service is one that public authorities pay for" (Kuźnik, 2012, p. 12). Similarly, S. Gasik defines the public project according to which it is "a project executed by a public administration or with the participation of a public administration, or implemented with the involvement of funds from the budget of such an administration" (Gasik, 2016, p. 352). The above definition of public project, however, does not stand the test of time. Currently, for example, many public service projects are implemented under public-private partnership, where a private investor benefits from it for some time and residents are the ones to pay (e.g. parking lots).

An additional factor distinguishing a public project from a business project is its irreversibility. Starting from a certain threshold, work on the project is continued, whatever the cost. By way of example, we can quote the implementation of the construction projects of the Sydney Opera House and Denver International Airport (Flyvbjerg, 2014). Stakeholders of public projects are various social groups: local governments, entrepreneurs, residents of communes, as well as persons/institutions professionally involved in project management. In the further part of our paper, after a short presentation of the research methodology used, we present the results of surveys carried out in 2013-2018¹ on the criteria and conditions for the success of a public project. In its final part, an attempt was made to capture the criteria and conditions for the success of a public project common to various groups of stakeholders.

2. Stakeholders of public projects and research program

E.J. Blakely defines local development as "processes consciously initiated and created by local authorities, entrepreneurs, ecological lobby, social and cultural associations and residents, aiming at the creative, effective and rational use of local intangible and material resources. Particular importance is attached to intangible assets in local development. These include

knowledge and research, higher qualifications and new skills, entrepreneurship and leadership skills." (Blakely, 1994, p. 2). In a situation where each group of local development stakeholders may have a different view on how to implement it, the main challenge facing local authorities is to activate all potential actors of local development, and, above all, to eliminate the continuing in Poland division of "We and They" (this can be done, among others, by the civic budget).

It is highly probable, therefore, that the criteria for assessing the implementation of the project as successful will be different, depending on the point of view of representatives from individual stakeholders groups (see Sebestyen, 2017). Hence, before starting the research, it was assumed that various criteria for recognizing the project as successful and the conditions for its achievement could be understood differently by individual groups of local development actors (recipients of the project results). To obtain a full picture of the issue, based on the above assumption, respondents were divided into four groups:

- representatives of local governments,
- representatives of local business,
- representatives of local communities (city citizens),
- representatives of people professionally involved in project management.

The aim of the study was to determine the approach of all stakeholder groups, both as to the concept of public project success and the conditions for its achievement. The research goal set in this way has contributed to formulating the following hypothesis: for defined groups of stakeholders there are common criteria for the success of the public project and the basic conditions for its achievement.

As mentioned in the introduction, surveys were used as the research method. The research took the form of a direct interview. The questionnaire contained two basic questions:

- Which criteria do you think determine the success of a public project? List three basic ones, giving them a weight of 1-5.
- What do you think are the basic conditions for the success of a public project? List three, giving them a weight of 1-5.

Both questions were of open form. The only suggestion in the first question was the proposal to provide an answer related to compliance with the three basic project parameters (technical characteristics, planned period and costs of its implementation) as one criterion "compliance with the project output data". The respondents were to measure the individual criteria with a scale of 1-5, where 1 was insignificant and 5 was important. In the case of success conditions, respondents were similarly asked to give weight to individual conditions on a scale of 1-5, where 1 was a very minor condition and 5 a significant one.

Due to the likelihood of different levels of knowledge about planning and implementing public projects being held, it was assumed that the research will be preceded by a short substantive introduction to the problems of public projects and its management. In order to gain opinions with the nature of the first, spontaneous associations, the respondents were given a maximum of five minutes to answer both questions.

Among the above-mentioned groups of stakeholders, the study could not be conducted among representatives of local business. Despite distribution of several thousand surveys, through the Chambers of Commerce and Industry, with which the authors of the article work closely, only five entrepreneurs replied. The authors are aware that the inability to obtain data from one of the accepted groups of stakeholders somewhat impoverishes the research results presented in this work – in the future an attempt will be made to change the research tool and repeat the research for the group of stakeholders.

Some difficulties were also encountered in the case of local government representatives. According to the presidents and mayors of the communes in which the survey was conducted, currently, councilors are not able to correctly answer the questions contained in the survey. They proposed that in this situation the survey be carried out among employees of municipal offices. This confirms the thesis about the desirability of organizing trainings for councilors in the field of local development management, especially in the initial period of holding the mandate (Brandenburg, 2015). In total, responses were obtained from 257 respondents (this does not include 55 people at the pilot study stage).

In the literature of the subject, there are many definitions of term “project”. Project Management Institute (PMI) defines it as "time-limited effort to create a unique product, service or result" (PMI, 2017, p. 4). According to PRINCE 2 methodology (PProjects IN Controlled Environments), a project is a "temporary organization that is created for the purpose of delivering one or more business products according to an agreed business case" (AXELOS, 2017, p. 8).

In the above definitions, a common statement is that the goal of the project is to create a unique product (service). Therefore, projects should never be identified with the plan. The plan is only a part of the project. A similar division can be found in the UNIDO textbook (UNIDO, 1986), where three phases are distinguished in the project development cycle: the pre-investment phase (planning), the investment phase (construction) and the operational phase (operation, use of the product). Due to the above, the research did not cover investments planned in the future, but projects accepted for implementation, implemented or already completed.

3. Survey results

3.1. Survey results among representatives of local communities (city citizens)

The first stage of the research was conducted among, according to the authors, the most important stakeholder groups of public projects, i.e. urban residents. Surveys were conducted among students of the University of Economics in Katowice.

The decision to conduct research among students can be justified in two ways:

- students are also residents of municipalities, so they can represent them,
- very often a group of students is a collection of representatives of various cities (and even regions) and environments, which further enriches the statistical sample.

Conducting surveys among randomly selected city residents would most likely cause some difficulties. Beside the barrier of reluctance to answer questions asked by accidentally met people, great probability (in some cases) should be assumed of lack of even basic knowledge about projects and local development management. In connection with the above, an additional argument regarding surveys among students was the fact that they listened to a series of lectures on management of local development and local development project management.

The main research was preceded by pilot studies carried out in 2012 in France and Poland among students of the University of Economics in Katowice (30 respondents) and students of the University of Valenciennes in France (25 respondents). According to French respondents, a project was successful when its implementation resulted in a generally available product (service) and its price was adapted to the financial capacity of the citizenry. On the other hand, Polish respondents most often indicated success to be compliance with basic project parameters (time, period of implementation and product quality). Both French and Polish respondents considered the fundamental conditions for achieving success to be the competence of the project team and social consultations (Brandenburg, 2014).

The basic research was carried out in 2013-2014 among students of the University of Economics in Katowice, full-time and part-time studies. The study involved 98 people. The results of the research regarding the basic criteria for the success of public projects are presented in Table 1. According to the information presented in it, the respondents most often mentioned (out of the nine different criteria listed) compliance with the basic parameters of the project (this criterion was indicated by 68 out of 98 inhabitants participating in the survey), and then satisfaction of the local community and accessibility for the widest possible audience.

It is also noteworthy that the distinction between "local community satisfaction" and "the project meets the real needs of recipients", which may mean that not every implemented investment should have such a high priority.

Table 1.*Basic criteria for the success of public projects – city citizens*

No.	Criterion for success	Percentage of indications	Average weight value
1.	Meets the basic parameters of the project (time, quality, costs)	26,98%	5,00
2.	Satisfaction of the local community, availability to the widest possible audience	18,25%	4,00
2.	The project meets the real needs of recipients	18,25%	4,00
4.	Great utility of the project	15,87%	4,00

The obtained research results on the basic conditions for success of public projects (from among nine different conditions listed by the respondents) are presented in Table 2.

Table 2.*Basic conditions for the success of public projects – city citizens*

No.	Condition for success	Percentage of indications	Average weight value
1.	Competent task implementers	28,91%	5,00
2.	Public consultation/project agreement with residents	28,91%	4,00
3.	Relevant budget	10,94%	4,00
4.	Reliable project implementation	10,16%	4,00
5.	Timely implementation of the project	7,03%	4,00

As seen in Table 2, the respondents again considered the basic condition for success to be proper project management (items 1, 4, 5), which is related to the competence of the project team. Compared to the results of the pilot study, it is worth noting that equal importance was attached to public consultations. The data presented in Tables 1 and 2 contain only the most frequently given answers (hence, the sum is not 100%). Answers of little selection, such as project sustainability, project implementation, proper project preparation for auction etc. were omitted.

3.2. Results of surveys among local government officials

In this stakeholder group, 50 respondents were included. The results of the research on the basic criteria for the success of public projects are presented in Table 3, while the results of the research on the basic conditions for the success of public projects are presented in Table 4. Similarly to the first group of stakeholders, the data presented in Tables 3 and 4 contain only the most frequently given answers (thus, the sum is not 100%).

Table 3.*Basic criteria for the success of public projects – local government officials*

No.	Criterion for success	Percentage of indications	Average weight value
1.	Meets the basic parameters of the project (time, quality, costs)	24,83%	4,11
2.	Improving the conditions and the quality of residents' life	18,79%	4,14
3.	Local community acceptance	14,77%	3,14
4.	Adaptation to the widest possible age group	10,07%	4,00
5.	The investment returns / pays off	8,05%	5,00
6.	Project sustainability	6,04%	3,00

As can be seen, local government members usually consider project implementation as successful (from among 11 different criteria listed) when it meets the criteria of fulfillment of its basic parameters (74% of all respondents). The reason for this may be the fact that, as already mentioned, on the request of the presidents and mayors of municipalities, the survey was conducted among employees of those municipal offices for which problems on the part of contractors (attempts to use materials/substitutes of lower quality, poor organization of the construction site, the risk of leaving it by subcontractors / search for new subcontractors, because the general contractor did not pay, etc.) are the greatest threat (Brandenburg, 2016).

Table 4.

Basic conditions for the success of public projects – local government officials

No.	Condition for success	Percentage of indications	Average weight value
1.	Good management and control of the project	20,90%	4,00
2.	Knowing of the needs of the local community	14,18%	5,00
3.	Project promoting	11,19%	5,00
4.	The availability of the project and its effects for the largest social group	11,19%	3,00
5.	Proper definition of project goals	6,72%	4,00
5.	Satisfaction of residents	6,72%	4,00
7.	Providing the right "program" for the project after the investment	4,48%	5,00

As indicated in Table 4, the respondents, likewise the inhabitants, considered proper project management as the basic condition for success (out of the 12 different conditions listed). This condition was indicated by 28 out of 50 participants of the study (56%), hence, it holds an average weight of 4.00.

3.3. Survey results among project management specialists

In the research conducted among specialists in project management, 109 people professionals took part. The research was conducted in the form of an expert survey (survey technique) in the period of October 2014 – December 2015 and December 2017 – January 2018. Participants included members and supporters of the International Project Management Association Polska – IPMA Poland (Silesian Regional Group and Lower Silesian Regional Group), students of international post-graduate "Project Management" studies at the University of Economics in Katowice and employees of the City Offices in Tarnowskie Góry and Radzionków.

The desire to obtain the widest and most complete information during the survey and the specifics of the surveyed population (project management specialists) determined the sampling method – targeted selection. The selection of a group of experts from among members and supporters of IPMA resulted from the fact that, next to the Project Management Institute (PMI), it is one of the largest organizations associating and certifying project managers in the world. In the case of post-graduate students, people with professional experience and a certain amount of knowledge in project management were invited to take part in the study. The reason for their

incorporation into the targeted population is that in deciding to participate in such studies, the main premise of these people was the desire to systematize their knowledge and possibly expand it in aspects most commonly used in practice. The same selection criterion was used for public service employees. Therefore, the described approach allowed getting to know the point of view of individuals with experience and knowledge in the sphere of research of interest to the authors.

The results of research on the basic criteria for public project success of people professionally involved in project management are presented in Table 5. Here, respondents most often indicated success to be a positive assessment (attitude, satisfaction) by the residents (local community) (64 out of 109 project management specialists or 58.72% and an average of 4.45). Utility (added value) for residents and meeting the basic parameters of the project were also very popular choices. Consequently, as in the case of the previously analyzed stakeholder groups, the data contain only the most frequently given answers (hence the sum is not 100%).

It should be noted that when respondents were asked to assess criteria compliances with the three basic project parameters (quality, budget and time) as one criterion "meeting the basic project parameters", many experts listed the indicated parameters separately, wanting to emphasize the importance of a given criterion.

Table 5.

Basic criteria for the success of public projects – project management specialists

No.	Criterion for success	Percentage of indications	Average weight value
1.	Positive assessment (attitude, satisfaction) by residents (local community)	20,71%	4,45
2.	Utility (added value) for residents (public)	19,09%	4,20
3.	Fulfillment of basic project parameters (triple constraints)	12,30%	3,89
4.	Budget (low cost, economical)	8,41%	3,58
5.	Time (punctuality)	7,77%	3,54

The obtained research results on the basic conditions for the success of public projects (among the 38 conditions listed by the respondents) are presented in Table 6. As in previous analyzes, the data contain only the most frequently given answers (hence the sum is not 100%).

Table 6.

Basic conditions for the success of public projects – project management specialists

No.	Condition for success	Percentage of indications	Average weight value
1.	Relevant project team (qualifications)	12,20%	3,94
2.	Reliable examination / identification of the residents' needs (public consultations)	11,53%	4,24
3.	Social acceptance (residents' attitude, acceptance)	10,85%	4,53
4.	Implementation in the budget	7,12%	3,81
5.	Efficient management	5,42%	4,31
6.	Short implementation time	5,42%	3,81
7.	Defining and saving a goal to meet a specific need	4,75%	4,14
8.	Marketing/support (also from the media)	4,07%	3,75

As evident from Table 6, the respondents, similarly to residents and local government officials, considered fulfilling the issues related to proper project management (items 1 and 5) as the basic conditions for success. Here, the competences of the project team were selected most often (33.03% of all respondents). They also emphasized the need for public consultations (option 2 and 3).

4. Common elements for the examined groups of stakeholders – an attempt to standardize

As mentioned, before starting the research, it was assumed that various criteria for recognizing the project as successful and the conditions for its achievement by groups of local development actors could be understood in different ways. The aim of the research was, therefore, to answer the question whether there are elements common to all groups of stakeholders. Research has shown that such criteria exist and there is a similar perception of the determinants of project success. It should be noted that in total, all respondents indicated 35 different criteria for public project success and 50 different conditions for its achievement. At this stage, the analysis was performed using cross tables and a weighted average (the number of responses was multiplied by the appropriate weight given by the respondents and then the sum was divided by the number of respondents who were surveyed within a given group of stakeholders), in this way, the impact on the analysis results by stakeholders groups cardinality differentiation was excluded.

The criteria for public project success indicated by all the stakeholder groups covered by the study are: fulfillment of the basic parameters of the project (criterion mentioned by 143 people), positive assessment by residents (criterion mentioned by 132 people), utility (added value) for residents (criterion mentioned by 127 people) and project sustainability (criterion mentioned by 22 people).

The most important criterion, taking into account the weights given by the respondents, was found to be the fulfillment of the basic parameters of the project – the weighted average being 7.87. A detailed list of public project success criteria ordered from the most important to the least important is presented in Table 7.

Table 7.

Criteria for public project success – elements common to all examined groups of stakeholders

Criterion for success	Stakeholder group – criterion weight [weighted average]			Total
	Local Community	Self- government	Specialists	
Meeting basic project parameters (time, quality, costs)	3,47	3,04	1,36	7,87

Cont. table 7.

Utility (added value) for residents	1,63	2,32	2,27	6,22
Positive assessment (attitude, satisfaction, acceptance) by residents (local community)	1,88	1,38	2,61	5,87
The sustainability of the project (usage)	0,41	0,54	0,09	1,04

Among the conditions for achieving success, only one was indicated by all groups of stakeholders – a reliable examination/identification of residential needs (social consultations). This condition was mentioned in total by 127 respondents, while 88.98% assessed this as a significant or very significant. Due to the uselessness of calculations in the weighted averages analysis (only one condition), Table 8 presents detailed juxtaposition of indication quantity for the defined weights, with division into specific groups.

Table 8.

Determinants of public project success – elements common to all examined groups of stakeholders

Stakeholder group	Reliable examination/identification of the residents' needs (public consultation) – condition weight [number of indications]					Total
	Very insignificant	Insignificant	Moderately important	Important	Very important	
Local community	0	0	7	60	7	74
Self-government	0	0	0	0	19	19
Specialists	1	0	6	10	17	34
Total	1	0	13	70	43	127

5. Summary

Local development consists in launching consciously initiated and created potential development opportunities (by local authorities, entrepreneurs, the ecological lobby, social and cultural associations, as well as residents) by undertaking tasks of socio-economic development on the territory of the community.

In a situation where each group of local development stakeholders may have a different view on how to implement it, the primary challenge facing local authorities is to activate all potential actors of local development. The criteria for assessing the implementation of a public project as successful may be different, depending on the point of view of representatives of individual groups of stakeholders. The conducted research showed that despite potential differences of interest, there are common elements and a similar perception of the conditions for achieving project success for all groups of stakeholders covered by the research. The fulfillment of the basic project parameters (time, quality, costs) was considered the basic criterion for the success of the public project. Moreover, widely-held public consultation before project approval was highlighted as the most important condition for achieving success.

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Footnotes

¹ According to the authors, the 6-year period of the conducted research does not adversely affect the results, analyzes and conclusions presented. The research results presented in this work are part of a larger research project which expected scientific effect is to define the concept of public project success. This type of research is of a basic nature, and comparing data obtained over a 6-year perspective even increases the chance of defining the concept and determinants of project success as precisely as possible.

THE SPECIFICITY OF POLISH AND ISRAELI START-UPS UTILIZING MODERN ICT TECHNOLOGIES

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Introduction/background: The research problem was formulated by asking two research questions (RQ): RQ1: What are the similarities and differences in startup activity as observed in Poland and Israel? RQ2: What characteristics of a startup allow it to be treated as an AI-organisation? The conducted literature review allowed us to identify a certain cognitive gap (CG). CG1: There are few study reports discussing the characteristics of the European market of startups utilizing modern technologies. The study was conducted in 2018-2019.

Aim of the paper: The main goal of the article is to present the results of a comparative analysis of Polish startups with Israeli organizations using artificial intelligence technology (AI startups). This main goal sets the focus on the respective partial epistemological aims. TA1: To determine the current state of knowledge about the characteristics of startups in Poland and AI startups in Israel. TA2: To try and define the term AI startup.

Materials and methods: The research methods employed in implementing the formulated goals included: quantitative bibliometric analysis, systematic and critical review of the subject literature, text analysis and comparative analysis.

Results and conclusions: It was noticed that clear differences can be observed between the analyzed markets, especially in terms of the number of AI startups. In addition, an attempt was made to define the concept of an AI startup, and the determinants of AI startups were also presented. In conclusion, the authors set the direction for further research, which would be based on expanding the observation of a broader spectrum of AI startups in other European and American markets.

Keywords: Startup, Artificial intelligence (AI), AI-organization, AI startups, ICT.

1. Introduction

The dynamic market environment in which modern startups operate is characterised by the shortening lifetime cycles of products and services, the continuous development of modern ICT technologies, and the generation of large volumes of data (McAfee et al., 2012). As a result, startups tend to be described as companies characterised by a relatively high growth potential

accelerated by technology relying on innovative products or services, reflecting the practical utilisation of the knowledge they possess (PwC, 2013).

The publication addresses deliberations related to startups utilising modern technologies, with a particular focus on artificial intelligence (AI) – one of the most dynamically developing fields of modern computer science (Miller, 2011). Progressing civilisational changes force enterprises to take greater risks and create innovative organisations relying on state-of-the-art technologies (Hormiga et al., 2010). It should be noted that only startups are identified with this type of organisation, i.e. enterprises either beginning their economic activity or still at the earliest stages of business development (Spiegel et al., 2015). As we can see from the deliberations of numerous authors, the term startup is typically used to refer to new, temporary entities characterised by high potential for rapid growth and scalability, with a business model strongly relying on technology and innovation (Krejci et al., 2015). Furthermore, startups prove extremely important to the development of national economies, particularly in the context of dynamically developing markets (Kelley, and Nakosteen, 2005). As things stand right now, in the most dynamic markets worldwide startups are perceived as the new model of both economic and social growth (Olawale, and Garwe, 2010) due to their contribution to the labour markets as well as the economic growth and stability of the respective countries (Sulayman et al., 2014).

Global AI investments are still at an early stage but show a very high growth dynamic. The sectors most invested in the implementation of artificial intelligence solutions include ICT, telecommunications, financial services, as well as the automotive industry. AI tends to be most commonly employed by global leaders of digitalisation (e.g. financial services, telecommunications, online companies) and in sectors investing in related technologies, e.g. Big Data or cloud processing. At the other end of the spectrum the greatest difficulties in this respect are observed in less digitally advanced and more traditional sectors (e.g. construction, mining, healthcare, education) (McKinsey, & Company, 2017).

The main purpose of this article is to present the results of a comparative analysis conducted between Polish and Israeli AI startups which declare the use of start-of-the-art IT solutions, with a particular focus on artificial intelligence. At this point, it should be emphasised that unlike in Israel, we were not able to identify Polish analyses or registers pertaining to organisations focused on AI technologies, hence we were forced to rely on data pertaining to Polish organisations classified as startups. The reasons for choosing the Israeli market as a good comparison to the Polish market were as follows: it is in second place in the world, after South Korea (4.45%), among countries leading in terms of research and development expenditures relative to the GDP in 2019. The reported value for GDP percentage in Israel was 4.04% (Iri, 2019). In comparison, in Poland the same GDP percentage in 2017 was only 1.03% (Eurostat). The choice of the comparative market was also motivated by the availability of the register of startups implementing artificial intelligence, and Israel's third position (10.5%)

globally with regard to the relative market share of startups utilising AI technologies, surpassed only by the USA (40.00%) and China (11.00%) (Asgard, 2018).

2. Organisations utilising modern ICT technologies – identification of cognitive gaps

2.1. Quantitative bibliometric analysis

The impulse to approach the discussed problem of startups utilising state-of-the-art IT technologies was provided by a theoretical study conducted with the use of database resources of Scopus and Web of Science. The results thereof are presented in Table 1.

Table 1.

Comparison of the incidence of the term “startup” in respective databases

Database	Scopus			Web of Science		
	Query	No. of documents	Times Cited	h-index with self-citations	No. of documents	Times Cited*
“startup”	4364	***	***	3150	19 605/18 212**	55
“tech startup”	58	141/123**	6/6**	25	60/60**	4
“startup” AND “ICT”	3	6/3**	2/1**	2	0	0
“startup” AND “new technologies” OR “new technology”	0	0	0	1	0	0
“startup” AND “AI” OR “Artificial Intelligence”	0	0	0	2	1	1
“startup” AND “Israel”	0	0	0	1	0	0

* Category of database search – article title. **Without self-citations, *** Citation Report feature not available.

Source: authors’ own elaboration on the basis of: Web of Science and Scopus, July 17, 2019.

This stage of the analysis allowed the identification of three cognitive gaps (CG). CG1: There are few study reports discussing the characteristics of the European market of startups utilising modern technologies. This means that despite the wide interest of Polish and foreign researchers, a small number of publications presenting startups using AI technology has been observed. Assuming that artificial intelligence technology is treated as a trend in the computerization of organizations, according to the authors, an attempt should be made to characterize AI startups.

2.2. Literature review

The theoretical framework for this article has been outlined based on two scopes: the characteristics of the organization identified as a startup, and artificial intelligence technology. The scope constructed in this way allowed the isolation of startups from the group of examined organizations, and then, based on the assessment of genotypic activity and the

technologies used, it was possible to isolate startups that use AI in generating products and/or services.

2.2.1. Definition of a startup

First of all, we explored the meaning of the term “startup” based on the definition provided by S. Blank and B. Dorf, which identified it as a “temporary organisation in search of a scalable, repeatable, profitable business model” (Blank, and Dorf, 2013). E. Ries also offered significant deliberations on this topic, according to whom a startup can be identified as “a human institution designed to create a new product or service under conditions of extreme uncertainty” (Ries, 2012). In turn, the authors of *European Startup Monitor 2015* identified specific characteristic traits of startups by suggesting that they are enterprises active in the market for less than 10 years, implementing innovative business models and/or technologies, and working towards a significant increase in sales and/or employment (Kollmann et al., 2015). Startups have also been classified as companies closely associated with the technological sector, operating at the early stages of business development, and established with the view of solving the problems of specific users (Łopusiewicz, 2013). Numerous authors have defined startups as newly established enterprises characterised by a high growth potential and innovativeness manifested through the introduction of a new or significantly improved product, process, service or organisation. (Cegielska, and Zawadzka, 2017).

For the purposes of achieving the objectives formulated in this article, the following characteristics of startups have been identified:

- they search for a scalable, profitable and repeatable business model (Blank, and Dorf, 2013),
- they operate under conditions of extreme uncertainty (Ries, 2012),
- they rely on the processes of knowledge, information and data, operating within the context of high technology (Criscuolo et al., 2012),
- they are characterised by a high growth potential and an early stage of development (Damodaran, 2009),
- they operate within the scope of the digital sector and create new ICT solutions (Beauchamp et al., 2018).

2.2.2. Artificial intelligence (AI)

In turn, artificial intelligence (AI) has been defined in literature as “the capability of a machine to imitate intelligent human behaviour” (Merriam-Webster, 2019), or “an agent’s ability to achieve goals in a wide range of environments” (Legg, and Hutter, 2006). The concept of AI was first introduced by a professor of mathematics (Dartmouth), John McCarthy, in 1955. He defined AI as “the science and engineering of making intelligent machines” (McCarthy, 2007). When coining the term itself, he started from the “(...) conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that

a machine can be made to simulate it". (McCarthy et al., 1955). In yet another approach, artificial intelligence was defined as "a cross-disciplinary approach to understanding, modelling, and replicating intelligence and cognitive processes by invoking various computational, mathematical, logical, mechanical, and even biological principles and devices" (Frankish, and Ramsey, 2014). M. L. Minsky concluded that AI is "the science of making machines capable of performing tasks that would require intelligence if done by [humans]" (Minsky, 1968). The Oxford dictionary defined AI as "the theory and development of computer systems able to perform tasks normally requiring human intelligence (...)" (Oxford, 2019).

In its current state, artificial intelligence can be characterised through reference to its various applications, starting from computers capable of competing and communicating with humans, through virtual assistants, to robots dynamically processing sound and vision and able to react to a variety of sensory stimuli (Pareek, 2012). Sir Nigel Shadbolt postulated that "What we really have in AI is a whole spectrum of abilities, from programs that are smart, but they are not smart like us, to programs that are super clever in specific areas" (BBC Radio 4, 2015). L. Rutkowski presented three main approaches to artificial intelligence based on the deliberations of American researchers (Marvin Minsky, Edward Feigenbaum, Robert J. Schalkoff) (Rutkowski, 2005):

- AI is the study of machines performing tasks which require intelligence when performed by humans;
- AI is a field of computer science focusing on the technologies and methods of symbolic inference with the use of a computer, as well as symbolic representation of the knowledge employed for the purposes of such inference;
- AI entails problem solving with the use of methods modelled after the natural cognitive acts and processes of a human being via a simulation computer system.

Given the above, artificial intelligence is a technology that allows imitation of human activity through learning, interpreting complex content, reaching conclusions, and making decisions based on data processing processes. It facilitates communication with humans via certain interfaces and aims to improve its cognitive capacity in interactions with humans and possibly even replace them, not only in routine but more and more often also in non-routine tasks (Chen et al., 2016). Moreover, AI is currently increasingly used by the general public, seen in various applications both in large companies and startups, e.g. in the context of mobile devices, robotics, healthcare services, and intelligent transport (Lee et al., 2018).

The report published by Startup Genome identified the greatest increase in startup financing in the following sectors: advanced manufacturing and robotics (1386%), blockchain (1321%), agtech (1143%), artificial intelligence (464%) and fintech (460%) (2018). The percentage distribution among the aforementioned sectors was the following: advanced manufacturing and robotics (1.3%), blockchain (1.5%), agtech (3.3%), AI (5%), and fintech with the greatest share (7.1%) (Startup Genome, 2018b).

3. Startups creation using new technologies in the area of ICT in Poland and Israel

The concept of startup is fairly new in Poland but its popularity continues to grow. This is due to the changing economic model of the state, which now leans towards non-price competitiveness where aspects such as innovativeness and creativeness become paramount (Tomczuk, 2018).

3.1. Startups in Poland

Based on the report published by the Startup Poland Foundation (2018), it can be observed that the analysed enterprises focus their efforts on three main product domains: Big Data (15%), Internet of Things (14%) and analytical solutions (13%). The most popular business model involved B2B (business to business) sales, which may suggest a considerable financial maturity of the startups. The report indicates that 83% of the respondents cooperated with other companies, a significant increase from 76% in 2017. Given the above, it may be assumed that focusing on business clients provides a better guarantee of fast profit as compared to collaboration with individual customers. Moreover, the data indicate that Polish startups generate stable revenues in the following sectors: fintech (11%), martech (10%), productivity and management (10%), education (9%), programming & development tools (9%), as well as content/social services (9%).

Interestingly, we can observe a growing popularity of innovative sectors related to, e.g. Machine Learning and artificial intelligence. A growing number of Polish companies gather considerable amounts of data, thus contributing to a database facilitating the generation of new knowledge with the use of computers. In 2018, 9% of the respondents conducted business activity related to the sale of such software, and over half of them (55%) had obtained business development financing, either from investors or from public resources. According to the report by Beauchamp et al. (2018), 37% of the analysed startups rely on one of the *deep tech* technologies (Figure 1). This indicates that the respondents develop new technologies with the use of machine learning, neural networks, blockchain, or artificial intelligence.

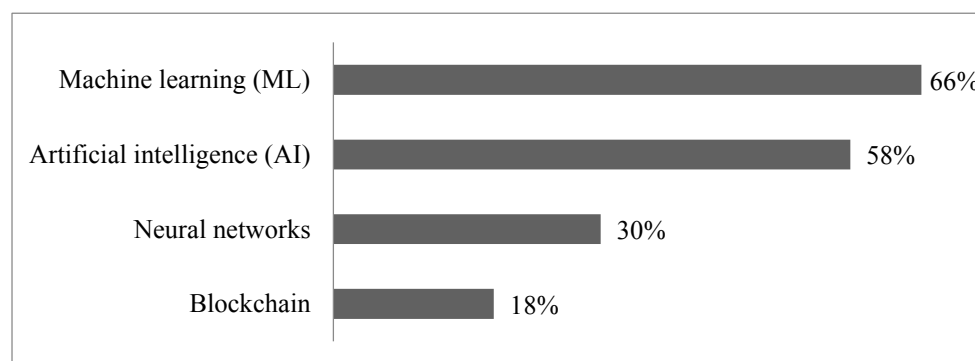


Figure 1. Popularity of *deep tech* technologies. Source: Beauchamp et al., 2018.

In terms of the sources of financing available to Polish startups (Figure 2), as many as 68% utilise their own resources, 40% rely on programs implemented by the Polish Agency for Enterprise Development (PARP) and the National Centre for Research and Development (NCBR), and 37% take advantage of domestic or foreign Venture Capital funds. Other sources mentioned by the respondents included foreign funds, angel investors, sectoral investors and banks.

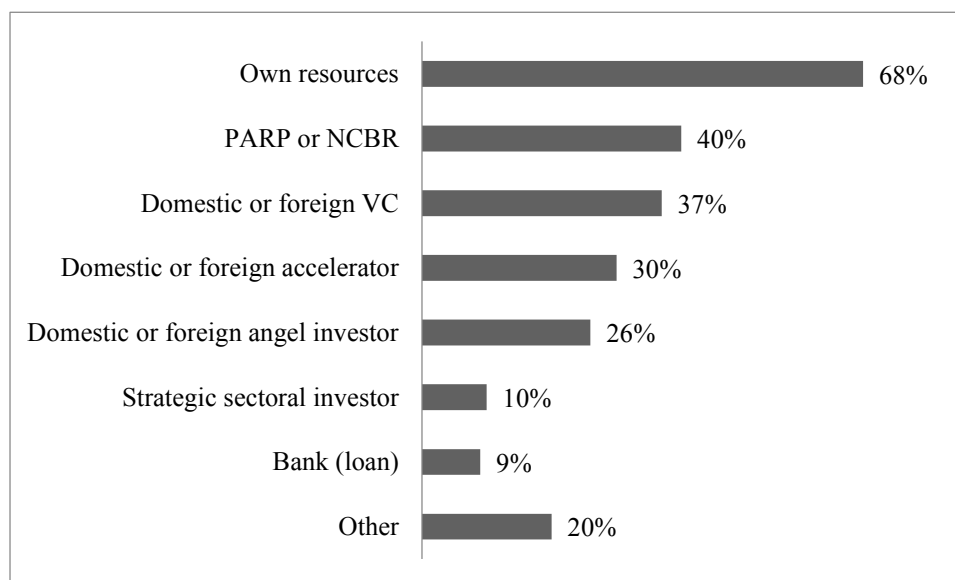


Figure 2. Sources of startup financing in Poland in 2018. Source: Beauchamp et al., 2018.

It is clear that Polish startups continuously strive to achieve better and more innovative results by developing new solutions, products and services in order to remain competitive, domestically or internationally. Unfortunately, once one considers the “startup nation” of Israel (the cradle of new technologies and innovativeness), Poland is still located in a rather weak position in terms of the emergence of dynamically developing young enterprises. It is also troubling to observe that Poland dedicates only 1% of its GDP to research and development, while a country such as Israel (with a population four times smaller than that of Poland) is able to allocate approx. 4.3% of its GDP to such purposes. Furthermore, the number of startups in Israel exceeds 5,000, while in Poland the number is half that at best (Money.pl). Given the above, it is important to identify the differences between the two countries that are responsible for inhibiting the development of the startup ecosystem in Poland.

3.2. Startups in Israel

This section of the article presents an analysis of studies and reports pertaining to the characteristics of the startup market in Israel, based on a conducted literature review. A report published by the World Bank observes that the ease of doing business score in Israel has remained fairly constant over the last three years, with an estimated increase of 0.99 in 2019, as compared to 2016 (World Bank: Doing Business, 2018). It is also important to consider the index of man days required to start a business in Israel, which decreased from 19 man days in

2010 to 12 man days in 2018 (World Bank, 2018). In the analysis of the described startup market between 2014 and 2017, a decrease in the number of new startups was observed, from 1010 in 2014 to 700 in 2017 (NoCamels.com; Startup Nation Central, 2018). At the same time, there was an observable increase in startups being closed down. In 2014, the number was 221, in 2016 – 468, and in 2017 – 408 (NoCamels.com, 2018). Fig. 3 presents the share of exit deals for startups in Israel in the 1st half 2018. Notably, a decrease in the number of exit deals for startups in Israel was reported from the first half of 2014 to the first half of 2018 from 69 to 56 (Startup Nation Central; NoCamels.com; IVC Research Centre).

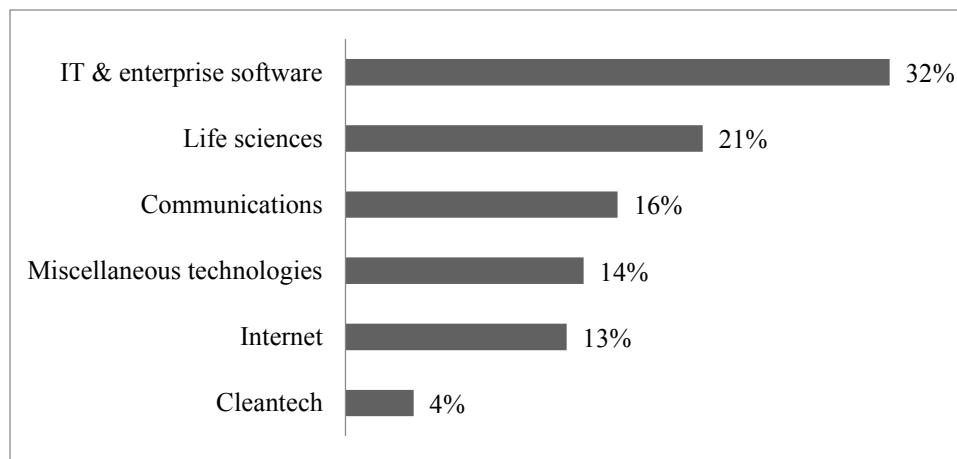


Figure 3. Share of exit deals for startups in Israel in the 1st half of 2018, by industry. Source: IVC Research Centre, 2018.

In the context of the Israeli startup market, one also has to consider the value of subsidies from the Israel Innovation Authority, which in 2017 in the startup sector ranked second, reaching 333% (Grant value in million Israeli Shekel) (Israel Innovation Authority, 2017).

Among the various types do startups emerging in Israel, the focus of this study was on the ones taking advantage of modern technologies. Fig. 4 illustrates the financial support received by the Israeli AI startups (artificial intelligence startups), by segment, in 2014-2018. The market share of Israeli organisations utilising AI technologies, on the worldwide scale, is 10.5% (Asgard, 2018). According to the report published by Roland Berger, the number of AI startups in Israel was estimated as 362 (Roland Berger, 2018), whereas for the purposes of the comparative analysis presented in this article, 885 organisations were identified based on data available at startuphub.ai (as of October 2018).

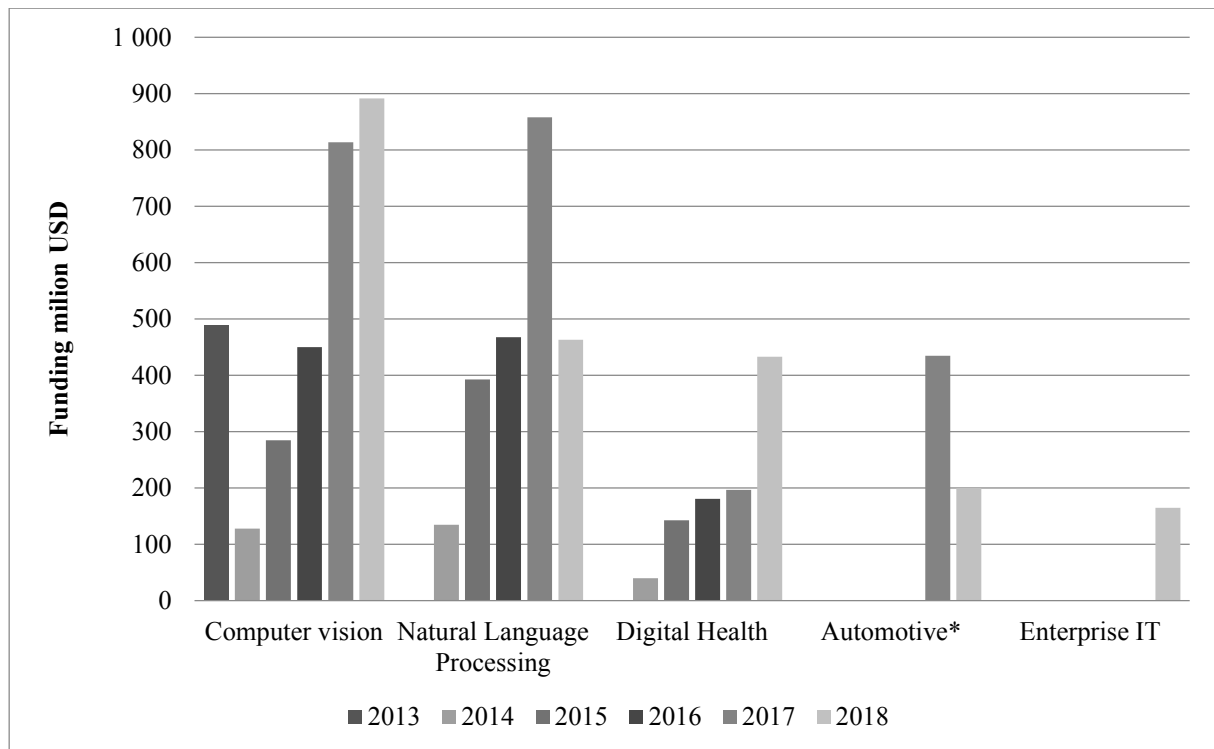


Figure 4. Funding of artificial intelligence startups in Israel by segment. Source: authors' own elaboration on the basis of Statista.

At this point, it should be noted that while the number of AI startups continued to grow between 2000 and 2015, a decrease thereof was observed in 2015. Moreover, the number of newly established startups was lower in 2017 compared to that in 2012 (Statista, 2018).

Based on an empirical study conducted in 2018 in the selected population of AI startups in the Israeli market, an attempt was made to evaluate the maturity of the organisations. As can be observed from the presented results, the largest number of organisations were classified, under the MMPM model (Sliż, 2018a, Sliż, 2018b), at level one (L1 E+), characterised as a condition wherein the organisation of management is functional but there are certain indications suggesting the possibility of long-term improvement. Moreover, the described results evidence a high share of respondents focused on the aspect of streamlining facilitated by all employees and innovation introduced in line with the customers' requirements (Sliż, 2019).

4. Results and discussion

Based on the above information as well as data obtained from other sources, the below table was prepared with a juxtaposition of the startup markets in Poland and Israel (Table 2).

Table 2.*Basic information about the startup markets in the compared regions*

Country/market	Israel	Poland
Stage of development	Product market	Solution-product fit
Pace of development	Dynamic	
Founder's profile	No data	Experienced persons in their thirties, university graduates, mainly from Poland
Financing	External financing	Own resources
Level of value produced (product, organisation, market)	Product/service	
Operating risks	No data	High (legal, personnel, financial barriers)
Role of the state	Funding	Support
Scope of activity	New technologies	
Outside relationships	No data	Collaboration with research centres
Areas of operation	Technologies	SaaS
	Enterprise	Tools for developers and programmers
	Healthcare	Natural sciences/health sector/biotechnology
Types of relationships by user type	B2B	
IT tools and technologies used	Machine Learning	Observably growing popularity of innovative sectors such as Machine Learning or AI
	AI	
	Deep learning	
Approach to innovation	High percentage of startups utilising modern ICT solutions	Development of new products and improvement of existing solutions
Predominant type of services/products	Software	Big Data
		IoT
		Analytical tools

Source: Authors' own elaboration on the basis of startuphub.ai (October 2018); Beauchamp et al., 2017, 2018; Białek, and Nowak, 2018.

The conducted analysis reveals many significant differences between the two compared markets (see Table 2). The most important pertains to the level and dynamics of startup development. The number of startups in Poland continues to grow but still remains low compared to that observed in Israel as well as in other leading markets worldwide. One should also point to the observed growing popularity of innovative technologies in Poland, e.g. machine learning or artificial intelligence, which were revealed to be dominant in the Israeli startup market. Israeli AI startups are currently at the stage of product market, take considerable advantage of outside financing, and utilise modern ICT technologies. In turn, Polish startups mostly rely on their own sources of financing and develop new products or improve on existing solutions at the stage of solution-product fit.

Given the areas in which Israeli AI startups operate, their activities are primarily focused on the following categories: technologies, enterprises, healthcare, and marketing. Polish startups, on the other hand, develop SaaS, create developer and programmer tools, as well as focus on natural sciences, the healthcare sector, and biotechnologies. Both Polish and Israeli startups emphasise the importance of dynamic development and tend to opt for B2B interaction with the market.

5. Conclusion

The presented comparative analysis of the Polish and Israeli startup markets was intended as a preliminary study. Based on the conducted empirical research, three general conclusions can be formulated.

First of all, clear differences can be observed between the analysed markets, particularly in terms of the number of AI startups. Based on the analytical results, it can be theorised that these two markets constitute two extreme ends of the spectrum of utilising the benefits stemming from the availability of modern ICT solutions and the degree of their implementation.

Secondly, an attempt was made to define the concept of an AI startup. It was identified as an organisation characterised by an innovative business model adapted to the needs of its turbulent milieu, engaged in the development of technological solutions, both in terms of software and hardware, with the use of artificial intelligence.

Thirdly, the determinants of AI startups were presented, including: business activity based on the creation of high technologies capable of imitating humans, their efficiency and behaviour; relying on intelligent machinery designs; high flexibility and growth dynamics; focus on the capacity to flexibly respond to the phenomenon of prosumption, interaction with the market based on the B2B model or hybrid B2B-B2C models, and operation within the areas utilising modern information and communication technologies in sectors such as, e.g. telecommunications, financial services, healthcare, marketing, and the automotive industry.

The authors set the direction for further research, consisting in extending the observation of a broader spectrum of AI-startups in other European and American markets.

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HUMAN ORIENTED CORPORATE ACTIONS: STAKEHOLDERS AND CSR

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Introduction/background: The paper builds on the organization's stakeholders theory by adding a new relation. It stipulates that separate groups of stakeholders can co-operate and influence each other in beneficial terms, which is important especially to local leaders, corporations and academic specialists in the CSR field.

Aim of the paper: The purpose is to contribute to humanistic management by focusing on how corporations become more human oriented and present on the social arena. The aim of this research is to build on the organization's stakeholders theory, especially within the scope of Corporate Social Responsibility (CSR).

Materials and methods: The paper combines a theoretical aspect, in the form of the stakeholders theory, and a research one, in the form of a case study. The subject of the study is CSR action taken by Santander Consumer Bank in Poland during recent years in the form of the Santander Orchestra. The objectives are achieved by applying the method of a case study.

Results and conclusions: The stakeholders theory is further developed to include interaction between different groups of stakeholders. It demonstrates how those groups benefit each other and how their interaction can be beneficial for the society. Ways to improve CSR activities are identified. The study includes a thorough analysis of the Santander Orchestra. It explains and points to best practices. The research can be treated as a set of guidelines for other corporations to use when creating their CSR activities. This research can help to make the public understand that corporations can have a great and positive impact on the social arena.

Keywords: Social Responsibility, humanistic management, stakeholders theory, Santander Orchestra.

1. Introduction

Stakeholder theory is often used in research on Corporate Social Responsibility (CSR) activities, thus becoming an integral part of the matter. It is also cited in many other theories and activities related to management, such as in the context of research on the humanistic management paradigm. What is more, its major uses and adaptations can be found across a broad array of disciplines such as business ethics, corporate strategy, finance, accounting, management, and marketing (Parmar et al., 2010). Its value, however, is most evident in relation to the concept of CSR.

There is extensive literature on the concept of CSR and activities undertaken in its scope addressed to various groups of corporate stakeholders. This article extends existing literature by making an original contribution to it.

This contribution takes the form of research results and analysis that allow the development of stakeholder theory. Parmar et al. (2010) describe stakeholder theory as constantly evolving and remaining under the influence of researchers attempting to invent more useful ways to describe, redescribe, and relate it to business. This work represents one of those attempts. As a result, the stakeholder theory is expanded with an element indicating the possibility of cooperation of two or more groups of stakeholders within one CSR activity. Without the CSR action taken by the company, these individual stakeholder groups could not have established their relation. Reciprocity creating a social network in which one group of stakeholders performs work for the other group is the result of such activities. The thesis adopted in the article assumes that CSR activities can form the basis for developing stakeholder theory with new content elements. The goal is to analyze socially responsible activities of enterprises for the broadly understood stakeholders and the changes that these activities can bring to the stakeholder theory. An example of socially responsible activities taken for the purpose of this research was the Santander Orchestra initiative. The method adopted in the study is the case study method. The choice of the research method provides empirical evidence to verify the thesis adopted in the study.

The article is organized as follows. Firstly, a literature review on CSR and stakeholder theory is presented. This section provides a theoretical foundation to develop the hypothesis. Secondly, the methodological section provides information on the research subject as well as the adopted methods and tools. Then, findings of the research are provided. Results and discussion, followed by a summary, complete the article.

CSR and the Stakeholder Theory

Contemporary enterprises operating in the conditions of globalization and growing market competition, in addition to the main economic goals, increasingly include social objectives in their activities (Żemigala, 2007). Kuc (2004) emphasizes that 'enterprises for which profit is the only specific goal are not financially as successful as those that have adopted a broader set of values'. The task of the CSR programs created by companies is to expand their activity by working towards a social goal. Companies performing a mere profitable function means their placing a group of primary stakeholders (owners, shareholders) above secondary stakeholders (local, regional communities). Unlike profit-oriented management, social responsibility is perceived as a concept that includes relationships with all stakeholder groups, not just the primary. As per Parmar et al. (2010), the CSR concept as a whole encompasses numerous parts, including corporate social performance, corporate social responsiveness, corporate citizenship, corporate governance, corporate accountability, sustainability, the triple bottom line and corporate social entrepreneurship. All of these share the aim of including the organization's other-than-financial obligations. Furthermore, the authors suggest that the language previously connected to stakeholder theory has been critical in allowing CSR researchers to specify the varied obligations of an organization.

The historical origins of the stakeholder theory are anchored in the book "Strategic management: A Stakeholder Approach" from 1984, by Freeman. Since the publication of this book, the literature on the stakeholder theory has become vast and diverse (Frederick, 2008). However, the most prevalent definition remains the one presented by Freeman, who conceived a stakeholder as "any group or individual who can affect or is affected by the achievement of the organization's objectives" (1984, p. 46). For Donaldson and Preston (1995, p. 67), stakeholders are persons or groups with legitimate interests in procedural and / or substantive aspects of corporate activity, and they "are identified by their interests in the corporation, whether the corporation has any corresponding functional interest in them". Mitchell, Agle, and Wood (1997) assume that persons, groups, neighborhoods, organizations, institutions, societies, and even the natural environment are generally thought to qualify as actual or potential stakeholders.

The stakeholder theory addresses the topic of CSR in a broader context than just the category of profits. The area of interest of the enterprise includes all stakeholders for whom the company's activities matter. The stakeholder theory emphasizes that "[...] all stakeholders (which include employees, shareholders, clients, the local community and others) claim the right to interfere in the business of the enterprise. This is manifested through the postulated expectations and may result, among others, from the fact that each enterprise coexists in a given local environment with other participants of social life" (Freeman and Evan, 1990, p. 340).

Ackerman and Bauer (1976) focused their research on organizational behaviors that adhere to societal expectations. They believed that the main goal of enterprises should be to react in advance to matters that society does not accept, and not just to take on forced responsibility later.

Numerous attempts to define the concept of CSR appeared in the 1950s. Howard Bowen (1953), in his publication "Social Responsibilities of the Businessman," indicated that business has an impact on society, so the company's goals should be consistent with social goals and values. The 1960s (the so-called "social era") brought further significant changes along with an increase in the number and quality of CSR definitions. Frederick (1994, p. 156), for example, regarding the needs of many people, states "social responsibility means that a businessman should anticipate the economic system to meet society's expectations [...]".

According to McGuire (1963), a company has not only economic and legal obligations, but also many others regarding society, going far beyond the above mentioned ones arising from legal provisions or market economy rules. These include, but are not limited to, interest in political affairs, social security, education, and other issues related to their employees and society in general. Eelis and Walton (1961), in turn hold that by CSR, the company understands the close relationship between it and greater society and draws attention to the voluntary nature of actions taken by the company.

The seventies brought more and more precise definitions of CSR. Johnson (1971), for instance, sets out that managers of a socially responsible company must balance profits with other human interests. In his description, he pays special attention to stakeholders, because a company striving to meet their needs becomes more competitive. Similarly, Backman (1975) believes that CSR refers to the non-economic goals and motives set by the business community. He mentions reducing environmental pollution, employing minority groups, participating greatly in programs aimed at improving the living conditions of the society, and improving medical care.

Important changes in the discourse on CSR were introduced by Manne and Wallich (1972). They distinguished three conditions by which a given action can be considered socially responsible. The first assumes that the income from expenditures or activities should be greater than the possible income from other, alternative expenditures or activities. The second – that the activity should be entirely voluntary. The third condition is that the costs resulting from pro-social activities should not be a generous distribution of money among people, but should result from current, well-thought-out decisions of lasting relevance.

An important role in creating the concept of CSR was played by the famous Davos manifesto from 1973, whose participants emphasized that the role of a company is not only to maximize profits, but also to serve society. "Management should serve clients, colleagues, funders and the society as a whole, and should balance the different interests of these groups. [...] Considering clients – satisfy their needs in the best possible way; considering co-workers – providing jobs and contribute to humanization of those jobs; considering shareholders –

provide dividends; considering society – use the entrusted knowledge and resources for the well-being of society and provide future generations with a living environment worth living in" (Suska, 2016, p. 302).

The nineties and the beginning of the 21st century brought new views and definitions of CSR. "In 2000, during the European Summit in Lisbon, the European Council presented the 10-year socio-economic program of the European Union called the 'Lisbon Strategy'. The goal of the Strategy and of the related activities, called the 'Lisbon Process', was to make the European Union the most competitive, dynamic, knowledge-based economy in the world, capable of sustainable development, with more jobs and social cohesion." (Żelazna-Blicharz, 2013, p. 28).

On the 18th of July, 2001, the European Commission published a document entitled "Green Paper on CSR" called the 'Green Paper', which aimed to launch a public debate on CSR. The 'Green Paper' contains, among other notions, the definition of CSR according to which "enterprises voluntarily include social and environmental aspects in their commercial activities and in contacts with their stakeholders." (Żelazna-Blicharz, 2013, p. 28).

In July 2002, the European Commission presented another document entitled 'CSR: business participation in sustainable development', which deals with the principles of promoting the idea of CSR. The document puts forward that: "Social responsibility means that not only legal expectations should be met, but also more attention should be paid to the development of human capital, the environment and the relations with stakeholders" (Żelazna-Blicharz, 2013, p. 29).

The concept of CSR, which has long been present in European countries, has recently been gaining popularity in Poland. More and more companies are now taking actions for the benefit of their stakeholders and the community and are noticing the profits of creating a positive social image (Forum Odpowiedzialnego Biznesu, 2018).

At the heart of these actions lies the concept of a stakeholder-oriented company. "Stakeholders" is one of the most important definitions that have entered the business dictionary along with CSR. Basically, it is safe to state that the company's stakeholders include everyone – because in times of globalization, the network of mutual relations is getting stronger and deeper. However, from the point of view of a given enterprise, the most important are the bonds with the stakeholders that can be managed.

In the primary sources, there are two approaches towards the concept of stakeholders: narrow and wide. According to the narrow definition, these are groups that have a significant impact on the development and success of an enterprise (this definition mainly focuses on the impact of these groups on the company's economic profits). On the other hand, the broad definition suggests that stakeholders influence or remain under the influence of an enterprise – this approach is derived from research on relations between companies and various groups shaping market behavior. A summarized comparison of the wide and narrow approaches to stakeholders is presented in Table 1.

Table 1.*Narrow and broad understanding of the concept of stakeholders*

Narrow approach	Wide approach
Stakeholders of an organization depend on the company because their goal is to achieve their own interest, but, at the same time, the survival of the company depends on them (Rhenam).	Stakeholders of an organization are individuals or groups that can influence the activities of the organization or are influenced by the actions taken by the organization (Freeman).
Stakeholders of an organization are groups on which the survival of the organization depends upon (Stanford Research Institute).	Stakeholders of an organization are groups that the corporation is responsible to (Alkhafaji).
Stakeholders of an organization are voluntary or involuntary risk bearers (Clarkson).	Stakeholders of an organization are groups that have relationships with the organization (Thompson, Wartick, Smith).
Stakeholders of an organization are groups or individuals on which the organization's survival depends (Freeman).	Stakeholders of an organization behave in such a way that they have one or more interests, starting with a legal or moral interest (Carroll).
Stakeholders of an organization are groups without which the organization cannot survive (Bowie).	Stakeholders of an organization are individuals or groups that have claims, property, rights or interests in the organization and its activities (Clarkson).
	Stakeholders of an organization have interest in the company's activities and the ability to influence it (Savage).

Source: Adapted from: Paliwoda-Matolańska, A. (2009). *Odpowiedzialność społeczna w procesie zarządzania przedsiębiorstwem*. Warszawa: CH Beck.

In a business environment, stakeholders are classified into categories of internal and external. Internal stakeholders refer to the individuals and parties within the organization, while external stakeholders represent outside parties that affect or become affected by the business activities (Stahla et al., 2019). Table 2. lists the main differences between internal and external stakeholders.

Table 2.*Internal Stakeholders Vs External Stakeholders*

	Internal stakeholders	External stakeholders
Impact	Direct	Indirect
How are they related to the organization?	They serve the organization (work for, work to achieve company's goals etc.).	They are influenced by the organization's work.
Employment	By the organization	Not within the organization
The company's responsibility towards stakeholders	Primary	Secondary
Examples of group members	Employees, Owners, Board of Directors, Managers, Investors etc.	Suppliers, Customers, Creditors, Clients, Intermediaries, Competitors, Society, Government etc.

Source: author's own work based on Koehler, I. and Raithel, S. (2018). Internal, external, and media stakeholders' evaluations during transgressions. *Corporate Communications: An International Journal*, 23, 4, pp. 512-527. <https://doi.org/10.1108/CCIJ-10-2017-0096>

Hence, business that does not exist only to increase the value of investments made by the owners, but also to meet the expectations of various groups of stakeholders, creates added value for all of them: both the internal and external stakeholders.

2. Methods

Santander Orchestra

The subject of the study is the CSR action taken by Santander Consumer Bank in Poland during recent years in the form of the Santander Orchestra. Santander Consumer Bank is one of the largest financial institutions in Poland. On their website, the bank declares that it is committed to implementing the strategy of CSR, based on the UN Sustainable Development Goals manifesto. As a part of the international Santander Group, the bank is constantly expanding the scope of projects carried out for its stakeholders, both external and internal.

CSR is just as important at Santander Consumer Bank Polska as core business activity. These are two sides of one coin. The bank generates profits by cooperating with clients. We believe that we should repay our customers for the trust they show us by implementing educational initiatives and programs aimed at supporting and developing local communities – says Michał Gajewski, President of the Management Board of Santander Consumer Bank Polska (Santander Bank Polska, 2019).

The Santander Orchestra project is an initiative addressed to young musicians who, by means of it, have the opportunity not only to play in a symphony orchestra, but also through various sponsored workshops, to supplement their musical and non-musical knowledge and to properly prepare to work as professional musicians.

We believe that everyone should have an easy access to music as it teaches openness, creativity and opens up new perspectives. It connects people beyond borders of culture and language.

The Santander Orchestra is an educational project in which the most talented musicians from all over Poland can take part. They develop their skillset under the guidance of excellent conductors and tutors - both during rehearsals and concerts. Hence, the Santander Orchestra project supports young talents and local communities. It is also a communication project addressed to, among others, employees and their families. The musicians, therefore, constitute a group of external stakeholders of Santander Consumer Bank, while the employees form a group of internal stakeholders.

History of the initiative

The idea of establishing the Santander Orchestra was crystallized after Jose Florencio conducted music workshops at the Krzysztof Penderecki European Center for Music with youth from 17 countries around the world. The concert, which was organized at the end of the joint work, was the trigger to create a further system of support for talented young musicians, that was different from the system of conventional scholarships. The Santander Orchestra initiative arose as a consequence of a lasting cooperation between the MyWay Foundation and Bank Zachodni WBK (Santander Group). The idea of the partners is to create a new orchestra of young musicians. The project is implemented jointly with the European Krzysztof Penderecki Center for Music in Lusławice.

Santander Orchestra is the original project of director Katarzyna Meissner from Santander Consumer Bank Polska and Adam Górko from MyWay Foundation. The project was co-created by the team of the Sponsorship and Relational Projects Office: Emilia Baradziej and Jakub Żulewski. The first editions were conducted in cooperation with the MyWay Foundation and the Krzysztof Penderecki European Music Center. The last editions were organized together with the Jazz and Film Music Foundation.

The course of the initiative in relation to external stakeholders

The first edition of the Santander Orchestra initiative took place in 2015. In the recruitment process, the Orchestra's Council selected 64 talented musicians from all over Poland who then took part in activities conducted by the American conductor – John Axelrod. The culmination of this work was a tour in November and December of 2015, during which the Santander Orchestra gave concerts in Lusławice, Wrocław, Katowice, Warsaw and Szczecin conducted under the supervision of Krzysztof Penderecki and John Axelrod.

Since 2015, the Santander Orchestra has played 30 symphony and chamber concerts under the direction of Krzysztof Penderecki, John Axelrod, Jerzy Maksymiuk, Lawrence Foster, José Maria Florêncio, Marek Mos, Maciej Tworek, Adam Sztaba and Marcin Sompoliński.

In 2016, Jerzy Maksymiuk included their performance at one of the most important Polish festivals in the celebration of his 80th birthday. For 4 days, Jerzy Maksymiuk practiced in Lusławice with musicians from the Santander Orchestra, also conducting intense section tests. The effect surpassed the wildest expectations, the performance was hailed as the event of the Beethoven Festival in 2016.

In the same year, the Santander Orchestra recorded an album of the works of Fryderyk Chopin and Antonin Dvorak under the baton of Jose Maria Florencio. In his rich career, Jose Maria Florencio was the conductor of the Grand Theater in Łódź, the music director of the Wrocław Opera, the general and artistic director of the PRiTV Orchestra and Choir in Krakow and the Poznań Philharmonic, as well as the director of the Grand Theater in Poznań. Moreover, he has been the resident conductor at the Grand Theater-National Opera in Warsaw.

In April 2017, the album mentioned above was awarded the recording of the month by the prestigious French music portal 'ResMusica'.

In 2018, as part of the Santander initiative, talented young musicians from all over Poland formed a 65-piece orchestra that played three concerts as part of the twenty-second Ludwig van Beethoven Festival in Warsaw, Poznań and Łódź. In addition, the Santander Orchestra Academy in Warsaw sponsored a series of 7 workshops with world-famous musicians playing selected instruments. These workshops also showed young musicians how to consciously pursue their careers and which aspects to focus on in order to become more competitive on the demanding labor market.

In April 2019, the Santander Orchestra performed once again during the Ludwig van Beethoven Easter Festival. Also in April 2019, the Orchestra appeared on the stage of the 'Jazz on the Odra' festival in Wrocław for the first time, and in May, it performed during the UEFA Champions League final in Madrid under the baton of Adam Sztaba. In October, it took part in a concert tour with Leszek Możdżer, Tia Fuller and Lars Danielsson - performing in Warsaw, Lublin, Katowice, Szczecin and Gdańsk. Furthermore, during such events as "Muzyka Nocy Letniej" in Gdańsk, "Festiwal na Fali" in Kostrzyn or even during the performance in Madrid, the Santander Orchestra performed in a chamber composition with a contemporary repertoire. Finally, during the "Symphosphere" autumn tour with Leszek Możdżer, a completely different chamber orchestra composition (with a more jazz-like repertoire) was performed.

The course of the initiative in relation to internal stakeholders

One part of the project initiatives was the Santander Orchestra music workshop addressed to bank employees and their children. Herein, children of employees could take part in music and rhythmic classes, educational workshops on selected instruments and singing and hearing games.

For some of them, it was the first opportunity in their lives to learn about keyboards. Parents, on the other hand, had the opportunity to participate in lectures discussing the benefits of music education that were organized for them by outstanding specialists from music universities.

Musical hearing tests were also undertaken for children aged 5-12, during which parents had the opportunity to learn about their children's hearing predispositions. Qualified specialists also checked whether children's hearing predispositions are sufficient to apply to music schools. Moreover, thanks to the possibility of engaging in such an event, young workshop participants got used to the stressful situation of participating in entrance exams to music schools.

The recruitment process and participation of external stakeholders in the project

Each new edition of the project is a new chapter and a new recruitment of talented young musicians. The staff responsible for the implementation of the project carry out the recruitment process via the website *santanderorchestra.com*. The bank employees responsible for the Santander Orchestra project want the project to be open to everyone. Candidates (students or

graduates of Polish music colleges aged 18-28) send recordings of songs selected by the project organizers, together with their university professors' recommendations. The commission, composed of recognized artists and creators, using strict criteria, choose the best and most talented musicians for the symphony orchestra (64/69 people) or chamber orchestra (21 people) depending on the repertoire selected in a given project.

After hand-picking the musicians for the project, special groupings are organised where the elected musicians prepare for concert tours and participate in classes usually skipped at universities. They improve their musical (and other) skills by training under the guidance of the best international educators, which include: Roland Greutter (NDR Elbphilharmonie Orchester), Julia Gartemann (Berliner Philharmoniker), Robert Nagy (Wiener Philharmoniker), Daniel Ottersamer (Wiener Philharmoniker), Arek Górecki (Chicago Symphony Orchestra), Markus Maskunitty (Berliner Philharmoniker) and Wojciech Morcinczyk (Polish National *Radio Symphony Orchestra in Katowice*).

Jakub Haufa, a musician who works as the first concertmaster in the *Sinfonia Varsovia* orchestra, works with the violinists. Katarzyna Budnik-Gałązka, the artist nominated for the 'Polityka' Passport in 2013 and the winner of the Frederic statuette for her solo album "Viola recital", looks after the group playing violas. Marcel Markowski, the youngest among the teachers of the Santander Orchestra, is also associated with *Sinfonia Varsovia*. The list of tutors working at the Santander Orchestra with youth playing wind instruments is opened by Arkadiusz Krupa, the first oboist of the Polish National Radio Symphony Orchestra for almost 15 years, and who has performed the same function in *Sinfonia Varsovia* since 2012. Ewelina Sandecka, who is responsible for the French horn section, played in Poland with the Polish National Radio Symphony Orchestra, and in Spain, is a soloist of the *Bilbao Orkestra Sinfonikoa*. Zdzisław Stolarczyk, an artist who has been the president of the Polish Trombone Association since 2005 and is a member of the International Trombone Association, is responsible for the trombone section. He has been associated with the Polish National Radio Symphony Orchestra for many years.

The recruitment process and participation of internal stakeholders in the project

Employees and their children are invited to music workshops via internal communication, i.e. through newsletters and news on the intranet. These events are organized for them free of charge. The Santander Orchestra project staff does not carry out any special recruitment for such events. Participation in the workshops is determined by the order of applications and the number of places available in a given edition. In addition, employees are invited to Santander Orchestra performances on every tour. Special internal competitions are also organized – e.g. concerning the project, music and artists - in which tickets for Santander Orchestra concerts are the prize.

Project objective in relation to external stakeholders

The goal of the Santander Orchestra project is to create an initiative addressed to young musicians, combining the highest level of music practice with additional classes – usually overlooked in traditional music education. Therefore, in addition to practical classes from world-famous musicians, students and graduates of music schools have the opportunity to participate in lectures on financial management, image management, public relations, copyright and social media. These issues are usually overlooked in the music studies programs, and are very important when building a professional career. By supplementing musical education with knowledge in these areas, young musicians participating in the project are able to efficiently, independently and consciously plan and lead their careers.

Project objective in relation to internal stakeholders

The Santander Orchestra project is not only a symphony orchestra consisting of the best young talents from all over Poland, but it is also a project open to music education. For the Santander Orchestra, the purpose of the music workshops organized in various Polish cities for the Bank's employees, their children and their immediate family is to show the benefits of music education.

Benefits for external stakeholders

The Santander Orchestra is an educational project, not a permanently functioning orchestra. So as to involve as many people as possible, each new edition is a new recruitment process, and therefore a new orchestra composition. It also includes new repertoire, new soloists and conductors and new locations of performance. So far, over 300 young musicians from all over Poland have participated in the project.

Benefits for internal stakeholders

The project also includes music workshops for the children of the bank employees. In these, such children can take part in musical hearing tests, music and rhythm classes, educational workshops on instruments and singing and hearing games. As of the third edition of the project, opportunity has been given for testing the hearing predisposition of children in the 5-12 age range. Workshops were organized in 2017 and 2018 in Gdańsk, Gorzów Wielkopolski, Konin, Kluczbork and twice in Warsaw, and 117 children took part in the hearing tests alone. So far, nearly 400 employees and their children took part in all events.

Thanks to the music workshops addressed to the Bank's employees, their children and their immediate surroundings, the project has reached out to local communities and showed the benefits of music education and the development opportunities offered by learning music from an early age.

Common benefits for internal and external stakeholders

After selecting musicians for the project, special groupings are organized where young musicians prepare for concerts and participate in financial management, self-presentation and similar activities organized for them. Usually these workshops take the form of lectures. The minimum duration of one workshop is 1.5 hours. Employees of Santander Consumer Bank who deal with finances on a daily basis are invited to act as lecturers, as are employees from the communications and marketing department. Their task is to share their knowledge about social media or to present basic knowledge about building image in the media. Recognized music journalists are also invited to conduct workshops on self-promotion on the music market, on the music market itself, and on musical careers. By way of such workshops, young musicians can see and hear what interviews on the radio or television are like, how to prepare for such interviews, how to talk about their own music and how to promote themselves. Every year, different experts are invited to cooperate in the project.

Challenges

The creators of the Santander Orchestra recognize that the key challenge they face is skillful, proactive communication and project promotion. They recognize that it is important to find the most effective way to ignite positive emotions among all recipients, thus building positive associations with the project. They see the need to look for extraordinary, innovative ideas that will surprise, attract attention and intrigue the recipient in modern information accumulation. For the creators of the Santander Orchestra, the most important challenge in recent years is what they called the “attendance challenge”. This concerns finding a way to attract Polish audience to come to a concert in which a completely unknown orchestra is the principle attraction. This challenge had a positive solution, the effects of which became noticeable when the project “Symphosphere” sold out more than a month before the first concert that took in five cities in Poland.

Expected benefits

From the beginning, the project was created as a CSR platform supporting young talents, as well as a communication platform addressed to the bank's clients, employees and the general public at the same time. The biggest award for the organizers of the project is when they see that musicians can develop and fulfill their professional dreams thanks to the Santander Orchestra. Through the initiative, young musicians benefit the most from playing – often for the first time – in a professional orchestra, on a concert tour, under the direction of eminent conductors. The organizers of the campaign often hear from the participants that in just a few weeks as a member of this orchestra, they have learned more than they had during their regular school music education. Still, music education in the project is not a substitute; it only gives the

opportunity to polish the individual's skill-set. For some participants, it is also a pass to employment in professional orchestras.

In turn, for the bank this has measurable image benefits. First of all it generates satisfied customers who are invited to concerts, but, equally important, the project has great potential to build a positive brand image. It is worth mentioning that the project was subjected to a attractiveness level test. Research shows that almost 75% of all consumers find the project attractive and positive in its support of young musicians.

Plans for the future

The creators want their project to be unique, inspiring, unforgettable, and different from previous years. After years of performing with the classical repertoire (Bizet, Chopin, Dvorak, Haydn, Penderecki), in 2020, the orchestra has turned to contemporary jazz music. Currently, work on the project's future is under way.

Research purpose, method and approach

As indicated from the literature review, CSR is, nowadays, a significant and growing phenomenon. The topic has been thoroughly investigated, but when linked to stakeholder theory, there are opportunities for development. The purpose of this article is to contribute to humanistic management by focusing on how corporations become more human oriented and present on the social arena. The aim of this research is to build on the organization's stakeholder theory, especially within the CSR scope.

The method used in this article is a case study. Case study is an inductive method, i.e. it is a logical model of reasoning in which general theorems are derived from detailed observations (Babbie, 2013).

Yin (2004, p. 13) defines a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly evident." The author suggests that the case study method is particularly useful when researching a subject in the field of community psychology and sociology, as well as in investigating organizational issues and management.

According to Starman (2013), the case study approach falls into the category of qualitative research and is one of the first types to be used in it. Moreover, the author suggests that case studies have been widely employed in the fields of social science and practice-oriented arenas. Zainal (2007) believes a case study to be a robust method wherein a comprehensive examination is expected. The author argues that case studies allow a close investigation of a matter within a particular context. Zainal (2007) also claims case study research focuses on real-life and current phenomena capable of being explored in a given context, and where relationships between the variables of this context can be taken into account and explored. "The name *case study* shall draw attention to what special information can be learned about a given case" (Stake, 1997, p. 624). The case study method is useful when looking for an in-depth

investigation when the research sample is limited in number and a search for numerous attitude variables is welcomed. Starman (2013) believes that the results of a case study can contribute to more holistic and comprehensive theory-building.

This research uses the qualitative method of an electronic interview (e-interview) and secondary data analysis. The electronic interview included five groups of open-ended questions. Bowden & Galindo-Gonzalez (2015) have noted that with the more common use of the Internet, a relatively new method for interviewing has emerged: e-interviewing. Meho (2006) also sees e-interviews as valuable alternatives to the traditional. However, the authors claim that e-interviews tend to be marginalized and face-to-face interviews seem to be held in higher regard. Still, Bowden & Galindo-Gonzalez (2015) point to Meho (2006) who claims that data obtained through the means of e-interviews and traditional face-to-face interviews does not vary in quality. In addition, as claimed by numerous authors mentioned by Bowden & Galindo-Gonzalez (2015, p. 80), data coming from e-interviews tends to be more concise and provide specific examples and ideas in comparison to transcripts from face-to-face interviews.

Salmons (2012) recognizes there are asynchronous and synchronous methods of online communication and interview conducting. Synchronous is when both the interviewer and the interviewee are communicating online at the same moment in real time; asynchronous is when the respondent does not answer the questions in real time. According to May (2005; as per Bowden & Galindo-Gonzalez (2015)), asynchronous research is helpful when interviewing individuals who lead busy professional lives and would not have the time to meet face-to-face. Styśko-Kunkowska (2014) adds that electronic interviewing may be necessary when time-related, physical, or research-subject-related constraints occur. For this reason, among others, the asynchronous method is applied in this research.

Salmons (2012) suggests that the asynchronous method provides the interviewee ample time to think through the answers before writing them down. This can, in turn, lead to greater research results as more insightful content might come up as a result of the interviewee's opportunity to focus without time pressure. Asynchronous e-interviews, therefore, eliminate the barrier of time and can provide more detailed answers, according to Bowden & Galindo-Gonzalez (2015).

As the variety of data sources is the main advantage of the case study method (Yin, 2004), the article uses the analysis of materials posted on the bank's website. Additionally, interviews regarding the Santander Orchestra project (questions sent via e-mail) with two Santander Consumer Bank employees were actioned. The interviewees were two employees responsible for CSR activities: the CSR Manager and the Senior Specialist in relational projects, Ms Katarzyna Teter and Mr Jakub Żulewski.

In the case of this research, the e-interviews were sent out in November and December 2019. The e-interview questions were developed on the basis of the literature review presented in the first part of this article and through an analysis of the bank's website content. The e-interviews included 10 open-ended questions grouped in 5 clusters. They considered the character of the

orchestra, the recruitment process, talent management techniques, the trainers, internal stakeholder (employees and their children)-focused activities and their take-up, and internal research details. Answers to the e-interviews were received promptly, in November and December 2019.

3. Results

Globalization, the process that allows businesses to run their operations on an international scale, besides having positive effects, has also negative impacts such as the destruction of the natural environment due to the abuse of raw materials, deepening of the unemployment and increasing the distance between rich and poor. Hence, activities for the sake of social responsibility are part of the process of neutralizing and repairing the damage done by corporations or contributing to the general societal well-being that impacts upon both external and internal stakeholders.

This text includes an extension of stakeholder theory in the form of the added dimension of relations between internal and external stakeholders within the CSR frame. It suggests that techniques previously applied to internal stakeholder groups (like talent management) can also be applied to external stakeholders groups. It implies the emergence of a phenomenon that can be called non-organizational talent management. This means conducting activities in relation to external stakeholders whose goal is to select specific talents that will not be used directly by the organization, but will indirectly bring certain long-term profits to the organization and the society.

Additionally, this case study clearly uncovers the mutual benefits both stakeholder groups receive while interacting. Figure 1 presents a simplified model of relations between different stakeholder groups within the Santander Orchestra project.

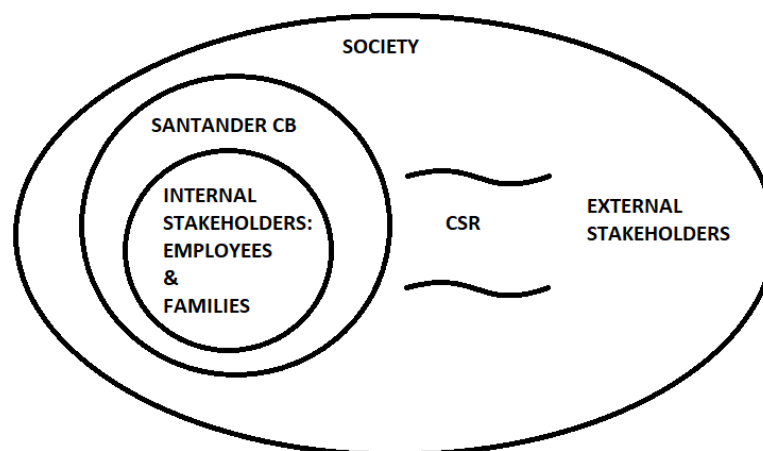


Figure 1. Simplified model of relations between different stakeholder groups within the Santander Orchestra project. Source: Author's own elaboration based on the research results and analysis.

As indicated in the figure, CSR becomes a platform facilitating the interaction between different groups of stakeholders. Within the Santander Orchestra project, the talent of external stakeholders (the musicians) is managed using a talent management method usually applied to internal stakeholder groups. The internal stakeholders group in this case consists of the employees of the bank and their closest relatives. Thus, the project has the potential to be beneficial for the relation between the employees group and the Santander bank as a corporation. The employees can participate in other than economic activities of the company. They are presented with an opportunity away from their daily duties to learn and be entertained. This engagement can form stronger bonds between the employees and the employer and be the basis for job satisfaction. Moreover, the external stakeholders benefit from the know-how and experience of the Santander Orchestra specialists while the corporation itself builds a positive brand image and gains recognition. This CSR activity focuses on the human side of the corporation. The actions of the Santander Orchestra are, therefore, human-oriented and focus mainly on knowledge distribution, and experience building for the musicians; and Santander as an employer recognizes its employees as humans with needs and a lust for cultural development.

4. Discussion

While evaluating the research process, one might find the drawbacks of building this paper upon only one researched company. The criticism of case studies, according to Starman (2013), focuses on research bias, so a subjective case selection due to researcher's prior knowledge. However, the author concludes that biased research choice leads to a more fitted research plan, which in turn can generate greater and more meaningful results. Therefore, the research bias in the criticism of case studies can be either waived or developed into its strength.

George & Bennett (2005, as cited in Starman, 2013, p. 36) name the main advantages of case studies – “the potential to achieve high conceptual validity, strong procedures for fostering new hypotheses, usefulness for closely examining the hypothesized role of causal mechanisms in the context of individual cases, and their capacity for addressing causal complexity”. The case study dealing with the issue of CSR and stakeholders theory can tap into the potential benefits a case study has to offer.

This research is a single case study. According to Yin (2014), multiple case designs are distinct from the single case designs in that the results from multiple case research seems to be welcomed more favorably and seems more credible. However, the reasoning behind using a single case method (due to exceptionality of the case) is compromised with multiple case design studies. Moreover, Yin (2004) appears to strongly defend the single case design by arguing that it is rare and exceptional by definition, hence, it can be revolutionary.

Styśko-Kunkowska (2014) stresses that if a limited number of methods is to be employed in the research, it is best to use interviews and secondary data. The author claims that there are considerable freedom and flexibility on data gathering and the research procedure. The author describes qualitative interviews as having a somewhat loose structure and mostly open questions as the primary focus is on understanding aspects of a given phenomenon. Yin (2004) suggests that most of the questions in qualitative interviews are 'how' and 'why' type of questions. Additionally, George & Bennett (2005) as per Starman (2013), claim it is possible to identify some omitted variables in the research when using open-ended questions. Perhaps the research could offer different insight if face-to-face interviews rather than e-interviews were implemented as these would allow for asking additional questions and further clarifications. It could also be worth investigating whether CSR-oriented activities undertaken by the same company globally bring about similar results locally and whether the relations between particular stakeholder groups vary.

5. Summary

The sources of stakeholder theory comes from practice. Freeman (1984) built the theory based on the experience of managers interacting with the company's external environment and with the different expectations of external and internal stakeholders. He conducted practical consultations, read business press, talked with executive managers so as to arrive at the concept of 'stakeholder management'. Similarly, Post and Preston Sachs (2002) identified good management practices for creating value for stakeholders.

Initially, stakeholder theory emphasized defining stakeholders and identifying key stakeholders. As per Parmar et al. (2010), a widely held belief seemed to dominate that different groups of stakeholders remain in conflict or at some kind of divide. However, stakeholder theory has evolved in recent years. The formerly dominating notion of division has eroded. In recent years, there has been a shift towards studying bridging relationships between groups and for assessing mutual learning.

Nevertheless, there is still a need for examples of stakeholder engagement from management practice to improve stakeholder theory and to help managers choose their stakeholder engagements in order to create as much value as possible. It should be noted that most of the work regarding the stakeholders theory is either highly theoretical or narrowly empirical.

In order to meet the goal of this article, a case study involving the Santander Orchestra was conducted. The concept of the project to create this orchestra is an action undertaken by Santander Consumer Bank as part of their CSR activities.

The qualitative method of a single case study was implemented. The asynchronous on-line method of e-interviews was applied. The questions used in e-interviews were developed on the basis of the literature review and analysis of the bank's on-line website content.

A study of the Santander Orchestra contributes to stakeholder theory. It indicates that in the case of external stakeholders, management methods used in modern companies can be applied that involves the positive engagement of internal stakeholders.

This case also demonstrates the possibility of using internal stakeholder management methods on non-organizational stakeholder groups (external stakeholders). In the case of Santander Consumer Bank, the talent management method used by joint-venture activity was transferred to non-organizational talent management. The effects of such action contribute to the development of talented individuals for the benefit of greater society, for all stakeholders, as well as for the company. Thus, they lead towards humanization in the global world with a view to social good.

CSR is, therefore, a tool for making organizations more human-oriented than those only profit-oriented. In the light of these considerations, it should be noted that one of the elements of socially responsible activities may be the extension of the stakeholders theory and implementation of the concept of talent management in relation to internal and external stakeholders.

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BUSINESS INVOLVEMENT IN ACTIVITIES FOR THE BENEFIT OF LOCAL COMMUNITIES

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Purpose. The purpose of the article is to analyse if and how companies engage in activities for the benefit of local communities in Poland.

Design/methodology/approach. The article analyses the available literature on the subject, data and reports on this issue, and presents a case study of companies and their cooperation with local communities.

Findings. By implementing Corporate Social Responsibility assumptions and recognizing the importance of Sustainable Development Goals, companies are increasingly more and more consciously involved in activities for the benefit of local communities. Companies' environment and local communities are beginning to be perceived as one of the key stakeholders for companies.

Practical implications. As the data show, more and more companies are undertaking activities for the benefit of local communities, not only establishing a dialogue with them, but implementing specific projects and initiatives with their participation and for the common good. The growing involvement of business has a positive impact on the development of these communities.

Social implications. Business support for local communities is an opportunity for their development. Local activities and communities are key if we want to consider the further development of society. It is important to indicate what this collaboration can look like, and to highlight the benefits for each partner.

Originality/value. The article presents the business commitment of local communities, not only taking into account the perspective of a business partner, but also showing the benefits of this involvement for local communities and the entire society.

Keywords: local communities, business involvement, CSR, CCI, stakeholders.

1. Introduction

Corporate Social Responsibility (CSR) is an approach that significantly affects the functioning of companies. Implemented strategically, it affects processes at all levels of management. However, pro-social activities undertaken by companies, as well as for the benefit of local communities, are still criticized for detachment from business strategy or implementation only to create a positive image.

When analyzing CSR at the definition level, it is said that it “represents nothing less than an attempt to define the future of our society. Corporate citizenship, as CSR is also called, matters because it influences all aspects of business. And businesses matter because they create much of the wealth and well-being in society. As such, CSR is increasingly crucial to both business and societal success” (Werther, and Chandler, 2006, xvii). It can be observed that the commitment to society or local communities, which are for many companies one of the most important stakeholders, becomes not only an addition to the implemented activities, but also a practice inscribed in the business strategy of an enterprise.

The expression of this is, for example, the inclusion of activities for the benefit of local communities as one of the indicators in the framework of international Global Reporting Initiative Standards. “The GRI Sustainability Reporting Standards (GRI Standards) are the first and most widely adopted global standards for sustainability reporting. Since GRI's inception in 1997, we have transformed it from a niche practice to one now adopted by a growing majority of organizations” (GRI, 2019). Standard GRI 413 addresses the topic of local communities. “In the GRI Standards, local communities are defined as persons or groups of persons living and/or working in any areas that are economically, socially, or environmentally impacted (positively or negatively) by an organization’s operations. The local community can range from persons living adjacent to an organization's operations, to those living at a distance who are still likely to be impacted by these operations. An organization’s activities and infrastructure can have significant economic, social, cultural, and/or environmental impacts on local communities (...). Establishing a timely and effective stakeholder identification and engagement process is important to help organizations understand the vulnerability of local communities and how these might be affected by the organization’s activities” (GRI 413: Local Communities, 2016).

Companies aware of their impact on local communities not only limit the possible negative effects of their activities, but also actively engage in activities for the benefit of local communities.

The article focuses on the issue of business involvement for local communities and examples of such activities. The study analysed available data relating to local communities and companies in Poland. The article is based on a literature review, available figures, and an analysis of examples.

2. Corporate Social Responsibility and business involvement for local communities – theoretical approach

The growing interest in establishing cooperation with the third sector and local communities was largely influenced by the concept of corporate social responsibility. CSR has a long and diverse history. However, a well-established approach to social responsibility is largely a product of the 20th century (Caroll, 1999, p. 268). The definition created by Caroll (in 1979) is considered one of the most complete and most accurate, showing the essence of CSR – "corporate social responsibility includes economic, lawful and ethical behavior and voluntary consideration of society's needs towards the company at a given time" (Caroll, 1999, p. 269).

The European Commission has defined CSR as "the responsibility of enterprises for their impacts on society" (European Commission, 2011). References to responsibility for the company's impact on society are among the most emphasized elements of the approach associated with defining CSR. It is also pointed out that CSR is defined in many different ways, e.g. "corporate responsibility", "corporate citizenship", "corporate community engagement", "community relations", "corporate stewardship", "social responsibility" (Werther, and Chandler, 2006, p. 6).

In international standard ISO 26000, CSR is defined as the "responsibility of the organization for the impact of its decisions and activities (products, service, processes) on society and the environment" (<https://www.iso.org/obp/ui/#iso:std:iso:26000:ed-1:v1:en>), through transparent and ethical behaviour that contributes to sustainable development and the health and well-being of the society, takes into account the expectations of stakeholders, is consistent with applicable law and consistent with international standards of behaviour, and is consistent with the organization and practice in its relations. At the same time, ISO 26000 clearly distinguishes between the frequently used terms "sustainable development" and "social responsibility".

Thus, the concept of corporate social responsibility emphasizes that business has an impact on the surrounding stakeholder groups, including the natural environment. This is related to supporting the development of society, e.g. through social involvement programmes. By pointing to company stakeholders, social groups are influenced and should be taken into account. Corporate Community Involvement "plays a prominent role in international guidelines, including ISO 26000, the CSR performance ladder, and the guidelines for the Global Reporting Initiative (GRI). Community involvement is increasingly becoming a component of civic responsibilities for companies as well, as expressed in investments in the community" (Roza, Stubbe, Meijjs, 2014, p. 8).

It is the responsibility of society and building relationships with local communities, as well as including them as an important stakeholder from the company's point of view, which has influenced the development and quality of relationships. Over the years, we can see how the

approach of companies in this area is changing. There is a departure from the approach based only on the transfer of financial or material means, understood as philanthropy, towards the company's active involvement in the life of communities and being a member.

It is pointed out that one of the classic approaches to building business relationships with local communities was corporate philanthropy. As Porter and Kramer pointed out, “companies do not function in isolation from the society around them. In fact, their ability to compete depends heavily on the circumstances of the locations where they operate. (...) The more a social improvement relates to a company’s business, the more it leads to economic benefits as well” (Porter, and Kramer, 2002). With regard to corporate philanthropy, they emphasized that it “does not mean that every corporate expenditure will bring a social benefit or that every social benefit will improve competitiveness. Most corporate expenditures produce benefits only for the business, and charitable contributions unrelated to the business generate only social benefits. It is only where corporate expenditures produce simultaneous social and economic gains that corporate philanthropy and shareholder interests converge (...)” (Figure 1) (Porter, and Kramer, 2002).

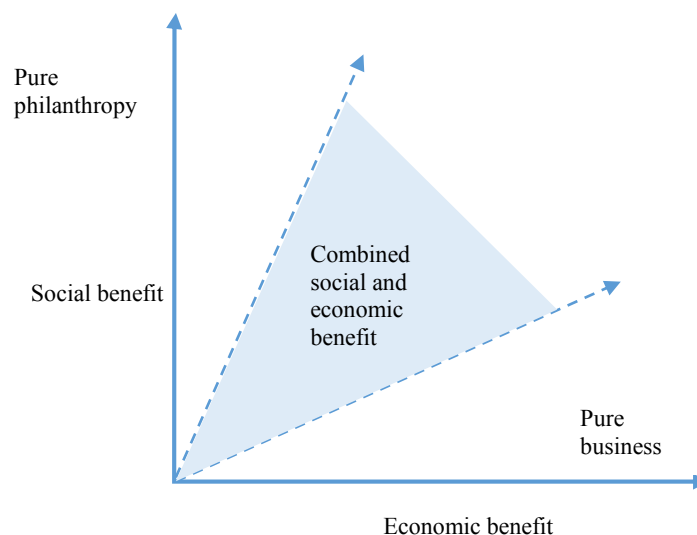


Figure 1. A Convergence of Interests. Adapted from: “The Competitive Advantage of Corporate Philanthropy” by M.E. Porter and M.R. Kramer. Copyright 2002 by Harvard Business Review.

Another strategic approach in the context of transferring funds and building relationships with local communities is the approach referred to as corporate social/community investment. “Corporate social investment is a form of corporate social responsibility, which is a company's overarching approach or strategy for improving the social, environmental, and economic well-being of their community or society at large. Through corporate social responsibility, a corporation may have multiple different tactics for achieving this strategy, including by making corporate social investments. Corporate social investment occurs when businesses use money or resources for projects that improve the world around them, without a direct financial benefit to the company. A company's investment in social causes may take the form of money, gifts in kind, employee time, or other resources” (Kuta, 2018).

However, it is emphasized that “despite efforts to transform corporate philanthropy and social investments, one of the limitations of both of these concepts is that they continue to be largely based on a business perspective of what is strategic” (Werna et al., 2009, p. 206).

Concerning business-community relations, the concept of corporate citizenship is also pointed out, which is based on the assumption that a company should be treated as one of the members of a given community. It is defined as a long-term and integrated approach to enterprise involvement in building an organization that creates conditions for employee activity, both individually and collectively, concerning activities undertaken inside and outside, while building relationships with the local community (Habisch et. al, 2007). However, this is not the only possible approach to defining corporate citizenship. There are two main approaches in the literature. The first narrow – “limited to emphasizing the charitable activities and volunteering of enterprises in a given community. Another approach is to treat it as a synonym of corporate social responsibility, especially when we talk about those activities of the company that are aimed at minimizing the negative effects of functioning and maximizing the positive effects of their activities on society” (Nakonieczna, 2008, p. 68).

Some approaches indicate the weakness of traditionally understood CSR, emphasizing the weakness of this approach based on “the idea that business issues and social issues can be dealt with separately. This flaw promotes the potentially destructive idea that the underproposed a stakeholder approach that takes into consideration the intertwined nature of economic, political, social and ethical issues (...). The second flaw with Corporate Social Responsibility is its focus on corporations. We do not see why social responsibility only applies to corporations, rather than to all organizational forms” (Freeman, and Velamuri, 2006, p. 21). Based on these two main premises, the authors pointed to a new approach, which they called *Company Stakeholder Responsibility*. The authors outlined four levels of commitment to the stakeholder approach, which are:

- Level 1: basic value proposition.
- Level 2: sustained stakeholder cooperation.
- Level 3: an understanding of broader societal issues.
- Level 4: ethical leadership (Freeman, and Velamuri, 2006, p. 13-15).

Regardless of the form of involvement the company chooses, there is no doubt that business involvement and cooperation with local communities is key, especially in the context of Sustainable Development Goals. “In September 2015, all 193 Member States of the United Nations adopted a plan for achieving a better future for all — laying out a path over the next 15 years to end extreme poverty, fight inequality and injustice, and protect our planet. At the heart of “Agenda 2030” is the 17 Sustainable Development Goals (SDGs) which clearly define the world we want — applying to all nations and leaving no one behind. The new Global Goals result from a process that has been more inclusive than ever, with Governments involving business, civil society, and citizens from the outset. We are all in agreement on where the world

needs to go. Fulfilling these ambitions will take an unprecedented effort by all sectors in society — and business has to play a very important role in the process” (UN Global Compact, 2019).

In this case, the scope of actions taken or their global dimension should also be considered from the perspective of a specific community, place, and the people who implement them. It is not possible to separate Sustainable Development Goals from their local dimension. Activities undertaken by companies that fall under the Sustainable Development Goals also have their local dimension.

3. Forms of business involvement for local communities and CCI

Forms of business involvement for local communities or in developing cooperation can be diverse. What activities the company implements in this area depends on several factors, including its size, financial and/or material resources allocated to these activities, and the strategic assumptions made – is the local community one of the key stakeholders?

When considering the possible forms of companies' involvement for local communities, their misidentification with NGOs should be separated at the outset. The cooperation of companies with local NGOs can be considered from the perspective of involvement for local communities. However, not every cooperation with an NGO will have a dimension of support for the local community. Moreover, if the local community is not represented by a non-governmental organization, the activities of companies may be hindered. This is most often associated with formal and legal considerations, such as the need to settle the financial or material support offered. It is much simpler if the local community has a representative such as a local NGO or public administration body, such as a school or library.

Commitment to local communities can be considered in two dimensions – positive and negative. On the one hand, it will take into account the voice and interest of local communities in plans and take specific actions for them, on the other, it may prove useful to refrain from taking actions that could be negative in their effects and harm the local community (Bernatt, 2009, p. 49).

The basis for planning and building engagement for the benefit of local communities should be well-conducted dialogue, which is one of the basic conditions for a proper approach to social activities and cooperation with stakeholders, which is emphasized by AA1000 standards.

It is indicated that the company's commitment to the local community may be related to solving specific social problems. This is related to activities that are to support the company's interest in the long run and improve its image in the immediate environment (Adameczyk, 2009, p. 146). Based on the example of companies from the fuel industry, Badura-Mojza pointed out that CSR activities for the benefit of the local community were undertaken to ensure safety, prevent exclusion, and promote sport and a healthy lifestyle (Badura-Mojza, 2017, p. 130).

Companies undertake various activities when it comes to cooperation with non-governmental organizations or projects implemented for the benefit of local communities. Possible forms of involvement include financial and material donations, sponsorship, equipment or premises lending, purchase of products from local organizations, barter cooperation, pay-roll provision, joint social programmes, grant programmes, employee volunteering, mentoring programmes, and innovative projects (Murawska, 2012, p. 97-104).

The involvement of companies for the benefit of local communities is an investment, but one that pays off in the long run. On the one hand, this is connected with financial outlays, but also resources of the company such as project time devoted to their implementation or dedication of the person (or team) who will coordinate these activities should be taken into account. What's more, every dialogue, the question about the needs or involvement in solving the indicated problems, may be associated with the risk that expectations will not be properly met, which may have negative consequences, such as loss of image.

Despite the necessary expenditures or possible risks, the benefits that both the company and the local community bring to such cooperation should be emphasized.

The literature mainly focuses on the general benefits for companies related to the implementation of CSR activities. A few studies referring to the local dimension of these activities indicate image-related benefits (Szwajca, 2017; Leoński, 2018, p. 270; Murawska, 2012, p. 105-106).

Another benefit of the company's commitment to the local community is the ability to reduce costs and eliminate potential risks and difficulties associated with the undesirable impact of the company (Skrzypek, Saadi, 2014, p. 16).

From the generally understood benefits of CSR for external stakeholders, including local authorities or local communities, are mentioned, for example, the feeling that the existence of a company is beneficial for its environment; improving communication; stimulation of development; job creation; cooperation (Sznajder, 2013, p. 202).

Looking at the mutual benefits for each party, it can be said that it is a win-win relationship. In the dimension of joint social projects implemented by companies and local communities (including their representatives), an important element is thus to legitimize the company's activities as well as the initiatives it undertakes. The very involvement of a company can translate into giving more publicity to a given case or project (Murawska, 2012, p. 106). What's more, in terms of project cooperation, we can talk about the mutual benefit of each party implementing the project and the possibility of increasing its success, thanks to the synergy effect, which can be an added value for the whole society, and above all the local community (Ćwik, Januszewska, 2010, p. 11).

In the social dimension, the involvement of companies also translates into the possibility of achieving many charitable and social goals that could not be achieved without the support of companies (Kulawczuk et al., 2007, p. 65).

4. Business involvement for local communities in Poland – a research review

The approach of companies to engage local communities in recent years has changed in Poland. This can be referred to in the model of ages and stages of CSR (Visser, 2010), which shows the initial commitment associated with the charitable stage of CSR and relying on action and project cooperation, usually in the form of charitable programmes. A good example of this type of involvement involves projects submitted to the "Benefactor of the Year" competition in the first years of the competition, which has been organized for 20 years. Over the years, local communities began to be seen as one of the key stakeholders with whom valuable relationships should be built, and there has been a transition to the stage of strategic CSR and systemic CSR.

In studies from 2011, 22% of companies indicated that they were engaged in some activities for the benefit of the local community, of which the largest commitment was declared by large companies (over 250 employees), as much as 61% declared in this group. The most frequently chosen form of cooperation was the financial support of social and charity organizations 41%, sponsorship of sporting and/or cultural events 93%, and promotion of culture 29% (Ocena stanu wdrażania..., 2011) (Figure 2). It can be seen that this was a time when understanding and perspective, looking at relations with stakeholders, was not widespread among companies.

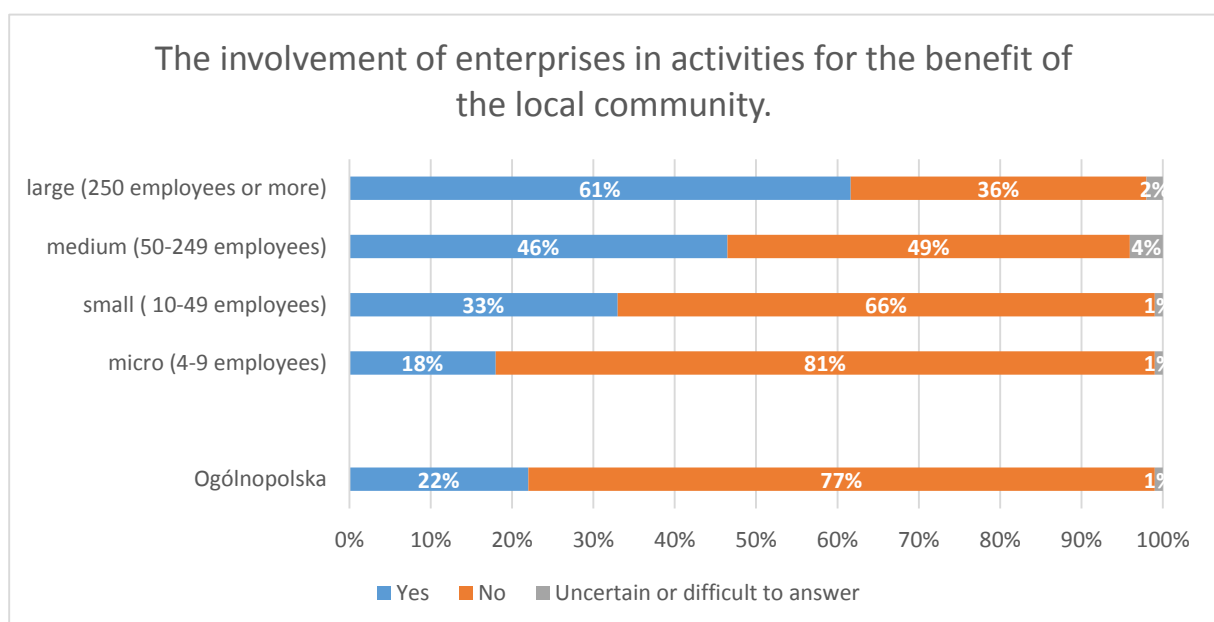


Figure 2. The involvement of enterprises in activities for the benefit of the local community. A nationwide sample divided into categories – the size of the enterprise. Adapted from: “Ocena stanu wdrażania standardów społecznej odpowiedzialności biznesu. Zestaw wskaźników społecznej odpowiedzialności w mikro, małych, średnich oraz dużych przedsiębiorstwach. Raport.” Copyright 2011 by MillwardBrown SMG/KRC, PwC dla PARP.

A slightly different view of the local community is already evident in the study of the management of companies from the MSME sector. When asked about the meaning of the concept of "corporate social responsibility", the largest percentage of respondents gave the answer – "care for the local environment and its development – activities for the benefit of local communities" 16.37%, followed by "responsibility to the local community" 11.31% (Research of the management staff ..., 2013, p. 14). It is apparent that from the perspective of defining social responsibility by the management staff of the MSME, the local community played a key role.

When it comes to the perception of CSR by large and medium-sized companies in Poland, as many as 92% of respondents in the 2014 survey, concerning the most important challenges in which companies should be involved in solving, indicated the development of local communities (Badania kadry zarządzającej..., 2014, p. 20). In the same study, 36% of the surveyed companies indicated an increase in acceptance by the environment among the benefits of acting following the CSR concept (Badania kadry zarządzającej..., 2014, p. 21).

An interesting set of company declarations regarding commitment to local communities was presented in the 4th edition of the study "CSR in practice. Barometer of the French-Polish Chamber of Commerce "(2019). As many as 79% of the surveyed companies indicated that their company currently implements CSR activities for local communities (Figure 3), and 86% declared that they planned to continue or implement new CSR activities targeted at local communities (Figure 4).

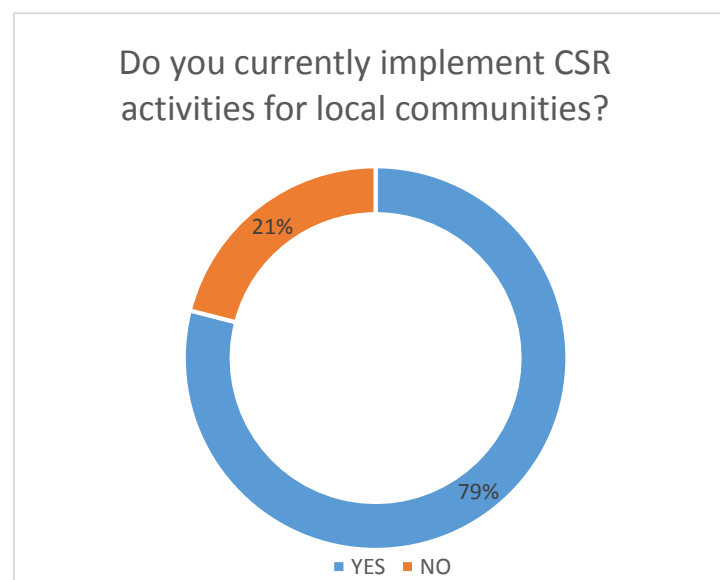


Figure 3. Declarations regarding the implementation of CSR activities by companies for local communities. Adapted from: "CSR w praktyce. 4. edycja badania. Barometr Francusko-Polskiej Izby Gospodarczej.". Copyright 2019 by Francusko-Polska Izba Gospodarcza.

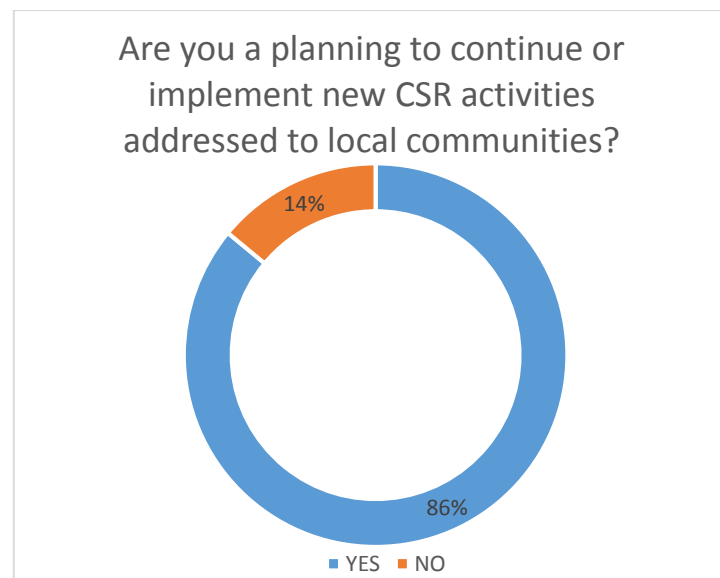


Figure 4. Company declarations regarding the planning of continuation or implementation of new CSR activities targeted at local communities. Adapted from: "CSR w praktyce. 4. edycja badania. Barometr Francusko-Polskiej Izby Gospodarczej." Copyright 2019 by Francusko-Polska Izba Gospodarcza.

Among activities undertaken for the benefit of local communities, the largest number of companies, as much as 84%, declared financial and material support for local associations, schools, foundations, and organizations. In second place was running information and educational campaigns, 73% of responses, and the third involvement in the economic development of the region. 59% of companies indicated these activities.

It is only surprising that these declarations are poorly represented in dialogue with the local community – only 41% of companies declared this form of cooperation. This is still a better result than a year ago, but considering the key role of dialogue in properly identifying the needs of the local community and how helpful it is in building relationships with the local community, it may be puzzling that so few companies have decided to implement this form of cooperation (Figure 5).

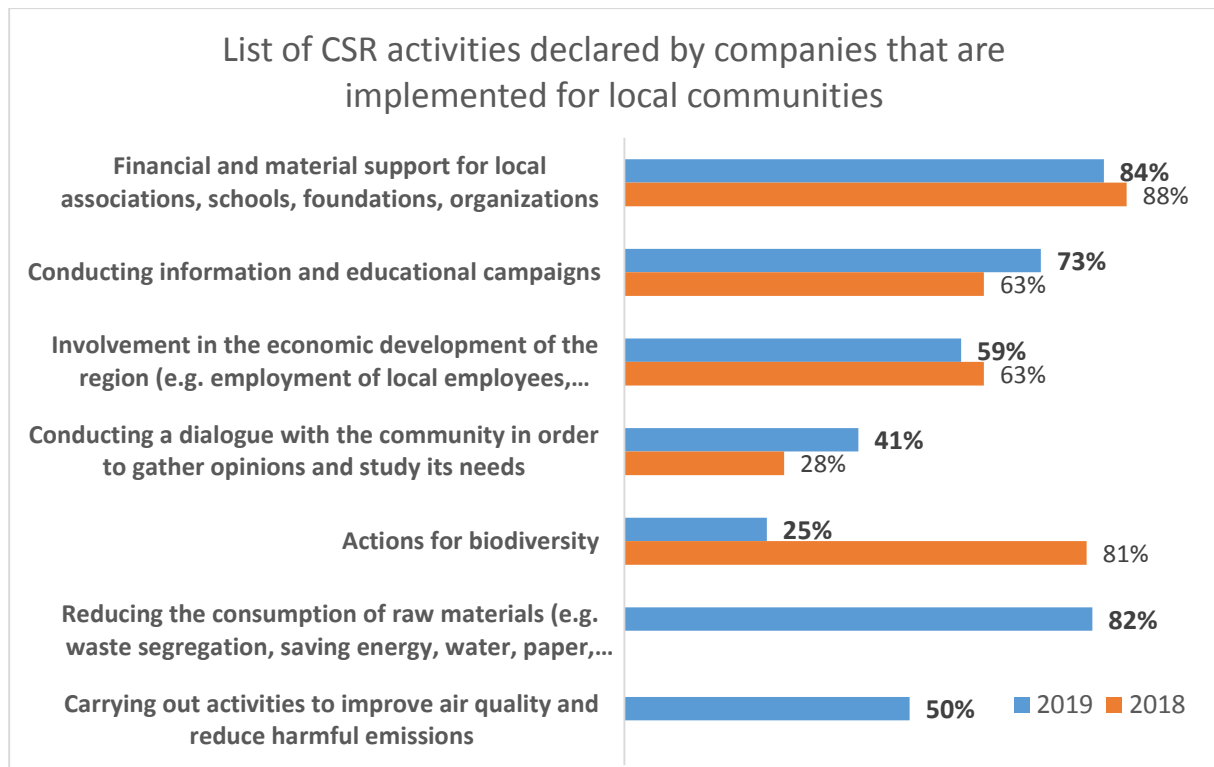


Figure 5. List of CSR activities declared by companies that are implemented for local communities. Adapted from: “CSR w praktyce. 4. edycja badania. Barometr Francusko-Polskiej Izby Gospodarczej.”. Copyright 2019 by Francusko-Polska Izba Gospodarcza.

Business commitment to local communities or to cooperate with non-governmental organizations can be seen in the data and practices presented in the annual report of “Responsible Business in Poland. Good practices”, published since 2001. The number of good practices reported, both new and those implemented in the long term, is steadily increasing (Figure 6).

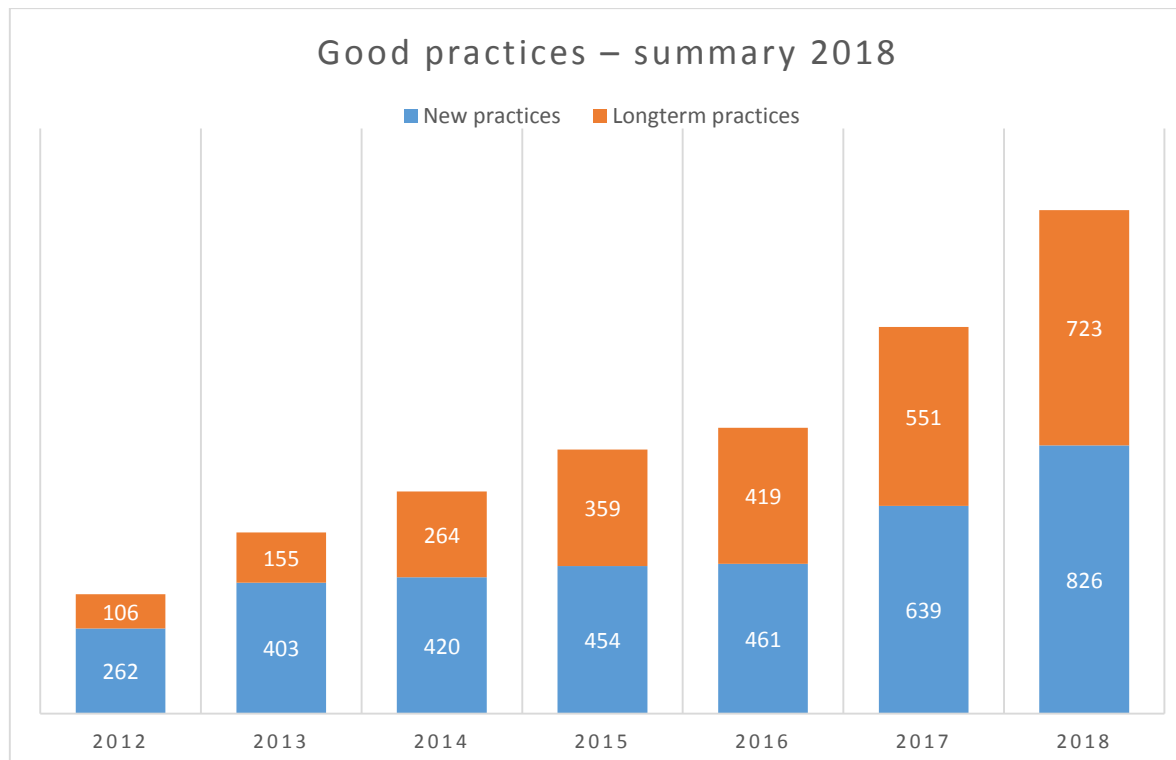


Figure 6. Responsible business in Poland. Good practices – summary 2018. Adapted from: “Forum Odpowiedzialnego Biznesu”. Copyright 2019 by Forum Odpowiedzialnego Biznesu.

One of the chapters of FOB’s report presents a case study in the area of local community involvement and development. This refers to practices related to activities undertaken for the benefit of local communities and cooperation with non-governmental organizations. This is the department to which companies submit the most project descriptions. This area includes “activities grouped into 16 categories: physical activity, road safety, good neighbour, charitable and philanthropic activities, adult education, child and youth education, social innovations, social campaigns, culture and the arts, socially-engaged marketing, preventive health care, entrepreneurial development, job creation and competency development, non-governmental organizations support, cooperation with universities, and sustainable cities” (FOB, 2019). Also here is an increase in the number of good practices reported, as well as the companies that implement them (Figure 7).



Figure 7. Practices in the area *Local community involvement and development* in report the “Responsible business in Poland. Good practices 2018”. Adapted from: “Forum Odpowiedzialnego Biznesu”. Copyright 2019 by Forum Odpowiedzialnego Biznesu.

Based on the presented data, we can see a significant change in the approach of companies to local communities and understanding the importance of engaging in activities for their benefit. Companies not only declare their commitment, but every year they undertake more and more initiatives in this area. This is a significant change that indicates that companies are increasingly familiar with their surroundings and are addressing local communities as one of the key stakeholders.

5. Examples of business involvement for local communities

An example of building relationships with the local community is arranging meetings or inviting people to a stakeholder panel to provide direct feedback and receive feedback on the company's activities. These types of activities were initiated by the International Airport Jana Pawła II Kraków – Balice Sp. z o.o., which, as part of an information campaign related to the plan to build a new runway, organized information meetings with representatives of the local community. A total of 20 such meetings were held in 2017, during which detailed information related to the planned investment and compensation programme addressed to the local community was presented. An interesting element of the meetings was the company's plan of obtaining feedback through a survey available to participants, in which they could assess the actions taken by the airport, as well as express their expectations. Additionally, to ensure the

flow of information with stakeholders, an investment website was created, as well as a dedicated e-mail address for direct contact. Kraków Airport also publishes an information bulletin that is sent by traditional mail to all residents of the villages closest to the airport (Forum Odpowiedzialnego Biznesu, 2019). This practice has been included as an activity supporting the implementation of the 11th SGD's – "Sustainable Cities and Communities".

The SDG's practice is part of the practice presented by Raben Group, which in 2015 held dialogue sessions as part of the "Common Way" project, in which stakeholders from three key locations for the company were invited to participate. Among the invited stakeholder groups were service providers, employees, representatives of the local community, and administration. The purpose of the meetings was to learn about the needs and expectations of these stakeholder groups and to present to them the development goals and directions for the company, build an information exchange system, as well as offer an invitation to join the decision-making process in the scope specified by the company. The key issue was to listen to the postulates, needs, ideas, and opinions regarding the functioning of the form and its participation in the local community, and possible areas of cooperation. The meeting resulted in the company collecting 183 postulates (Forum Odpowiedzialnego Biznesu, 2019).

However, most activities for the benefit of local communities are based on cooperation with local NGOs, because this form of cooperation is easier for legal and formal reasons. Organizations have a legal personality, which allows them to participate in grant competitions organized by companies. An example of this type of activity is the "Good Neighbour" grant program of TAURON Polska Energia, which was implemented in the municipality of Krzeszowice, where the Wapienia Czekkowice mine belonging to the company is located. Entities operating in an organized legal form, in particular associations, foundations, sports clubs, and other entities conducting their activity in the municipality could participate in the competition. They submitted their ideas for the development of publicly available and non-commercial educational, tourist, recreational or cultural infrastructure, educational programmes improving the quality of teaching and equalizing educational opportunities, promoting the talents and outstanding talents of children and youth, educational, sporting, recreational, tourist or cultural events, physical education, the sport of children and youth, sport for everyone, and sport for the disabled. The ideas were evaluated, and grants of up to PLN 5,000 were given to the winners for their implementation" (Forum Odpowiedzialnego Biznesu, 2019). Also, these projects were assigned as activities that are part of the implementation of the 11th Sustainable Development Goal.

An interesting example of a project implemented for the integration of the local community is the "Nowa Huta Gardens" project organized by ArcelorMittal Poland in cooperation with the Cultural Centre of Norwid in Krakow, which has been implemented since 2011. On the one hand, the goal of the project is education and the promotion of knowledge about gardening and ecological activities, and on the other, integration of the local community around the greenery in one of the districts of Krakow – Nowa Huta. Under the project, neglected green areas are being renewed, and new, generally accessible green enclaves are created with the active

participation of local communities. The activities provide an opportunity for meetings and joint activities, including youth, families with children, and seniors. The project is based on competition rules – the inhabitants submit areas for revitalization, and twice a year the jury selects places that will receive funding for the necessary works. So far, 14 gardens have been created as part of the project (Forum Odpowiedzialnego Biznesu, 2019).

The above examples indicate that the solutions used by companies are quite diverse. They are influenced by strategic projects implemented by companies, the scale of their activities, offered products or services, but also the needs of the local communities in which they operate.

6. Summary

Contemporary societies are facing challenges not only locally but also globally, which has been emphasized by establishing Sustainable Development Goals. In 1970, Milton Friedman published the essay *The Social Responsibility of Business is to Increase its Profits* in The New York Times Magazine, in which he referred to the conclusion contained in his book *Capitalism and Freedom* – “there is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud” (Milton, 1970). It is now clear how far companies are involved in building their strategies on the foundations of corporate social responsibility, implementing more and more community initiatives at both local and global levels.

The involvement of companies for the benefit of local communities has a broader dimension than just benefits for a given enterprise. Aware of its role in the immediate environment, the company is a full member of a given community and should take into account the impact that its activities have on the local community. It is not necessary to invest large funds. The key is to notice the local community and establish a dialogue with it. As a result, the company will be able to run its operations more efficiently and take care of these relationships in the long term.

Business commitment to the local community is also important from the perspective of implementing SDGs. Each global change must be initiated locally. Businesses must first take care of the local community in which it operates.

From the perspective of Polish society, the role that business can play in activating citizens and supporting them in activities for the benefit of the local community is extremely important. Without this, it is not possible to build social capital. Relationships and trust are not created. It seems that it is not possible to build active networks or grassroots citizens' involvement without the support of a partner who becomes a company.

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