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# Development of key competencies of Polish organizations' employees in the face of the fourth industrial revolution

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## *Abstract*

*The main aim of the study is to try to determine the determinants of developing the competencies of key employees in the context of threats, but also, of course, opportunities that accompany the fourth industrial revolution. The author will also evaluate actions taken by companies that took part in the research process, which are aimed at eliminating threats or taking advantage of opportunities that are brought about by these changes in the economy. In addition to a literature analysis, the author has chosen as another research method an interview with senior managers in the surveyed entities – the research was carried out in 2019 in 14 specifically selected large enterprises, which have their headquarters in Poland (a total of 77 people took part in the research). After analyzing the literature and the results of the conducted research, it turned out that in the Polish reality, despite an awareness of the opportunities and threats posed by the fourth industrial revolution (also in the area of human capital management), no preventive steps were taken or action strategies created to help them function in a diametrically changing environment.*

**Keywords:** *competences, competence management, key employees, Industrie 4.0*

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## 1. Introduction

Bearing in mind the direction of research chosen by the author of the article, which for many years has been related to the identification of key employees in Polish organizations and the impact of their competences on building a competitive advantage in the modern economic market, the main objective of the study, defined this time, can be considered consistent with

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his empirical experience to date. In addition, the author will also evaluate actions taken by organizations that took part in the research process, aimed at eliminating threats or taking advantage of opportunities that are brought about by changes in the economy.

Literature analysis and empirical research have shown that the fourth industrial revolution brings with it many very important changes in the areas related to employee management in modern organizations. We can see specific conditions and determinants related to this process. However, the actions taken by organizations in this area definitely contradict the identified situation – people responsible for these areas do not understand the importance of this situation, and the level of introduced changes is very low. This certainly means that Poland's distance to the richest and most developed countries is still of a structural nature. One thing is certain: the Polish economy, which aspires to catch up with the most developed economies, cannot afford to wait for developments and not to implement specific actions that would turn threats into opportunities for even faster development.

We can certainly say that the competences of key employees will remain a permanent element of management, as they have become tangible assets, organizational structures, strategies, processes, systems, financial, or information resources. On the other hand, looking at the permanent changes that are constantly taking place in the economy, the determinants related to the management of this most important value for organizations in the 21st century will change. All the more so in the face of the fourth industrial revolution, related to automation, data exchange, and artificial intelligence. Therefore, according to the author of the study, we have to adapt management to new conditions and leveling new barriers standing in the way of the optimal use of the potential of this group of employees. In science, on the other hand, we can hope that the need to develop new conceptual frameworks and methods of studying the management of key employees in companies will not disappear. The author also hopes that the research presented in this study is conducted in the right direction.

According to the author, the research tasks carried out in this study made it possible to develop and implement the initial objectives of the prepared material. However, the obtained conclusions can be applied theoretically and practically – to better learn, understand and improve the management of key employees' competences in the face of new challenges.

## 2. Literaturree background

### 2.1. The origins and characteristics of the fourth industrial revolution

If we count the digital revolution included in the title of the study and follow the whole history of economic development, we can consider it to be the fourth such phenomenon. Previous revolutions were defined differently – from neolithic, through industrial to informational. However, it is not the name that is most important here, but the two main features. This distinguishes a given revolution from similar but much smaller and less significant technical or technological changes. First of all, it is about the very large size of the changes taking place, which have been triggered by a revolutionary discovery. We must remember, however, that the appearance of a new invention becomes revolutionary only when the invention is widely used and the changes it causes spread to practically all areas of economic and social life. The second most important feature is the assignment of a unique and unambiguously associative word (name), which completely describes the character of a given revolution.

The first industrial revolution (the end of the 18th century – the first half of the 19th century) concerned the transition from artisanal and manufacturing production to mechanized factory production – thanks to the intensive use of a large number of technical inventions and changes in the organization of work processes. For the man working in the factory, the most important was the invention of the steam machine, which was also used in mining and the textile industry. The new machines used in production required them to be made of durable construction materials. The replacement of charcoal with coke in metallurgy proved to be a breakthrough. This allowed for the development of the machinery industry. In turn, the beginning of the second revolution falls in the 1870s. The greatest innovations that revolutionized and boosted the industry at that time were two new energy sources: electricity (electric motor) and the combustion engine. The era of mass production began with the division of labor and fragmentation of work. The next, third, revolution began in the late 1960s. It was triggered by the industrial use of programmable controllers (1968), opening an era of industrial automation based on advanced electronics and information technologies (Furmanek, 2018).

The fourth industrial revolution, on the other hand, began at the beginning of the first decade of the 21st century and is closely linked to the large-scale use of information technology in industry with the processing and exchange of data, which can be observed through the continuous development of automation, not only of production processes but also of the organization of the management of all processes.

In fact, the final name of what is just being crystallized has not yet been agreed – terms such as Industry 4.0, the smart factory, the smart enterprise, the internet of things and services, the internet of everything, or the industrial internet. After mechanization, electrification and automation, there is digitisation and digitisation. This was made possible by the development of IT communication systems, mobile robotics, automation, and additive manufacturing. The new formula of operation of people, business entities and households is (will be) based on a wireless and wired communication connection of unambiguously addressed (many) mobile and stationary smart devices jointly realizing and materializing a physical product or service. All this together makes the epoch after the fourth industrial revolution different from the current anthropopressure (Janikowski, 2017).

Attempts to name this next industrial revolution result from the definition of terms used to describe technological processes and the rules of functioning of modern enterprises on the market, which systematically use systems and cyberphysical modeling, the Internet of things and services, cloud computing capabilities, the Internet of All (<http://przemysl-40.pl/index.php/2017/09/12/przemysl-4-0-raporty-i-publikacje/>). On the other hand, it has become a fact that the fourth industrial revolution pays attention to the speed and quality of transmitted information, and the basis of these transformations remains Information and Communication Technologies (ICT). The growing pace of the spread of ICT has led to the fact that more and more often we start talking about the fourth industrial revolution, which is distinguished from the previous one by its universality. This phenomenon is becoming so clear that already today, government programs of individual countries are calling for preparation for these changes and the maximum possible use of their potential. For several years now, we have been talking more and more often about the very rapid development of new technologies, their increased availability, and high personalization of the technical solutions introduced. Today, ICTs are present in the modern economy in practically every sector (not only in industry) and accompany both the professional and private sphere of more and more people. The trend of mobility of electronic services, which has been observed for several years, is particularly strong – they are becoming a part of the daily life of a digital society and are very quickly applied in the production process, logistics, transport, health, banking, and the public sector. Although the two recent revolutions are based on a similar element, i.e. information, it is currently not just about collecting it but about fast processing of large amounts of data and skilful use of it (Olender-Skorek, 2017).

This means that an employee of company 4.0 is an open and active person who likes diversity, both in terms of contact with people and tasks. He has the ability to communicate very technical and detailed information to others

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with enthusiasm and optimism. This makes the audience feel positive about the ideas they share. He attaches great importance to details and strives for perfection. He ensures a high quality of work and compliance with standards. He follows the rules and procedures. On the other hand, he should no longer concentrate only on his narrow specialization. He should have the ability to understand concepts and concepts from other fields. He must be open to changes both in his area of specialization and in the team he works in. It is the team character of work that requires from him highly developed interpersonal skills. Of course, one cannot forget that technical knowledge will remain the foundation. However, new areas of technical competence will also be important, e.g.: integration of IT systems control systems, programming of industrial robotic teams, integration of analytical systems in data clouds with local systems, cyber security or the application of artificial intelligence algorithms in automation systems (Gorustowicz, 2019).

To sum up, all of the revolutions to date have made huge changes to production processes, mainly related to the possibilities of mass production and, what is important, the effective production of products and provision of services. They were accompanied by changes in the impact on the organization's internal environment, including on people. The new, so-called industry 4.0 transforms and integrates processes taking place in the organization in a horizontal manner – from purchase through production, logistics to accompanying services. We must remember that the changes described above have a very large impact on the functioning of national economies. Especially those that are at the development stage, such as Poland, which is constantly trying to catch up with developed countries economically. After all, it is the industrial production sector that is the main driving force of the Polish economy, which is still growing after the crisis of 2009. Therefore, it is very important for us that we must be prepared for the new economic conditions and we must prepare our key employees for them.

## **2.2. The essence of key employees in the organization**

A smart organization is one that is constantly developing its ability to adapt to a changing and unpredictable environment. It also acquires, creates and stores knowledge and uses it to improve its performance or produce an innovative product (Bratinau, Vasilache, & Jianu, 2006, p. 73). An intelligent organization is often also called a learning organization and in this context it is defined as one that continuously learns and practises to achieve mastery of improvement (Senge, 2004). These two definitions already clearly indicate the very important role of employees who work in an organization, showing their knowledge, skills and experience. It is the contemporary economic reality that

forces the management boards to recruit (when analyzing the situation on the labor market one can get the impression that it already belongs to an employee) and retain (according to the author, this process is even more complicated than the recruitment itself) people with high potential. The 21st century requires companies to constantly improve and introduce innovations. This activity is determined by the potential of key people for the organization, built by a group of factors of mutual relations between the company and the employed staff.

Carter (2009) defines the notion of people considered to be key to an organization through high potential as combining ability and commitment with aspirations for development, promotion, and key roles in the organization. Abilities are defined here as agility in learning and consist of innate skills – intellectual fitness and emotional intelligence, and acquired technical and interpersonal skills that are used in everyday work. Abilities also include the predisposition to: process complex ideas, think logically, see and understand other people's emotions, and learn new skills, e.g. technical, interpersonal. In contrast, E. van Staden (2011) describes the high potential of a key worker by giving attributes related to leadership skills, the ability to analyze and synthesize large amounts of information and to deal with uncertain and unclear situations. It also points to the passion for continuous learning, improving the existing situation and the ability to cooperate and communicate with other employees. In turn, Fernández-Aráo (2014) defines this issue as the ability to adapt and develop within very complex tasks and environments. He draws attention to five characteristics of an employee with potential. The first of these is the pursuit of excellence in achieving a given goal. This is expressed in the employee's ambitions and expectations of recognition, but also in his modesty and continuous investment in his own skills. The second feature is curiosity, which means the willingness to look for news, acquire knowledge, seek feedback, as well as an openness to learning and change. The third feature is perspicacity defined as the ability to collect and draw conclusions from information that can create new opportunities. The fourth feature is engagement described as talent (to use knowledge) and logic (to share one's vision with others). The fifth feature is determination – the ability to fight for complex goals and deal with difficulties and adversities.

It is worthwhile trying at this point to systematize the quoted definitions in a certain way and to refer to the four factors characterizing a high-potential employee, as follows (Ready, Conger, & Hill, 2010):

- 1) The pursuit of excellence – the constant pursuit of success can lead to extreme results. It is not enough to achieve only very good results at work, but you have to be the best – even at the expense of your personal life.

- 2) Accepting and using knowledge in business processes – in order to be recognized as a key employee, one has to learn throughout one's life – to draw knowledge and experience from every situation – both in professional and personal life.
- 3) Entrepreneurial spirit – key employees must not be afraid to leave their comfort zone (professionally and personally). They must adapt their personal style and develop new strategies. They must also be able to take responsibility – the new challenges mean playing a supportive role and doing things under influence, not under direct control.
- 4) Ability to respond appropriately – high capacity also poses great challenges in taking key decisions. This is linked to the risk of making mistakes – all of which can be a source of stress. A key worker must be aware of this and react properly (without emotion) in every situation.

All these qualities and skills should be assessed not only from a current perspective, but above all from a long-term perspective. This approach is important in planning the success of an organization. For example, commitment is the degree to which an employee sacrifices his or her abilities for the organization. The results of a high level of an employee's commitment are their hard and long-term work and their civic attitude, i.e. engaging not only in obligations resulting from the signed contract or agreement (Zdonek & Wolny, 2015).

So who is the key employee and how to identify him/her? How to explore and assess his unique potential? According to the author of the study, the main elements that may prove the role of a given employee in a domestic organization include: motivation, determination, creativity, and conceptual skills. Why just these four, not a dozen or so others? Because they best reflect the employee of the 21st century and are the answer to most determinants of the modern market. Beginning with motivation, the author means a very high level of involvement in the work and thus, the pursuit of a given goal. After all, people with high potential are usually very ambitious, constantly striving for self-perfection. They also expect recognition from others, which makes them contribute to common goals. This factor is strongly linked to the latter, i.e. determination understood in this case as the ability to fight for even the most complicated assumptions. It is also dealing with the pressure and other difficulties that accompany everyday work. Another feature is creativity – the result of curiosity to learn. It manifests itself in searching for novelties, new solutions and acquiring knowledge, which is necessary for this process. Such a person is not afraid of changes, but directly proportionally expects them, and is often the initiator of them. The last feature is conceptual skills, which allow an understanding of the general functions of the organization and its environment. This employee understands how many parts of the organization come together and can share his own vision with others.

### 2.3. Description of the main key competences of employees

The concept of competence derives from the Latin word *competentia*, which means responsibility or compliance. Nowadays, our competences determine what kind of work and how much money we will have. For many years, in the author's opinion, not entirely correctly, they have been identified with the privilege of holding a specific position within which, on behalf of a given organization, that person is entitled to make binding decisions. The very concept of competence has evolved considerably over the recent years and it is extremely difficult, or rather impossible, to find a single, coherent definition of this concept.

The precursor of this topic was McClelland (1973), who, in the 1970s, introduced this concept to the canon of science. When examining the careers of university graduates, he noted that university grades are usually not associated with professional success. Therefore, he suggested that intelligence tests should be replaced by the study of traits, which he called the competences, which consist of: knowledge, skills, abilities and personality traits needed for proper work. In the 1980s, Boyatzis (1982) developed a new definition that took into account the potential that exists in a person, leading to behavior that contributes to meeting the requirements of the job within the parameters of the organization's environment. Later, the most complete definition of competence is given by Whiddett and Hollyforde (2003), who state that competence in the scope of performed work is a set of characteristics of a given person, which consists of elements characteristic of that person, such as motivation, personality traits, skills, self-esteem connected with functioning in a group and knowledge that that person has acquired and uses. In Poland, for example, Nogalski and Śniadecki (2006) define competences as closely integrated organizational, conceptual, administrative, technical and interpersonal skills. Bartkowiak (2011) believes that the competences of key employees are the perception of attitudes, goals, motivations and attitudes of individuals, knowledge of social structures and social skills (such as motivating, communicating, ability to evaluate an employee's team), the ability to use knowledge in practice, as well as effective implementation of objectives. A definition worth mentioning was formulated by Oleksyn (2010) – it consists of: internal motivation, aptitudes and predispositions, knowledge, education, experience and practical skills, health and fitness and other psychophysical characteristics important for work processes, attitudes, and behaviors expected in the workplace and formal entitlements to act.

To sum up briefly the above-mentioned definitions, we can notice that the authors place particular emphasis on the exchange of knowledge and education as key competences in the 21st century. The reason for this



situation is certainly the combination of employee competences with the intellectual capital of a given organization, which is gradually becoming the main, although not material, asset. In this context we cannot omit the notion of knowledge management, because permanent development of an employee contributes to his even greater usefulness for the organization and indirectly to the improvement of the quality (efficiency in the use) of intellectual capital. Without this development we cannot talk about increasing the usefulness of competences for the realization of strategic goals set by the organization and building a permanent competitive advantage on the market. This may become a big barrier in the face of the new era of economy and high uncertainty in the labor market. Of course, we can, as now, force employees to adjust (update) their competences to changing conditions. However, this will be difficult to achieve in the new conditions of the fourth industrial revolution.

On the other hand, as the author wrote at the beginning, competence is a variable and very dynamic term, which is constantly evaluated by companies due to the changing demand for it. Therefore, it is difficult to create a full and, what is important, permanent and complete list of competences (some researchers of the subject mention as many as 300 competences). That is why we have to make a partial categorization of this concept (Rostowski, 2004, pp. 78-79):

- 1) Competences related to abilities – concern the potential of employees, development opportunities, use of abilities to acquire new competences.
- 2) Competences related to skills and abilities – are essential for success in a specific task. These competences include: communicative, mental, interpersonal, technical, business, organizational, etc.
- 3) Knowledge-related competencies – a group of competencies needed to perform specific tasks within a profession or position.
- 4) Physical competence – a set of all competences related to the physical requirements of the workplace, i.e.: physical fitness, sensory awareness, psychophysical abilities.
- 5) Action style competence – refers to the way goals are set, planning skills and organizational skills.
- 6) Personality related competencies – these are complex skills that determine the effectiveness of dealing with a particular type of social situation. These competencies result from personality traits and influence the quality and manner of performing tasks.
- 7) Competences related to principles and values – refer to values, beliefs, principles.
- 8) Competences related to interests – these are competences that indicate preferences for tasks, type of work and working environment. They influence the effectiveness of work, especially when the type of work is fully compatible with the type of interests.

The American defines the key competencies of employees differently from the company perspective. The authors do not focus primarily on knowledge, skills and attitudes. They claim that competence is a permanent set of character traits, value system and mental needs. The employer does not look for personal qualities in an employee that fit a given profession. He is looking for such traits that fit a given field, or even those that simply fit his company. Nowadays, the most important for the employer are skills that do not concern the profession. Social and personal skills are important. The most sought-after qualities have become: self-esteem, self-awareness and self-knowledge – it is the employee who should know what knowledge, skills and experience he has and be able to use this in the labor market. It is also important to remember about the continuous development of one's own skills (Bartkowiak, 2011).

This is strongly linked to the company's strategy, which can be treated as a purposeful and coherent set of actions and decisions that are implemented at a given time. It may also apply to (Matysik, 2016, p. 22):

- an analysis of the current situation and its possible change, if necessary;
- a sequence of decisions within specific time frames;
- the definition of the company's main and long-term objectives and the allocation of resources to achieve these objectives;
- overall planning, which must specify what decisions will be taken in each situation that may occur.

In summary, with this approach to strategy, one can try to list the competences that the key employees of the organization have:

- conceptual skills, i.e. the intellectual potential to understand the general functions of the organization and its environment, to capture the way in which the different parts of the organization come together and to look at the organization itself in a holistic way;
- ability to perceive reality, i.e. to correctly associate phenomena such as social, cultural or political ones;
- diagnostic and analytical skills, i.e. the ability to analyze and diagnose the organization's problems, study their symptoms, develop rational solutions – designing an optimal response in a given situation and choosing a good decision;
- ability to formulate objectives;
- ability to plan creatively – approaching from the final objectives through specific objectives that are properly distributed over time;
- interpersonal skills;
- ability to influence.

### 3. Research approach

The aim described in the introduction determined the further course and character of the study – the author applied the following set of research methods:

- 1) Analysis of the subject literature – to systematize the language of concepts used in the theory of the subject of the study, that is: key employees, competences and management and determinants of the fourth industrial revolution.
- 2) Interview – structured interviews with senior managers in the surveyed entities – the research was carried out in 2019 in 14 specifically selected large companies, based in Poland – in total 77 people took part in the research. This choice was dictated by the fact that it is the employees working in a given position who have the greatest knowledge of the nature of their work. The employee himself can provide most of the information about the processes in which he is involved, the expectations of the organization, the effects and conditions of his work. Therefore, the basic technique of examining employees may be intelligence, and other techniques provide partial data, cuttings more reliable, they can be confronted with the results of interviews, but it seems that they should be the basic source. They allow obtaining information that is most suitable for the purposes of the study, asking questions about the competences and their use.

On the other hand, it is difficult to find optimal research methods that would be simple enough to induce the respondents to take part in the research, and also allow the consent of the main board of the examined entity. According to the author, the credibility of the collected data was also influenced by the fact that there were no direct questions about the competencies, because in such a case the respondent usually tries to make his or her person look the best.

At the stage of planning the research process, the author intended to use a deliberate and random sample selection based on information about the size of the company from the GUS data for 2018 (3674 business entities meeting the size criterion). Due to limited resources, the author chose the principle of selection on the basis of his own declaration of participation (inquiries were sent to 50 entities whether they were interested in participating in such an undertaking). Unfortunately, the research sample did not reflect the assumed characteristics of the whole group for the country. Therefore, the presented research results cannot be a complete set for Poland – they constitute a basis for expanding the research process in the future, and for now we can only treat them as a pilot study.

In order to determine the competences of key employees and actions taken to manage them in the face of new economic challenges, the author used the inductive and deductive method. Of course, one must agree with

the opinion that these methods are always somewhat subjective, but it is not easy to find a very objective research tool. The inductive method consists in moving from detailed phenomena to general ones, from factors to results, or from causes to effects. Thanks to this, the author has derived global conclusions on the basis of detailed premises, and thus made generalizations. The deductive method, on the other hand, is based on drawing detailed conclusions from general results, moving from effects to causes. The main advantage of combining these two methods is, according to the author of the article, high objectivity of the results and the lack of necessity to separate the influence of all factors on the general phenomenon.

#### **4. Results and discussion**

In the first stage of the survey, the respondents assessed the exemplary competences that a key employee should have. A set of these competences (12), was identified and defined in previous research processes (2014-2018) – Figure 2.1, which was devoted to the identification of key employees in companies and the impact of the competence of this group of employees on the construction of competitive advantage of their home organizations. It took place in 14 randomly selected large companies from the maritime industry, based in the Pomeranian Voivodeship – in total, the research was attended by nearly 60 people, representatives of the management. It is worth noting that the author actually managed to identify key employees in the surveyed entities based on the identification of key competences. It is also important that the possession of key competences was no longer the domain of the managerial staff only, but also of various types of specialists. Unfortunately, the research also confirmed that the degree of utilization of the potential of the most important employees for the organization is still at a low level.

Now the author would like to determine the possible degree of changes in this area in relation to previous years and this was to be the starting point for further questions. The questions related to knowledge, skills, personality traits, attitudes and motivation were assessed as: very necessary (assigned score – 3), medium necessary (assigned score – 2), unnecessary (assigned score – 1). Usually for each competence the respondents marked a similar assessment, so the results may not be very different, but they reflect practically the same situation as in previous surveys (Figure 2.2).

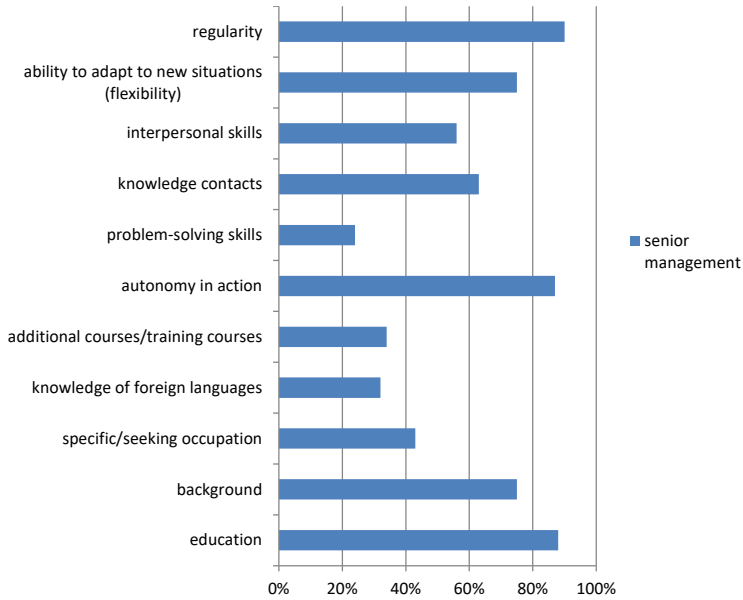


Figure 2.1. Model competencies of key personnel – data from 2014-2018

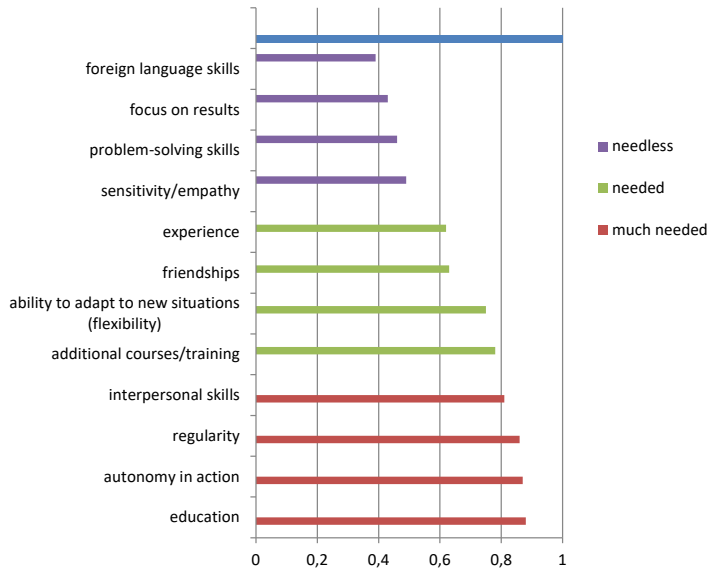
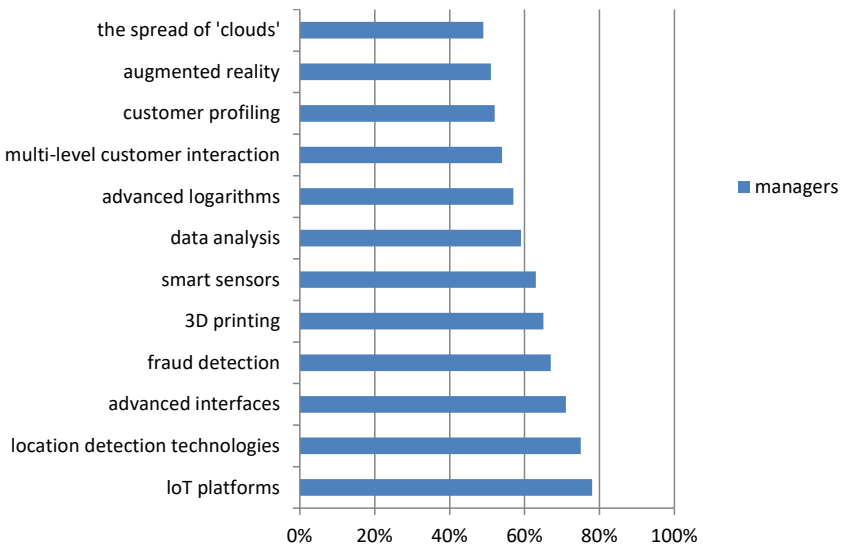


Figure 2.2. Model competencies of key employees

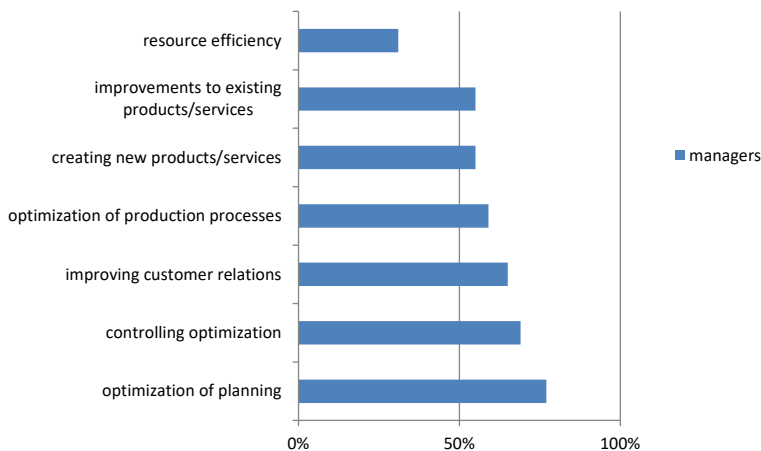
The competences of education, systematic self-reliance, and interpersonal skills were indicated as very important. The fewest indications were given for such competences as: knowledge of foreign languages, ability to solve problems and focus on results. Of course, in some of the respondents' indications one can say that they do not comply with the very definition of competences, but the author did not specifically impose an answer, trying to learn the individual opinion of the respondents. It turned out that the same division is still maintained – very small deviations appeared. The only competence that has definitely lost its importance is the knowledge of foreign languages, which, according to the author, can be interpreted in two ways. On the one hand, we can assume that this has become very common (although another competence – education, still remains at the top of the list) or it may be the result of significant deficiencies in this area in the group of respondents who, knowing their limitations, automatically marginalized this competence.

In the second stage of the research, the author focused on obtaining information from the respondents on the challenges and opportunities that the fourth industrial revolution brings and actions taken to optimally use the competences of key employees in this process. Therefore, bearing in mind that a radical digital transformation is taking place all over the world, the author tried to check how we understand the advanced digital transformation of value chains, products, services, and business models in Polish reality (Figure 2.3).



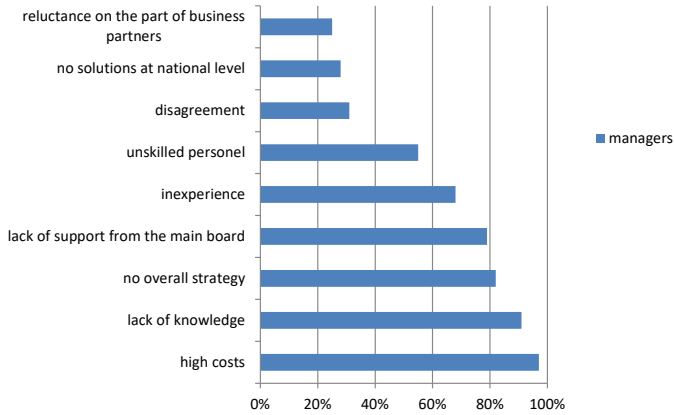
**Figure 2.3.** To understand the essence of advanced digital transformation

At this point the author wants to point out that contrary to the analysis of the economic situation in Poland and the problems that accompany its development, we may have the impression that we are fully aware of the challenges that stand in our way in connection with the new industrial era. The majority of people who took part in the survey are aware that their companies will be organizations of the digital age, producing physical products and providing innovative services based on data analysis – there will be a radical change in the way they function and the dynamics of processes taking place on the market will also increase. They also know that data and information is the main element of the upcoming changes and they have a long and difficult path ahead of them to achieve advanced analytical capabilities – none of the people participating in the survey declared that they are able to do it in an advanced way, and 90% indicated that their company has significant shortcomings in this respect (Figure 2.4).



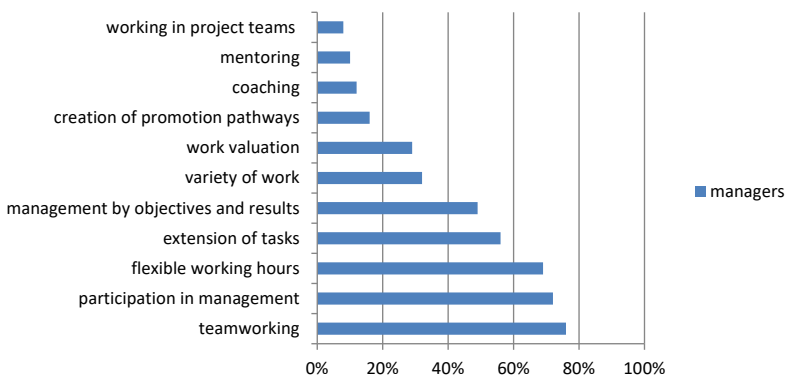
**Figure 2.4.** Areas that can help the data analyst

Unfortunately, now the author will show more pessimistic data. For a long time now, world leaders have been reshaping the various functions of the internal (vertical) value chain, i.e. optimizing the performance of the various activities that make up the processes using the company's new technologies. As a result, they are able to add more value and expand their offerings by introducing innovative services based on data analysis. Meanwhile, the respondents unanimously stated that no measures are implemented in their enterprises to help them adapt to new conditions. They only indicated what challenges and barriers they see on the way to the new economic reality – Figure 2.5 (each of the research participants could make a maximum of 3 indications).



**Figure 2.5.** The challenges and barriers of the fourth industrial revolution

Obviously, the biggest challenge may be to obtain the necessary financial resources. The problem will also be the lack of support from management boards and a clear vision of what to do next. In many cases, the lack of cooperation with business partners due to organizational and technological immaturity is also a barrier. Unfortunately, the lack of an appropriate organizational culture and the lack of programs for the company’s most important employees will lead to big problems – key employees will leave and it will not be possible to find new people who will be equally talented in their place. What should be the foundation of the new order in the company? It turns out that the management staff in the surveyed entities are well aware of this – Figure 2.6.



**Figure 2.6.** Actions that could stimulate key workers in the new economic realities



As we can see from this chart, it is primarily cooperation that does not seem to be taking place in traditional organizational structures, based on functions and divisions. This is certainly often a difficult situation in Polish conditions. Apart from that, with the following questions, most of the respondents pointed to another very big problem in their companies – separate functioning of people responsible for business and separate for technologies. This effectively makes it difficult to take advantage of the opportunities offered by the fourth industrial revolution. Moreover, the respondents emphasized problems with clear leadership in their organizations, leadership, which does not run away from difficult decisions and treats subordinates in a partner way. However, according to the author, the most important thing that became apparent at the very end of the analysis of the survey results was the fact that the vast majority of respondents (nearly 92% of all indications) decided that specific actions had to be taken – you have to define your capabilities and establish strategies of action faster than others, so as not to fall behind. This means that they understand that the key success factor is not just technology itself, but people who can use it effectively. But why don't we do it? Don't we want to make the most of people's potential as a weapon to fight new challenges? Do we not forget about the need for systemic solutions, starting with changes in organizational structures and cultures. These questions are undoubtedly the starting point for identifying innovative tools of human capital management during the fourth industrial revolution.

## 5. Conclusion

Now we are eyewitnesses of the unprecedented changes taking place in most industries. The third industrial revolution has resulted in the automation of a large number of processes in the company. This has already caused a lot of controversy and forced the implementation of many, often difficult, changes. Now, there is a fourth one that allows for the integration of devices in areas of digital ecosystems. This will increase the integration of value chains, horizontally and vertically. The basis that has enabled, and even led to, the next revolution is the rapid increase in data availability and computing capabilities. This has created the opportunity for better, more efficient management of the entire product life cycle and available company resources.

On the other hand, the greatest value of the company in the 21st century (at least until now) are its employees (especially the key ones), their competences and commitment. On the basis of the analysis of the literature on the subject, the author of the study believes that since competences are derived from skills and knowledge, they can be shaped, raised by means of experience and education. On the other hand, proper, positive motivation, self-confidence and a friendly

working environment build optimal engagement. By putting all this together, you can achieve a kind of success for the organization, measured by many indicators. But a completely different picture emerges from the analysis of the conducted research (so far pilot studies). In all the surveyed entities, despite a fairly high awareness of the effects of future changes and the benefits they may bring, no action is planned. Managers do not create any strategies to help employees adapt to new market conditions, and thus the better use their potential.

Where does this trend come from? Why do passive attitudes dominate in the surveyed entities? One thing is certain – perhaps the awareness of people responsible for the functioning of enterprises is changing, as well as the barriers they have to overcome. However, it is still not an impulse to act. What will be the result? If the situation diagnosed in the companies that took part in the survey illustrates the whole population, then surely the distance between Poland and the richest and most developed countries will not change quickly and will remain constant.

Taking into account all of the collected data, we can state that the assumed research goal has been achieved. What is important, of course, in the author's opinion, just like the development of management sciences, the area of content related to the fourth industrial revolution indicates the importance of this problem, so the enterprises themselves must understand that the driving force behind Industry 4.0 may be an increase in annual revenues, depending on the effective implementation and management of new solutions. This will not be possible without the proper development of the potential of the employees, as it is they who decide on the quality of products, services provided and customer service. They must, therefore, be guaranteed intelligently organized work, adapted to the new conditions, which will undoubtedly allow them to meet a wider range of their needs.

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