

## DIGITAL COMPETENCES OF HUMAN RESOURCES OF ORGANIZATIONS AND COMPETITIVENESS OF SME ENTERPRISES

Anna LEMAŃSKA-MAJDZIK

Czestochowa University of Technology; a.lemanska-majdzik@pcz.pl, ORCID: 0000-0003-3484-3498

**Purpose:** The purpose of the paper is to assess the impact of digital competences of employees on the level of SME enterprise competitiveness.

**Design/methodology/approach:** The reasoning is based on the results of the research conducted in 2020 on a group of 140 Polish production companies employing up to 249 employees. During the research the author's survey questionnaire was used, which enabled the assessment of competitiveness of enterprises and digital competences of the respondents. After formal evaluation of the collected data, they were subjected to appropriate statistical analysis using the Statistica 13.3 program.

**Findings:** The study indicated that not all the areas in which employees have digital skills determine the level of enterprise competitiveness, however, digital competences in the area of sale, communication and promotion, customer management and in the area of the market and competition have a positive impact on the level of competitiveness of production companies.

**Research limitations/implications:** The research conducted on a group of production companies in southern Poland has its limitations, which is too small research group, however, the author is planning to continue the research into competitiveness of enterprises of the SME sector, which will enable greater exploration of the research problem undertaken. In the future, the research on a larger research group is planned as well as international research to identify the factors of competitiveness of enterprises operating in European countries.

**Practical implications:** The results of the research make it possible to indicate for business management practitioners which digital abilities of enterprise employees positively determine the company's competitiveness.

**Originality/value:** The novelty of the research the analysis of selected digital competences of enterprise employees and their impact on the market competitiveness of organizations in the SME sector. The results of the research can be used by managers and owners of enterprises in the analyzed sector.

**Keywords:** enterprise competitiveness, digital competences, SME sector, enterprise management.

**Category of the paper:** research paper.

## 1. Introduction

The changeability and unpredictability of the market environment, intensification activities of competitors, technological development, increased requirements of consumers and market saturation determine the contemporary organizational behavior. The company's ability to respond quickly to changing competitive conditions affects the development of the organization and allows for maintaining its competitive advantage (Ussahawanitchakit, Sriboonlue, 2011). The more the areas of the company's operations controlled the better a competitive position in the market (Reddy, 2006). The theory of constructing the ability to change and acting for entrepreneurship provide the organization with an opportunity to take proper competitive actions to respond to the identified risk and to use opportunities related to the changeability of the environment. These competitive activities are the response of the organization and its ability to solve the arising problems with a high level of risk and uncertainty (Snieska et al., 2020). One of the areas determining the level of competitiveness of enterprises is human resources (Hillman, Withers, Collins, 2009) and their possibilities of using information and digital technologies (Skowronek-Mielczarek, 2021). The ability to use and operate digital information systems are often perceived as a critical source of a competitive advantage of enterprises, especially production ones. The market offer is definitely wide, and IT is used by enterprises in various fields of operation. However, the possibilities of employees of the SME sector in terms of using these systems are different and often it is not the technical features of the system that determine the limits of the system usability, but the skills or digital competences of enterprises (Hirvonen, Majuri, 2020).

The aim of the article is to assess the impact of digital competences of employees on the level of competitiveness of SME enterprises. In the article, the analysis was based on the results of own research on a group of 140 Polish manufacturing companies from the SME sector, which were carried out in 2020. During the study, an original questionnaire was used, which made it possible to assess the level of competitiveness of enterprises and digital competences of respondents.

## 2. Digital competences of employees in the organization

Digital competences are defined as a set of information competences including the employee ability to search for information, to understand it as well as to assess its reliability and usefulness, and IT competences, which consist of the ability to use a computer and other electronic devices, to use the Internet and use various types of applications and software and to create digital content (Ogonowska, 2017). They include a comprehensive range of employee

skills, from the efficient use and selection of appropriate digital tools, through the ability to think innovatively, to arranging processes and strategies of digital transformation in the organization. As indicated by (Śledziewska, Gabrielczyk, Włoch, 2015, p. 7), digital competences of in enterprises can be considered at two levels, namely individual and organizational. Individual competences of the organization depend on the knowledge, skills and attitudes of employees hired in the enterprise (Ritter, Pedersen, 2020), whereas, in organizational terms, they can be perceived as the levels of abilities in various areas of the enterprise (Halme et al., 2015). The relevant level of abilities of the employees allows for performing tasks in a correct, safe, critical, creative, and ethical way, solving problems, communicating, managing information, collaborating, creating, and sharing content in the organization. The contemporary conditions for the functioning of the market of production companies lead to changes, for both the company and employees. The appropriate level of digital competences and skills of members of the organization become therefore the condition for the market development of organizations and the moderator for maintaining competitiveness (Dillinger, Bernhard, Reinhart, 2022).

To assess the level of digital competences in the surveyed companies, the scale suggested by the authors of the research was used (Buchner, Zaniewska, 2016), in which six areas were referred to, such as sale, communication and promotion, product or service, customers, the market and competitors and conducting a business, the activity of which has an impact on the operations of enterprises. Achieving benefits due to possessing specific digital skills of employees in the identified areas determines operations of enterprises by achieving benefits positively affecting their functioning on many levels (Wang et al., 2019; Müller et al., 2018; Pagani, Pardo, 2017; Järvinen, Taiminen, 2016). It was assumed that the appropriate level of digital competences of employees in the identified areas determines benefits for enterprises: saving time, money and making profits, which directly affect competitiveness of SME enterprises. The scale created in this way consisted of six items (subscales) measuring the digital competences of employees (DC) level on a 5-point scale:

- DC\_1: digital skills of employees in presenting products for sales purposes, in the implementation of digital transactions, in supporting the process of selling products, in accessing sales data,
- DC\_2: digital skills of employees in being visible on the Internet and searched, in communication with the client, in conducting promotional activities,
- DC\_3: digital skills of employees in gathering knowledge about customers, in establishing and maintaining relationships with customers, in building customer loyalty,
- DC\_4: digital skills of employees in the process of making a product, in creating a knowledge base about products, in determining the range of products offered,

- DC\_5: digital skills of employees in gathering knowledge about the market, industry, and competition,
- DC\_6: digital skills of employees in managing the company's documents, in managing and communicating with the team and contractors, in managing the company's finances, in controlling the company's resources.

### **3. Digital competences of employees in the organization**

In the present turbulent and unpredictable conditions of the environment, the achievement of a competitive advantage increasingly depends on the company's ability to provide a long-term value for the customer (Santos-Vijande, López-Sánchez, Trespalacios 2012). Organizations ought to renew their abilities and resources to maintain a competitive advantage (Wu, 2010). Dynamic skills constitute a complex set of abilities, due to which organizations systematically modify operational procedures and change their resources and skills to achieve appropriate adaptation to the changing market requirements.

According to Chikán (2018), the level of enterprise competitiveness (EC), as a starting point for the research, is a construction in which the central part is the company, which is the subject of the analysis from the perspective of the business environment. EC is the company's ability to sustainably fulfill its dual objective. Firstly, it is the satisfaction of customer needs by providing goods/services in the market which customers value higher than the ones offered by competitors. Secondly, it is constant adaptation to changing standards, social and economic conditions in the market (Chikán et al., 2022).

Competitiveness is the extent to which the company enters the market compared to its main competitors (Jiang et al., 2016). A competitive advantage is an advantage gained over competitors to offer a greater value to customers than competitors (Kotler, 2008; Aiginger, Vogel, 2015). The primary advantage of EC is its resources that can be divided into organizational, human, and material resources. The company's resources are characterized by specific features (Barney, 2001), such as rarity, uniqueness, which make that the company's potential, not only in the area of the market competition, is an individual feature of the organization and brings about that the company may succeed in the market. In turn, the company's dynamic skills defined as the company's ability to integrate, build and reconfigure internal and external competences to meet rapidly changing environmental conditions. They reflect the ability of the organization to achieve new, often innovative forms of a competitive advantage, considering, among others, a market position (Teece, 2007). Therefore, one may indicate that dynamic skills are a complex set of abilities due to which organizations systematically modify operational procedures and change their resources and abilities to achieve a proper adjustment to changing market requirements (Zollo, Winter, 2002,

pp. 339-351; Barney, Hesterly, 2009). Dynamic skills and abilities to achieve a competitive advantage are often the response to the threat arising from the environment (Sajdak, 2013).

The EC was examined using a scale in which, by assessing selected determinants, the overall level of competitiveness of the enterprise was indicated (Rigo et al., 2022). The respondents rated the level compared to the main competitors in the last 3 years. The scale used included, among others, quality, prices, customer orientation, the level of innovation, staff qualifications, efficiency and professionalism in enterprise management, availability of financing sources, technological procedures, quality of infrastructure, as well as relationships with customers, including their expectations and flexibility in meeting customer needs (Jiang et al., 2016; Celtekligil, Adiguzel, 2019; Chikán et al., 2022). The scale consisted of fourteen items (subscales) measuring the level of EC on a 5-point scale.

#### **4. Research methodology**

The conducted literature review allowed for the formulation of the following research hypothesis H1: Digital competences of employees determine the level of market competitiveness of SME enterprises.

Therefore, the aim of the article is to assess the impact of digital competences of employees on the level of competitiveness of SME enterprises. The goal was achieved on the basis of own research on a group of 140 production companies operating in southern Poland. Enterprises from the SME sector – micro, small and medium-sized employing up to 249 employees participated in the study.

The survey was conducted in 2020, the sampling was purposeful. Due to the size of the research sample, the study can be considered a pilot study. The study used the proprietary questionnaire, which consisted of closed questions and had a 5-point Likert scale. The scale made it possible to express an opinion on the level of competitiveness of the company and indicate digital competences. The scale was adopted on the basis of Sheng, Zhou, Li (2011) and Peng, Luo (2000), where 1 means "I definitely disagree" and 5 – "I definitely agree". The survey questionnaire was tested for reliability. The proprietary questionnaires were filled in personally by the owners and/or managers of the enterprises. The participation in the survey was anonymous. After formal evaluation of the collected data, they were subjected to appropriate statistical analysis using the Statistica 13.3 program.

## 5. Own research results and discussion

In the first stage of the research, the level of market competitiveness of the examined group of companies in total was analyzed. The research carried out on the group of production enterprises showed that the average level of enterprise competitiveness is 4.06 on a 5-point scale and deviates from the average value by  $\pm 0.615$  p. It turned out that at least 25% of the respondents indicated that the level of competitiveness of their enterprise was at the level of 3.71, at least 50% of the respondents - at the level of 4.07, and 75% - at the level of 4.57 or less (Table 1).

**Table 1.**

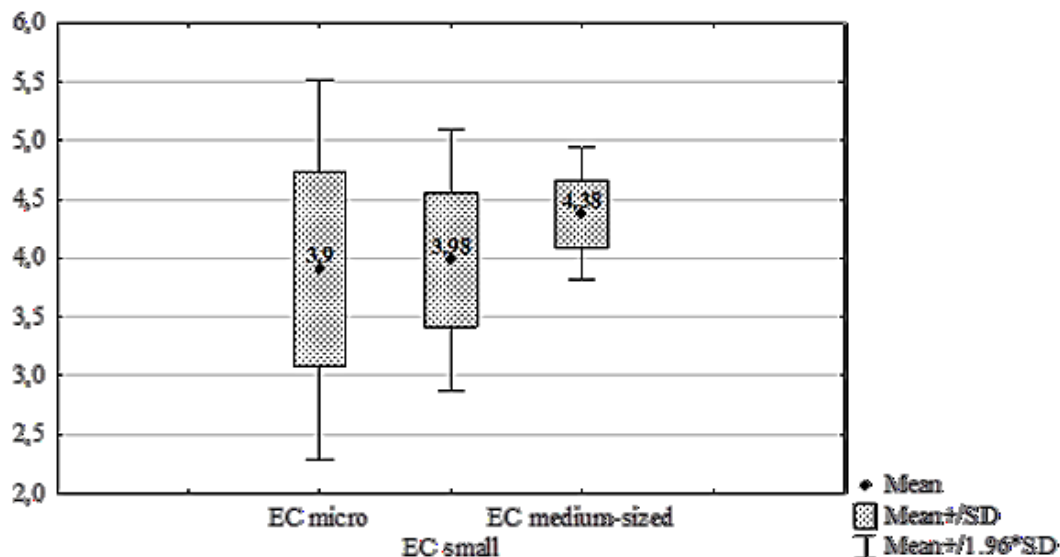
*Descriptive statistics for the competitiveness of manufacturing enterprises (n = 140)*

EC in total	Descriptive Statistics						
	Mean	SD	Min	Q25	Median	Q75	Max
	4.06	0.615	2.28	3.71	4.07	4.57	5.00

Source: own research.

The results of the research, presented in the international literature, indicate that when examining the competitiveness of companies, the size of the company should be taken into account as an important moderating factor (Lyu et al., 2022; Dvouletý, Blažková, 2021). It was based on the assumption that company size is an essential key to stimulating or constraining the company's decision-making or behavioral choices (Liu et al., 2020; Lee, Kim, 2016; Josefy et al., 2015). Therefore, during the research, the level of competitiveness of enterprises was analyzed for individual groups of companies in terms of the size of the enterprise. The arithmetic means for individual groups of enterprises were measured. The criterion adopted was the size of employment, i.e., micro-companies (up to 9 employees), small companies (10 to 49 employees) and medium-sized companies (50 to 249 employees).

The analysis of the level of EC showed that among micro-enterprises this level is 3.90 on a 5-point scale and deviates from the average value by  $\pm 0.825$  p. The minimum value for the level of competitiveness of manufacturing micro enterprises was as high as 2.79. At least 25% of the respondents indicated that the level of their EC was up to 3.00, and at least 50% of the respondents indicated that the level of their enterprise was up to 3.86. The level of competitiveness of small enterprises is 3.98 and deviates from the average value by  $\pm 0.569$  p. At least 25% of the respondents indicated that the level of competitiveness of their enterprise was up to 3.71, and at least 50% at the level of 3.93. The level of competitiveness of medium-sized enterprises is 4.38 and deviates from the average value by  $\pm 0.288$  p. At least 25% of the respondents indicated that the level of their enterprise's competitiveness was up to 4.21, and at least 50% of the respondents assessed that it was up to 4.32. It turned out that enterprises with a greater number of employees have a higher level of EC (Figure 1.).



**Figure 1.** The level of EC from the SME sector. Source: own research.

Then, an analysis was conducted as to whether there are statistically significant relationships between the size of the company and the level of EC. The research showed that there is a statistically significant relationship between the size of the enterprise expressed in the form of the number of employees and the level of EC. The relationship is weak and positive ( $\gamma=0.278$ ), that is, as the number of employees of the enterprise increases, the level of its competitiveness increases (Table 2).

**Table 2.**

*Gamma rank correlation between the size of the company and the level of EC*

The level of EC	Size of the company
	*Gamma rank correlation (p-value<0.05)
	0.278*

Source: own research.

Then, an analysis of the level of DC (digital competences of employees) in general and in six selected areas for the surveyed enterprises was carried out. The average level of DC in the surveyed enterprises was generally low and amounted to 2.55 on a 5-point scale and this level deviates from the average value by  $\pm 0.994$  p. It turned out that at least 25% of the respondents indicated that the level of DC in their company was at the level of 1.83, and at least 50% of the respondents indicated the level of up to 2.58. The research showed that the highest level of DC, above the average, occurs in the area of conducting business (DC\_6) at the level of 2.77, then in the area of customer management (DC\_3) at the level of 2.66. In turn, the lowest level, below the average, in the sales area (DC\_1) at just 2.16 (Table 3).

**Table 3.**  
*Descriptive statistics for DC*

DC	Descriptive Statistics						
	Mean	SD	Min	Q25	Median	Q75	Max
DC in total	2.55	0.994	1.00	1.83	2.58	3.33	4.50
DC_1	2.16	1.221	1.00	1.00	2.00	3.00	5.00
DC_2	2.62	1.311	1.00	1.00	3.00	4.00	5.00
DC_3	2.66	1.221	1.00	2.00	3.00	4.00	5.00
DC_4	2.59	1.383	1.00	1.00	2.00	4.00	5.00
DC_5	2.51	1.317	1.00	1.00	2.00	4.00	5.00
DC_6	2.77	1.385	1.00	2.00	3.00	4.00	5.00

Source: own research.

In the next stage of the research, an analysis of the impact of DC in the individual six areas distinguished on the level of competitiveness of the surveyed manufacturing companies was conducted. The research has shown that four out of the six distinguished areas of DC of enterprises affect the level of EC. In the case of DC\_1, DC\_2, DC\_3 and DC\_5 the dependencies are weak, but statistically significant and positive ( $p\text{-value} < 0.05$ ) (Table 4).

**Table 4.**  
*Spearman rank correlation between EC and DC*

DC	EC
	*Spearman rank correlation ( $p\text{-value} < 0.05$ )
DC_1	0.282*
DC_2	0.177*
DC_3	0.255*
DC_4	0.084
DC_5	0.181*
DC_6	-0.105

Source: own research.

It can therefore be indicated that DC in the area of sales consisting in the skills in presenting products for sales purposes, in the implementation of digital transactions, in supporting the process of selling products, in accessing sales data (DC\_1), DC in the area of communication and promotion consisting in the skills in being visible on the web and searched for, in communication with the client, in conducting promotional activities (DC\_2), DC in the area of customers, consisting of skills in gathering knowledge about customers, in establishing and maintaining relationships with customers, in building customer loyalty (DC\_3), and DC in the area of the market and competition consisting in skills in gathering knowledge about the market, industry, competition (DC\_5) have a weak but positive effect on the level of competitiveness of the surveyed enterprises.



## 6. Conclusions

The research conducted on a group of micro, small and medium-sized production companies in 2020, the objective of which was to assess the impact of digital competences of employees on the level of enterprise competitiveness, allowed for the partial confirmation of the formulated research hypothesis, namely H1: Digital competences of employees determine the level of market competitiveness of SME enterprises. The study indicated that four of the six distinguished areas of digital competences of SME enterprises have a positive impact on the level of enterprise competitiveness. Therefore, one may point out that the higher the level of digital competences in the area of sale, communication and promotion, customer management and the perception of the market and competitors the higher the level of competitiveness of production companies. These results also indicate some sensitive areas of business operations, in which it is necessary to take specific actions in the field of management of human resources to increase digital competences of employees and in access to digital technologies and training in this respect.

The conducted research contributes to increasing knowledge resources in the area of the competitiveness of SME enterprises and determinants of competitiveness but also open up to new scientific research in the field of organizational resource management. The research conducted on a group of production companies in southern Poland has its limitations, which is too small research group, however, the author is planning to continue the research into competitiveness of enterprises of the SME sector, which will enable greater exploration of the research problem undertaken. In the future, the research on a larger research group is planned as well as international research to identify the factors of competitiveness of enterprises operating in European countries. Moreover, selected digital skills of enterprise employees were analyzed during the study. In the opinion of the author, the analysis should be expanded, e.g. having regard to the international literature review.

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