

## AGILE PRACTICES OF ENTERPRISES IN THE FACE OF THE CHALLENGES OF DIGITIZATION

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**Purpose:** The aim of the article focuses on identifying the ways in which companies respond to the requirements of digitalization and what actions they take to maintain their competitiveness.

**Design/methodology/approach:** The article presents the results of research conducted in April and May 2023 on a research sample of 303 respondents, aimed at understanding the adaptation of organizations to the challenges of digitalization through agile practices.

**Findings:** The findings underscore the importance of fostering organizational culture that promotes adaptation and continuous learning, investing in digital skills training, embracing new technologies, and enhancing operational flexibility through agile practices.

**Research limitations/implications:** Limitations include the potential lack of representativeness in the research sample, reliance on self-reported data, and the absence of longitudinal data. Future research could focus on expanding the sample size, conducting longitudinal studies, and exploring success factors in agile implementation.

**Practical implications:** Practical implications include recommendations for companies to focus on developing organizational culture, investing in digital skills training, adopting new technologies, and enhancing operational flexibility through agile practices to improve competitiveness and resilience in the digital era.

**Social implications:** Social implications involve fostering a culture of continuous learning and innovation within organizations, which can contribute to economic growth and job creation in the digital economy.

**Originality/value:** This article's originality comes from its thorough analysis of agile practices within digitalization, combining literature and empirical research to offer practical advice for companies facing digital transformation challenges.

**Keywords:** organizational agility, digitalization, enterprise, agile practices, management.

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

## 1. Introduction

In the face of digitalization challenges that contemporary enterprises encounter in the dynamically changing business environment, the necessity for adaptation and swift response to new conditions becomes crucial for maintaining competitiveness and innovation (Kurnia, Chien, 2020). Digitalization, understood as the process of implementing digital technologies into all aspects of business activity, brings both opportunities for development and numerous operational, strategic, and organizational challenges (Rahimi, Mansouri, 2019). In this context, agile practices, originating from information technology project management methodologies, gain significance as tools enabling flexible and effective adjustments to continuous changes (Brown, Jones, 2018).

However, despite growing interest and implementation of these practices across various sectors, there is a gap in the literature regarding a comprehensive analysis of agile practices in the context of digitalization challenges. Thus, it is essential to investigate how enterprises utilize agile practices to cope with digitalization challenges, based on a broad literature review and empirical research.

An introduction to the issues of digitalization and agile practices in the business context allows for a better understanding of the dynamic changes occurring in the world of entrepreneurship and points out ways in which organizations can effectively respond to these changes using agile practices. This study aims to fill the existing knowledge gap and provide practical recommendations for companies striving to implement digital changes effectively in their operations. The originality of the material presented primarily stems from a comprehensive approach to analyzing agile practices in the context of digitalization challenges faced by contemporary enterprises. Previous research mainly focused on individual aspects of digital transformation or agile project management methodologies in IT, overlooking the broader perspective of integrating these areas. This study fills this gap by providing a comprehensive analysis of how enterprises can utilize agile practices to address digitalization challenges, which is crucial for maintaining competitiveness and innovation.

## 2. Literature Review

### 2.1. Theoretical Framework for Organizational Agility and Agile Practices

Organizations that can quickly adapt to changing conditions are more likely to succeed in the long run. The term "organizational agility" is frequently encountered in academic literature (Kidd, 1994), though definitions can vary. In general terms, this concept refers to an organization's capacity to quickly respond and adapt to new circumstances in response to

unexpected and constantly dynamic changes in business (Meredith, Francis, 2000). Immediate reactions allow the organization to flexibly adjust each of its elements to unforeseen changes in the environment (Sanchez, Nagi, 2001).

Originally, organizational agility was a concept used in the context of manufacturing, but it was noted that its principles could also be applied to other organizational functions (Goldman, Nagel, Preiss, 1995). These observations led to the development of the concept of organizational agility as a universal term (Chen, Siau, 2020). Currently, there are many interpretations of this concept. Some of them explore organizational agility as a combination of an effective human resource management strategy (Skyrius, Valentukevič, 2020) with efficient use of the latest technologies and production methods (Cappelli, Tavis, 2018). Another definition interprets agility as the integration of all flexible technologies along with the knowledge and experience gained in the process of comprehensive quality and production management in a just-in-time supply system (Zhang, Sharifi, 2000).

Other approaches to organizational agility are more detailed and focus on the ability to quickly adjust to market conditions. In this context, agility is viewed as a strategic capability of the organization to quickly adapt to unexpected and rapid market changes (Bray et al., 2019).

Organizational agility is also understood as an organization's ability to immediately and adequately respond to dynamic changes, as well as the ability to survive in variable market conditions (Almahamid, Awwad, Adams, 2010). This is possible by developing an appropriate mechanism for responding to dynamic changes in the business environment (McNamee et al., 2012).

Agility is also interpreted as the ability to effectively modify the level of operations in response to increasing customer demands (Yang, Liu, 2012). In this context, organizational agility is defined as the ability of an organization to effectively manage changes by developing survival skills despite various threats in the market environment (Narasimhan, Talluri, Mahapatra, 2006). Organizational agility is also seen as the intelligent and quick exploitation of emerging opportunities in the business environment, which enables gaining a competitive advantage in a short time (Chen, Li, 2021; Kt, Sivasubramanian, 2023; Akkaya, 2021).

Thus, organizational agility can be understood as an organization's ability to immediately respond to changes in the internal and external environment, as well as to take proactive actions to exploit new opportunities arising from these changes (Oelschlaeger, Huskey, 2012).

## **2.2. Polish enterprises in the era of digitization challenges**

In the current era marked by the rapid evolution of digital technologies, Polish enterprises are confronted with the imperative of integrating digital technologies to maintain competitiveness and respond to consumer demands for innovative products and services (He, Harris, 2021; Brown, Jones, 2018). The adoption of digital technologies enables the introduction of novel products and services, necessitating the implementation of new business

models and a willingness to embrace technological changes (Prieto, Talukder, 2023; Rahimi, Mansouri, 2019).

Collaboration and continuous learning in the realm of digital advancements are crucial, as they facilitate the enhancement of digital competencies (McNamee et al., 2012; Ramadhana, 2021). The deployment of artificial intelligence and ICT tools is essential for firms aiming to leverage data for improved decision-making and operational efficiency (Chen, Li, 2021; Routledge, 2020).

The agility to swiftly adapt to market conditions and the development of strategic agility are fundamental for firms to thrive in the digital age (Sajdak, 2021; Kurnia, Chien, 2020). This agility is supported by fostering a culture of innovation and flexibility, enabling organizations to effectively manage change and capitalize on emerging opportunities (Seifollahi, Shirazian, 2021; Sedej, Justinek, 2021).

Moreover, enhancing employee agility and empowering workers are pivotal strategies for achieving organizational agility and sustaining competitive advantage (Sherehiy, Karwowski, 2017; Varghese, Bini, 2019). The integration of organizational intelligence plays a significant role in this process, facilitating the adaptation to and management of digital transformation challenges (Skyrius, Valentukevič, 2020; Stuart, Huzzard, 2017).

Furthermore, the ability of organizations to navigate through crises, such as the COVID-19 pandemic, underscores the importance of organizational agility in crisis management and ensuring firm performance under adverse conditions (He, Harris, 2021; Chen, Li, 2021). This resilience is achieved through strategic management accounting and the effective use of business intelligence agility, which are key to building a sustainable and agile organization capable of facing future challenges (Kurnia, Chien, 2020; Skyrius, Valentukevič, 2020).

In conclusion, the imperative for Polish enterprises to integrate digital technologies and foster an organizational culture that is open to innovation, continuous learning, and strategic collaboration is evident. These efforts, coupled with the enhancement of digital competencies and the adoption of agile business models, are essential for firms to navigate the complexities of the digital landscape successfully (Skrzypek, 2017; Stroiska, Trippner-Hrabi, 2016). The strategic alignment of organizational agility with digital transformation initiatives will enable Polish enterprises to achieve sustainable growth and maintain a competitive edge in the evolving global market (The First Pillar: Organizational Agility, 2020; Zagazig City Study, 2020).

### **2.3. Organizational agility in the face of the challenges of digitalization**

Organizational agility is an essential element of business strategies in the face of digitalization challenges (Kocot, Kwasek, 2022). In the era of digital transformation, where traditional business models are being redefined by technological advancements, an organization's ability to quickly adapt and innovate becomes crucial for its survival and growth (Leberecht, 2016). This agility enables companies not only to effectively respond to

changing market conditions but also to leverage new opportunities brought about by digitalization.

In the context of digitalization challenges, organizational agility is demonstrated through the implementation of new technologies such as cloud computing, big data, artificial intelligence, and the Internet of Things (IoT), which allow for the collection, processing, and real-time analysis of large amounts of data (Felipe, Leander, Roldan, Leal-Rodriguez, 2020). Such actions not only enhance operational efficiency but also enable the personalization of offerings and a better understanding of customer needs, which is crucial for gaining a competitive advantage.

Furthermore, in the face of digitalization, organizational agility requires continuous improvement of internal and external processes, which is achievable through flexible project management methods such as Agile and Scrum (El-Wakeel, 2019a; 2019b). These approaches promote iterative development, adaptive planning, and ongoing collaboration among teams, enabling faster innovation implementation and more effective change management.

The cultivation of an innovation and learning culture within the organization is another crucial aspect of agility in the digital age. Developing digital competencies among employees, promoting openness to change, and fostering a pro-innovation mindset are essential for effectively harnessing the potential of digital technologies (Galvin, 2019). In this context, training programs and workshops play a significant role in enhancing skills and knowledge exchange within the organization.

Collaboration with external partners, such as technology startups, research institutions, or other companies, can further support the development of organizational agility. These partnerships provide access to new technologies, expert knowledge, and innovative solutions that can be used to optimize business processes and create new operational models (Krull, Mackinnon, 2016).

In summary, organizational agility in the face of digitalization challenges is the cornerstone of building sustainable competitiveness in the market. Through a flexible management approach, investment in digital competencies development, and a culture of innovation and collaboration, Polish enterprises can effectively adapt to a rapidly changing environment and leverage new technologies to create value for their customers and stakeholders.

### **3. Research Methodology**

The research object of the article is to understand how organizations adapt to the challenges of digitalization through agile practices. The aim of the article focuses on identifying the ways in which companies respond to the requirements of digitalization and what actions they take to maintain their competitiveness. An effort was made to find out: What agile practices are used

by companies in response to digitalization? How does digitalization affect the organizational agility of enterprises? Research hypotheses were formulated: Companies that successfully implement agile practices are better able to cope with the challenges of digitalization. The use of ICT tools and the development of employees' digital skills is key to increasing the organisational agility of enterprises.

In this article, the results of research conducted in April and May 2023 are presented. The research sample consisted of 303 respondents. In the research process, demographic data were obtained. Respondents were divided by gender, with men accounting for 58.7% of respondents, and women for 41.3%. Among the respondents, the majority were individuals under 25 years old (47.2%), while those aged 26-35 accounted for 30.4% of the participants, and those aged 36-45 constituted 19.5%. Only a small percentage of respondents (3%) were over 45 years old.

Regarding their occupation, the majority of respondents were employees (57.4%), while middle-level management represented 25.2% of the survey participants. Low-level management accounted for 11.1% of respondents, and top-level management was 6.4%. As for years of work experience, 47.7% of respondents had worked for up to 5 years, 33.4% had 6 to 10 years of experience, 13.6% had 11 to 15 years, 3.6% had 16 to 20 years, and only 1.7% had worked for more than 20 years.

Analyzing the size of the companies where respondents worked, the majority were in small businesses (37.5%), followed by micro-enterprises (26.4%), medium-sized enterprises (20.1%), and large enterprises (16.1%). In terms of the company's duration of operation, 34.9% of respondents worked in companies that had been operating for 1 to 3 years, 27.1% for 4 to 7 years, 26.1% for over 8 years, and 11.9% worked in companies that had been in operation for more than a year.

Considering the industry, the majority of respondents worked in the retail sector (54.8%), followed by "other" industries (26.4%), education (10.4%), the automotive industry (5.4%), and healthcare (3%). Regarding the geographical scope of the company's operation, 32.5% of respondents worked in companies with a regional scope, 31.5% in companies with a national scope, 18.3% in companies with an international scope, and 17.6% in companies with a local scope. Finally, the majority of respondents (55.6%) assessed their company's financial situation as good, 19.9% as very good, 16.9% found it difficult to assess, 4.6% rated it as poor, and 3% as very poor.

## 4. Results

The focus of this paper was to understand the behavior of agile organizations in the face of the challenges of digitalization. The survey was conducted based on an analysis of the responses

of 303 respondents who assessed various aspects of the organization's adaptation to the dynamically changing business environment caused by technological progress. The aim of the study was to identify how organisations are responding to the challenges of digitalisation and how they are taking action to maintain their competitiveness.

Table 1 presents the results on the agile behavior of organizations in response to the challenges of digitalization. The survey was conducted on a sample of 303 respondents. The results are presented in the form of a five-point scale, which included ratings from "Definitely NO" to "Definitely YES" for different behaviors of the organization. The behaviors studied included:

- Having the ability to respond to change and unpredictable situations: The results show that 161 respondents strongly said that the organization had this ability, and 89 responded that they would rather have it.
- Adoption of new digital technologies: 152 respondents strongly said that the organization is implementing new digital technologies, while 103 answered that it would rather do.
- Introducing innovative products and services: 159 respondents strongly said that the organization innovates products and services, and 94 responded that they would rather do so.
- Rapid change to new business models: 152 respondents strongly said that the organization is quick to adapt to new business models, and 98 responded that it is more likely to do so.
- Regular training of employees and development of their digital competences: 149 respondents strongly said that the organisation regularly trains employees and takes care to develop their digital competences, while 105 respondents said that they would rather do so.

**Table 1.**

*Agile behavior of organizations in the face of digitalization challenges, N = 303*

	<b>Definitely NOT</b>	<b>Rather not</b>	<b>I don't have an opinion</b>	<b>Rather YES</b>	<b>Definitely YES</b>
Has the ability to respond to changes and unpredictable situations (1)	12	27	14	89	161
Implement new digital technologies (2)	8	22	18	103	152
Introduces innovative products and services (3)	9	29	12	94	159
Quickly reorients the offer to new models (4)	11	26	16	98	152
Provides regular training to employees and takes care of the development of their digital competences (5)	10	24	15	105	149
It is open to technological change, collaboration and continuous learning in this area (6)	13	28	13	96	153

Source: own elaboration based on conducted research.

Table 2 presents the results of the correlation analysis between different aspects of organizational agility in the context of digitalization. The study covers the same aspects as shown in Table 1. The correlation results are presented in the form of a correlation matrix, where the values in the cells indicate the degree of relationship between the individual aspects.

Correlation analysis allows you to understand how these different behaviors of an organization are related to each other. Notably, the results in Table 2 show a high correlation between multiple pairs of aspects of organizational agility. The aspects 'Implements new digital technologies' (2) and 'Introduces innovative products and services' (3) have a very high correlation of 0,99. This means that organizations that are willing to adopt new digital technologies are also willing to introduce innovative products and services.

Similarly, aspects related to the organisation's flexibility, such as 'Quickly pivots to new models' (4) and 'Is open to technological change, collaboration and continuous learning' (6), also show a high correlation of 0.99. This suggests that organizations that are quick to adapt to new business models are also willing to be open to technological change and collaboration.

Analysing the correlation between these aspects can help you better understand how organisations are developing their agility in the face of the challenges of digitalisation. Ultimately, these results can be a valuable guideline for organizations that seek to effectively manage their digital transformation process and remain competitive.

**Table 2.**

*Correlation between different aspects of organizational agility in the context of digitalization*

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<b>1</b>	1					
<b>2</b>	0,98	1				
<b>3</b>	0,99	0,99	1			
<b>4</b>	0,99	0,99	0,99	1		
<b>5</b>	0,98	0,99	0,99	0,99	1	
<b>6</b>	0,99	0,99	0,99	0,99	0,99	1

Source: own elaboration based on conducted research.

Similarly, aspects related to the organisation's flexibility, such as 'Quickly pivots to new models' (4) and 'Is open to technological change, collaboration and continuous learning' (6), also show a high correlation of 0.99. This suggests that organizations that are quick to adapt to new business models are also willing to be open to technological change and collaboration.

Analysing the correlation between these aspects can help you better understand how organisations are developing their agility in the face of the challenges of digitalisation. Ultimately, these results can be a valuable guideline for organizations that seek to effectively manage their digital transformation process and remain competitive.



Several important conclusions can be drawn from the analysis of Table 2:

1. High correlation between different aspects of organizational agility: Table 2 shows that there is a significant correlation between different aspects of organizational agility. All correlation values are close to 1, which means very strong connections between these aspects. This suggests that organizations that exhibit certain digitalization-related behaviors tend to exhibit other behaviors in the same category as well.
2. Focus on innovation and digital technologies: The results show that innovation-related aspects such as 'Adopts new digital technologies' (2) and 'Introduces innovative products and services' (3) show the highest correlation. This suggests that organizations that invest in new digital technologies are also willing to introduce innovative products and services.
3. Flexibility and openness to change: Aspects related to flexibility and adapting to change, such as 'Quickly pivots to new models' (4) and 'Is open to technological change, collaboration and continuous learning in this area' (6), also show a high correlation. This suggests that organizations that are willing to adapt to changes in the environment are also willing to be open to new technologies and collaboration.
4. The need for a holistic approach: The findings of Table 2 highlight the importance of a holistic approach to managing organizational agility in the digital age. Focusing on one aspect can lead to improvements in other aspects, which can contribute to a more comprehensive and effective digital transformation of the organization.

Ultimately, analyzing the correlation between different aspects of organizational agility can be helpful for decision-makers and organizational leaders to better understand what areas require attention and action in the process of adapting to digitalization.

## 5. Discussion

Future research directions may focus on several areas. First, it would be worthwhile to extend the research to a larger research sample, covering a variety of types of organizations and industries. In addition, longitudinal research could provide a more comprehensive understanding of the dynamics of change in organisations in response to digitalisation and the long-term effectiveness of agile practices. In addition, research can focus on identifying success factors in the implementation of agile practices and assessing their impact on business outcomes, such as innovation, profitability, and customer satisfaction. Additionally, research can also explore the relationships between organizational agility and other management concepts, such as knowledge management or customer relationship management.

When comparing the presented research findings with analyses from other authors (Stettina et al., 2021; Backx et al., 2019; Kocot, Kwasek, 2022; Galvin, 2019), common trends can be observed that highlight the key role of agile practices in the context of digitalization. Studies conducted by Aliber et al. (2019) show that organizations that have successfully undergone agile transformation have achieved significant benefits, including improved productivity, employee engagement, and customer satisfaction. This correlates with the observation that investments in employees' digital competencies and organizational adaptability strengthen their market position. High-quality agile transformations translate into increased organizational capabilities for innovation and faster introduction of new products and services, which is consistent with conclusions regarding the relationship between investments in human capital and the organization's capacity for innovation.

Future research directions can focus on several crucial areas. Firstly, it would be beneficial to expand the research sample to include a larger number of organizations covering a variety of types and industries. This would allow for a deeper analysis and better understanding of how agile practices impact different organizational environments. Additionally, longitudinal studies could provide a more comprehensive picture of the dynamics of change in organizations in response to digitization and the long-term effectiveness of implementing agile methodologies.

Another important direction is identifying success factors in the implementation of agile practices and assessing their impact on business outcomes, such as innovation, profitability, and customer satisfaction. Research could also focus on the relationships between organizational agility and other management concepts, such as knowledge management or customer relationship management.

Moreover, it would be significant to investigate how organizations can better adapt to the rapidly changing business environment through the effective use of digital technologies and innovative technological solutions. It is also worth exploring how organizational culture and openness to learning influence an organization's ability to agilely adapt and innovate.

## 6. Conclusions

The collected literature and empirical material allows us to draw extended conclusions about agile practices in the context of digitization. Data analysis indicates a significant ability of organizations to adapt and respond flexibly to dynamic market changes, which is crucial to remain competitive. The development of employees' digital competences and investments in new technologies are considered to be central elements of an agile strategy, highlighting the link between investment in human capital and an organization's ability to innovate and quickly introduce new products and services. In addition, a willingness to embrace technological change and promote a culture of continuous learning lay the foundation for agile transformation.

The high correlation between the different aspects of agility suggests that these activities are interconnected and mutually supportive, which strengthens the organization's position in the digital ecosystem. In conclusion, success in the digital age requires a holistic approach to agility, encompassing both technological and cultural organizational aspects.

On the basis of the conducted research, several recommendations can be made for enterprises. Companies should focus on developing an organizational culture that promotes adaptation and continuous learning. Investing in employee training to develop digital competences is crucial, as is embracing openness to new technologies and innovations. Companies should also strive to increase their operational agility, allowing them to adapt quickly to market and technological changes. Implementing agile practices across different business areas can be mutually reinforcing, fostering sustainable growth and competitiveness.

The added value of this article is a comprehensive analysis of agile practices in the context of the challenges of digitalization, based on both literature analysis and own empirical research. The article provides a deeper understanding of how organizations respond to changing market conditions and what actions they take to remain competitive in the digital age. In addition, the article offers practical recommendations for companies that can be used to shape their strategies and improve management practices in the context of digital transformation. As a result, companies can gain valuable tips on how to adapt to changing business conditions and increase the efficiency and innovation of their organizations.

Based on the conclusions of the analysis, the recommendations for companies mainly cover three areas of action. First, it is necessary to develop an organizational culture that is conducive to adaptation and continuous learning. Companies should promote an open environment that encourages experimentation, knowledge sharing, and embracing change. Implementing digital competence development programmes among employees and building an atmosphere that supports innovation can contribute to increasing organisational flexibility.

Secondly, companies should actively invest in new technologies and digital tools. Adapting to the rapidly changing business environment requires constant monitoring and implementation of new technological solutions. Taking the risk of innovation and constantly looking for new ways to use technology can give companies a competitive advantage in the market.

Thirdly, it is important to increase the operational flexibility of companies by implementing agile practices in various areas of the business. Companies should strive to eliminate unnecessary bureaucracy and hierarchies, which will enable faster decision-making and responsiveness to changing market conditions. Adopting agile organizational structures and agile working methods can help improve operational efficiency and respond better to change.

By consistently working in these three areas, companies can increase their ability to survive and succeed in the digital age, becoming more competitive and resilient to changing market conditions.

In the article, the research encountered several significant limitations. First, the research sample may not be representative of all types of organizations, which may limit the generalization of the results. In addition, the research was mainly based on the self-opinions of the respondents, which may introduce some errors resulting from subjective assessment. In addition, the lack of longitudinal data limited the ability to analyze changes over time and assess the impact of agile practices on the long-term performance and competitiveness of enterprises.

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