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AREAS AND EFFECTS OF USING ICT TOOLS IN AN AGILE ORGANIZATION

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Purpose: The aim of the article is to identify the determinants and areas of use of ICT tools in agile organizations and to assess their impact on the effectiveness and flexibility of operations.
Design/methodology/approach: The study was conducted using the survey method in 2025 on a sample of 525 respondents, and the results were presented using a "mustache" chart and a Pareto chart.
Findings: It was found that ICT increases work efficiency, improves the performance of tasks and supports the functioning of organizations in the areas of sales, services and marketing.
Research limitations/implications: The limitations of the studies are their cross-sectional nature and the dominance of young respondents, which may affect the generalization of the results.
Practical implications: The results can support managers in the effective implementation of ICT solutions that promote agility and improve organizational processes.
Social implications: The use of ICT fosters the development of collaboration, communication and employee engagement in the digital environment.
Originality/value: The article brings cognitive value through an empirical assessment of the impact of ICT on organizational agility and business efficiency.
Keywords: ICT tools, agile organization.
Category of the paper: research paper.

1. Introduction

The dynamic development of information and communication technologies in recent years has significantly changed the way modern organizations function. Increasing digitization, increasing data availability and automation of operational processes have contributed to the emergence of new management models. They are based on flexibility, innovation and the ability

to react quickly to market changes (Binboga, Gumussoy, 2024). In this context, the concept of an agile organization is of particular importance. It combines the ability to adapt with the effective use of technology. The use of ICT tools in agile structures improves operational processes, but at the same time becomes a prerequisite for maintaining competitiveness and the ability to survive in a turbulent economic environment (de Santana, de Azevedo, Galegale, 2025). This topic is becoming topical, especially in the era of digital transformation, in which the ability to integrate technology with management practices is the key to sustainable development and effective functioning of enterprises (Spinello, Fabrizio, Birello, Perin, 2024).

Addressing the issue of using ICT tools in agile organizations is justified by the growing need to understand how digital technologies affect the efficiency, effectiveness and organizational culture of modern entities. In the literature on the subject, it is increasingly emphasized that the mere implementation of technological tools cannot be a guarantee of success. Only their proper use as part of agile management practices allows for the full use of the potential of ICT. The analysis of the determinants and effects of the implementation of information and communication technologies allows us to better understand the mechanisms of the functioning of the organization in the digital environment, as well as to indicate the directions for improving management processes based on the principles of agility.

The aim of the article is to identify and assess the areas of use of ICT tools in agile organizations and to determine the effects of their use on the effectiveness of enterprises. The article presents both theoretical aspects and the results of empirical research conducted in 2025 on a sample of 525 respondents. The first part discusses the essence of organizational agility and the role of ICT technology in shaping it. The second part presents the determinants and areas of application of digital tools. In the empirical part, an analysis of the research results is presented, along with interpretation and recommendations. The added value of the study is to show the relationship between the use of ICT and building the flexibility and efficiency of the organization. This can provide a benchmark for management practitioners implementing technology solutions in environments that require rapid response and adaptation.

1.1. Determinants and areas of use of ICT tools in agile organizations

In agile organizations, the use of ICT tools is determined by technological, organizational and cultural factors. A company's ability to integrate and adapt technologies that allow for a quick response to changing market conditions is crucial (Gąsiński, Kaczkowska-Serafińska, Kocot, Kwasek, 2024). The determinants of the use of ICT are primarily the digital maturity of the organization, the knowledge management strategy and the readiness of the staff to use digital tools in their daily work (Oyetade, Harmse, Zuva, 2024). An organisational culture conducive to innovation, collaboration and learning also plays a key role. It facilitates the implementation of technological solutions and increases the acceptance of change (Holubčík, Soviar, Rechtorík, Höhrová, 2025). In agile structures, ICT is no longer seen as a mere technical

instrument, but is becoming an integral part of a management system that enables the synchronization of inter-team activities, effective communication, and dynamic decision-making (MILOUD, 2025).

In terms of operational management, ICT tools are particularly used in areas that require a rapid flow of information and coordination of tasks. These include, m.in example, project management, logistics, customer service, and sales and marketing processes (Binboga, Gumussoy, 2024). Digital technologies enable ongoing monitoring of progress, control of assets and real-time data analysis. This certainly promotes transparency and increases the effectiveness of actions (de Santana, de Azevedo, Galegale, 2025). In agile organizations, ICT also supports cross-departmental collaboration through the integration of communication platforms, resource planning systems, and analytics tools (Spinello, Fabrizio, Birello, Perin, 2024). Of particular importance is the use of cloud and mobile solutions, which provide access to information regardless of place and time. This becomes the foundation of working in a flexible and decentralized environment (Bayu, Raharjo, Syahbuddin, 2024).

The use of ICT in agile organizations also covers areas related to the development of human capital, innovation and improvement of decision-making processes. Digital tools support online training, competency management, knowledge exchange, and automation of administrative processes (Fukuda, Lander, Pope, 2024). This makes it possible to create a learning organization. In such a space, information is easily accessible and decisions are based on data (Gonfa, Birhanu, Gendo, 2024). In the strategic dimension, ICT allows for faster innovation, shortening the life cycle of projects and optimizing costs (Arshad, Durai Pandi, 2025). As a result, the determinants and areas of use of ICT interpenetrate each other to create a coherent ecosystem. There, technology becomes a tool to strengthen the flexibility, efficiency, and adaptability of agile organizations (Ayokunmi, Seman, Rashid, Mohamad, 2025).

1.2. Analysis of the effects of using ICT tools in an agile organization

Modern organizations increasingly perceive ICT tools as an integral part of everyday functioning. Their application and implementation is becoming one of the key factors shaping the ability of companies to operate in an agile manner (Kocot Kwasek, 2022). Information and communication technologies support both operational and strategic processes. They allow for faster response to changes in the environment, better use of resources, and more effective knowledge and information management (Suciningtias, Sudarsono, Anik, Widhyasti, 2022). In agile work environments, ICT becomes an integrating factor in the organization's activities. It strengthens cohesion between teams and allows for real-time coordination of complex processes (Salehi, 2022). As a result, technological solutions translate directly into organizational efficiency and the quality of decisions made. In turn, their absence limits the adaptability and flexibility of structures (Muhammad et al., 2021).

In the operational dimension, the use of ICT leads to noticeable improvements in areas such as sales, services, marketing or finance, where quick access to data, process automation and effective communication with customers are important (Shajrawi, Aburub, 2023). The introduction of technology in these spheres allows for optimization of activities, increased accuracy of analyses and faster response to market needs (Josyula, Suresh, Raghu Raman, 2023). At the same time, the use of IT systems in administration, training or human resource management is conducive to improving the flow of information and better utilization of the potential of employees (Sathe, Panse, 2023). At the same time, in the R&D, production and logistics departments, ICT supports performance monitoring, task planning and maintaining a high level of quality and process control (Eliwa, Jelodar, Poshdar, 2022). Such a wide range of applications indicates that digital technologies permeate all levels of the functioning of an organization. They form an intricate, integrated ecosystem that supports agile management (Weichbroth, 2022).

Thus, the use of ICT tools brings a number of positive effects for organizations. It makes it easier and more efficient to perform tasks. It certainly increases work efficiency. It also contributes to increasing the speed of action (Alaidaros, Omar, Romli, 2021). These technologies are becoming a factor supporting the implementation of current duties. In addition, they enable you to build a competitive advantage based on knowledge, innovation and flexibility (Chukwunweike, Aro, 2024). In the surveyed organizations, ICT is perceived as an indispensable solution. On the contrary, its absence is associated with a limitation of the ability to develop and adapt to changing environmental conditions (Younus, Abumandil, 2021). The positive effects of technology adoption are due to its ability to connect people, processes, and information into a coherent system where knowledge becomes a strategic resource (Mohagheghi, Lassenius, 2021). In agile organizations, ICT improves functioning, but above all, it enables the creation of an environment conducive to collaboration, innovation and continuous improvement (Orlov et al., 2021; Dzemydienė, Dzemydaitė, Gopisetti, 2022; Sutama et al., 2022; Kucuk, 2023).

2. Methods

The aim of the research was to determine the areas of organizational activity in which ICT tools are most often used, and to identify the effects of their use in the context of the functioning of agile organizations. The research was aimed both at specifying the scope of use of information and communication technologies in individual operational spheres, as well as assessing their impact on efficiency, speed of action and improvement of organizational processes. When formulating the aim of the research, the hypothesis was adopted that the implementation of ICT tools in agile organizations leads to an increase in work efficiency,

improvement of task performance and increased operational flexibility. It is therefore an important factor supporting the development of organizational agility.

The following research questions were formulated as part of the research:(1) In which areas of organizational activity are ICT tools most often used? (2) What are the main impacts of using ICT tools in agile organizations? (3) Does the use of ICT contribute to increasing the efficiency, speed and quality of task implementation in agile organizations?

The research was conducted in 2025 using the survey method on a sample of 525 respondents, representing various sectors of activity. The collected empirical data were subjected to quantitative analysis and presented in a graphical form, allowing for a clear presentation of the distribution of responses and their hierarchy. The results were presented in two types of graphs: the "mustache" chart, which allowed to illustrate the distribution and diversity of indications concerning the areas of ICT application (Fig. 2), and the Pareto chart, which enabled a hierarchical presentation of the effects of the use of ICT in agile organizations (Fig. 4). The applied research approach allowed to create a coherent picture of the use of ICT in the context of organizational agility. It has become possible to determine which technological factors in conditions of variability and uncertainty have the greatest impact on the efficiency, adaptability and improvement of processes in operating organizations.

In the course of the research, sociodemographic data were obtained, which allowed to characterize a sample of 525 respondents in terms of basic social and occupational characteristics. More women than men took part in the study. Women accounted for 57.3% of the total participants, while men accounted for 42.7%. The age structure of the sample indicates that the dominant group were young people, aged 21 to 30, who included 55.0% of respondents. A significant percentage were also participants under the age of 20 – 28.8%. People aged 31-40 accounted for 8.8%, while the 41-50 age group accounted for 6.1% of respondents. The least numerous group was made up of people over 50 years of age, whose share was 1.3%.

In terms of place of residence, the largest percentage were residents of large cities with more than 200 thousand inhabitants - 54.3%. Another group were rural residents, who accounted for 17.7% of the sample. Participants living in cities with up to 20 thousand inhabitants accounted for 11.6%, while people from cities with 21 to 50 thousand inhabitants - 9.0%. The smallest share was recorded by respondents from medium-sized cities, with 51 to 200 thousand inhabitants - 7.4%. The analysis of the financial situation of respondents shows that the majority of respondents declared a good financial situation - 52.0% of respondents. Another group consisted of people assessing their situation as average (31.6%), while 14.1% of respondents indicated a very good financial situation. Only 2.3% of respondents rated their financial situation as bad.

In terms of professional activity, respondents in permanent employment dominated, accounting for 58.9% of the sample. Another group consisted of casual workers - 18.7% of the total. Economically inactive persons accounted for 14.5% and self-employed persons - 5.0%. A small percentage of respondents, i.e. only 0.6%, ran a farm, while 2.5% combined full-time work with running a business.

The sociodemographic data obtained indicate that a diverse group of respondents participated in the survey, with a predominance of young, professionally active women living in large cities and assessing their financial situation as good or average.

3. Results

In the course of the research, we tried to determine in which areas of the organization's activity the respondents most often indicated the use of modern tools and solutions. The results are presented in Figure 1. They show a diverse structure of responses. This proves the different degrees of saturation of individual functional areas with technologies supporting management. The lowest percentage of indications concerned the study area, which received 40 responses (this represents 2.5% of the total). Not much more indications were recorded in the area of ICT service (52 responses, corresponding to 3.3%) and production (59 responses, corresponding to 3.7%). In the case of human resources management, 66 indications were recorded, or 4.2% of all responses. In turn, in the area of logistics, this percentage was higher, as it amounted to 6.1% (96 indications). Slightly more often, respondents indicated the category "other" - 115 answers, which corresponds to 7.3%, and the areas of promotion and training, which received 116 (7.4%) and 120 (7.6%) indications, respectively. The administration came in second place with 129 responses (8.2%). Finance had an even greater share, as 164 indications were recorded, i.e. 10.4%, and marketing, which received 169 indications (10.7%). The most frequently indicated areas were services and sales - with 224 (14.2%) and 225 (14.3%) indications, respectively. Due to the fact that the number of respondents was 525, and it was possible to provide several answers, these results reflect the structure of interests and activities in various areas of the organization's functioning, and not the distribution of individual preferences.

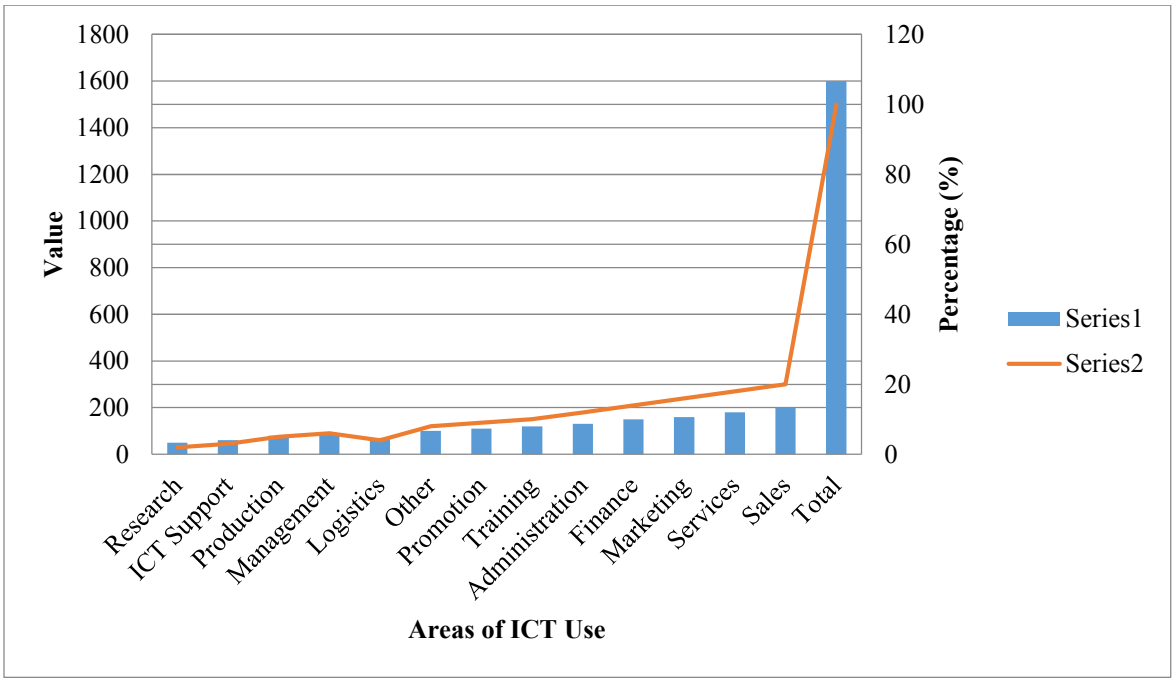

Figure 1. Areas of ICT use in an agile organization.

Source: In-house studies.

In order to analyze the data presented earlier in Figure 1, a "mustache" type diagram was used, presented in Figure 2. The choice of such a chart made it possible to capture the distribution of respondents' responses and the variation in the intensity of indications between individual areas of organizational activity. In this case, the "mustache" chart allowed for a better illustration of which categories were dominant and which were of marginal importance. There is a clear predominance of the "sales" and "services" areas, which are at the highest levels and indicate the highest frequency of occurrence among respondents. This means that it is in these segments that organizational activity and the use of modern management tools are most visible.

Lower values in areas such as "research", "ICT operation" and "production" show that they are relatively less popular fields of application of the analysed solutions. Moderate values were recorded for the categories "logistics", "promotion", "training" and "administration". This indicates their average importance in the response structure.

The use of a "mustache" type chart in this analyzed case allowed for quick detection of differences between categories and for assessment of the degree of dispersion of data. It has brought analytical value because it has highlighted the unevenness of the distribution of responses, with a clear focus in the areas of sales and services and a significant reduction in value in the research and technology spheres. Thanks to this, it became possible to graphically show the concentration of organizational activities and indicate the areas with the highest and lowest degree of use of the researched solutions.

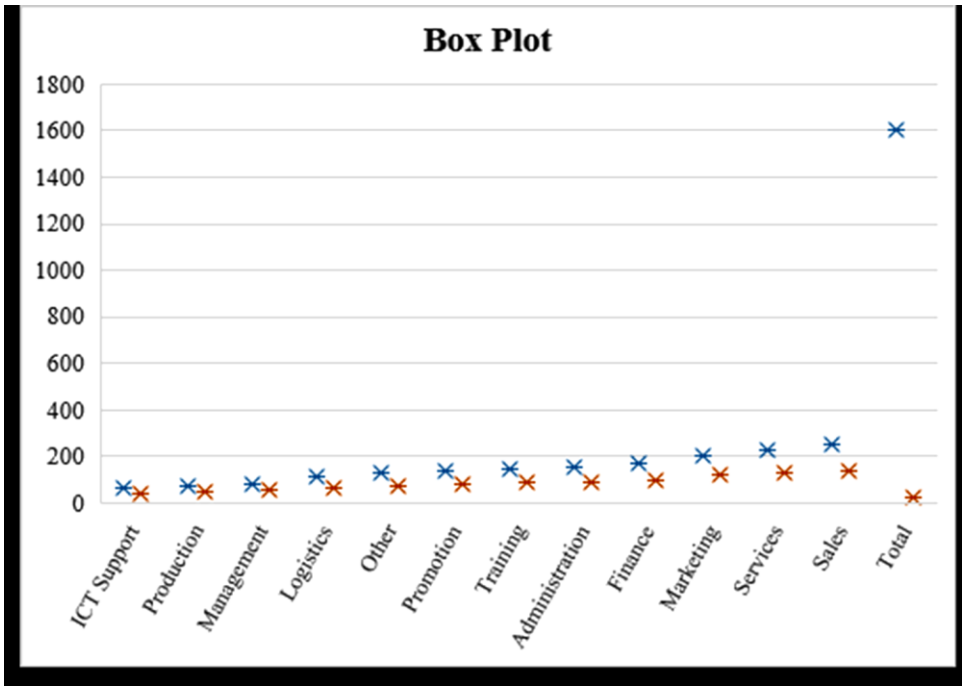

Figure 2. Differentiation of respondents' indications by areas of organizational activity (narrow chart). Source: In-house studies.

Figure 3 visualizes the effects of using ICT tools in an agile organization. The graphic layout used allowed for the simultaneous presentation of the number of indications and their percentage. This allows for a comprehensive assessment of the significance of individual effects resulting from the implementation of information and communication technologies. The data show that the vast majority of respondents attribute ICT to a function that improves and supports organizational processes. This confirms the dominance of the positive effects of implementing this type of tools.

The least indicated effect was the belief that ICT is unnecessary in the workplace. This undoubtedly proves the high level of acceptance of the technology among the respondents. It was slightly more common to say that ICT tools are indispensable in the workplace, which allows us to emphasize their growing role in the daily functioning of teams. A significant percentage of respondents indicated that the use of ICT increases the speed of action, facilitates and streamlines the performance of tasks, as well as increases work efficiency. The latter three categories received the highest values, clearly showing that IT tools are perceived primarily as a factor conducive to process optimization, better work organization and productivity growth.

Figure 3 therefore allows for a synthetic grasp of the structure of the response. It also shows a clear predominance of positive effects over neutral or negative ones. Figure 3 brings cognitive value by indicating that in the context of agile organizations, ICT primarily has a supporting function. Undoubtedly, it contributes to streamlining work and increasing the effectiveness of the tasks performed.

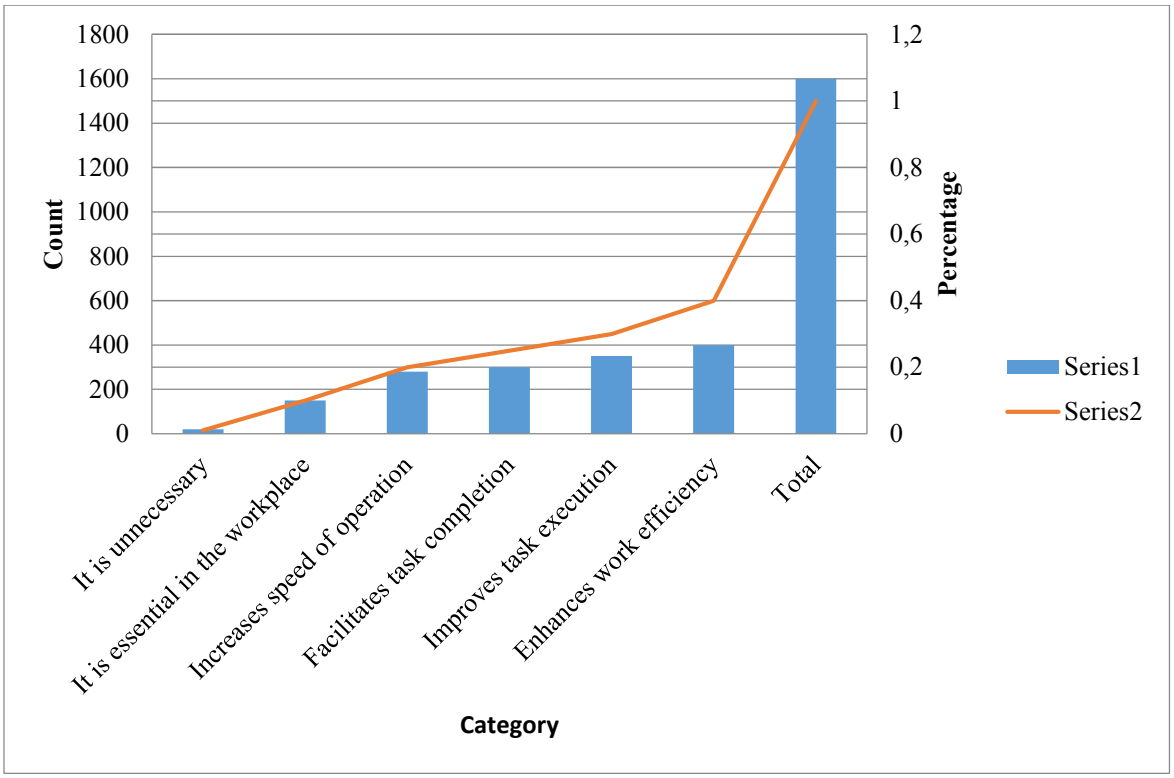

Figure 3. Effects of using ICT tools in an agile organization.

Source: In-house studies.

In order to deepen the analysis of the results presented in Figure 3, a Pareto graph was developed, which is presented in Figure 4. It allows for systematizing and hierarchically ordering the effects of using ICT tools in an agile organization. In contrast to the graph in Figure 3, which showed the general structure of respondents' responses, Figure 4 makes it possible to determine which of the examined effects are of key importance for the functioning of the organization, and which play a secondary role.

The analysis shows that the first three categories - "increases work efficiency", "improves task performance" and "facilitates task performance" - are responsible for nearly 70% of all indications, and this confirms the Pareto 80/20 principle. This means that most of the positive results of ICT implementation are concentrated around a few key areas, directly related to improving the efficiency and quality of work. On the other hand, to a lesser extent, respondents pointed to effects such as "increases speed of action" and "is indispensable in the workplace", which are supportive but not decisive. On the other hand, the statement "is unnecessary" appeared sporadically. This is a confirmation of the high level of acceptance of the technology in the organizational environment.

The use of the Pareto chart in this aspect brings analytical value. It allows you to synthetically indicate which factors bring the greatest benefits from the point of view of organizational agility. In combination with the results presented in Figure 3, it can be concluded that ICT tools improve the implementation of tasks, but above all they contribute to the increase in efficiency and effectiveness of work, being one of the main pillars of agile management.

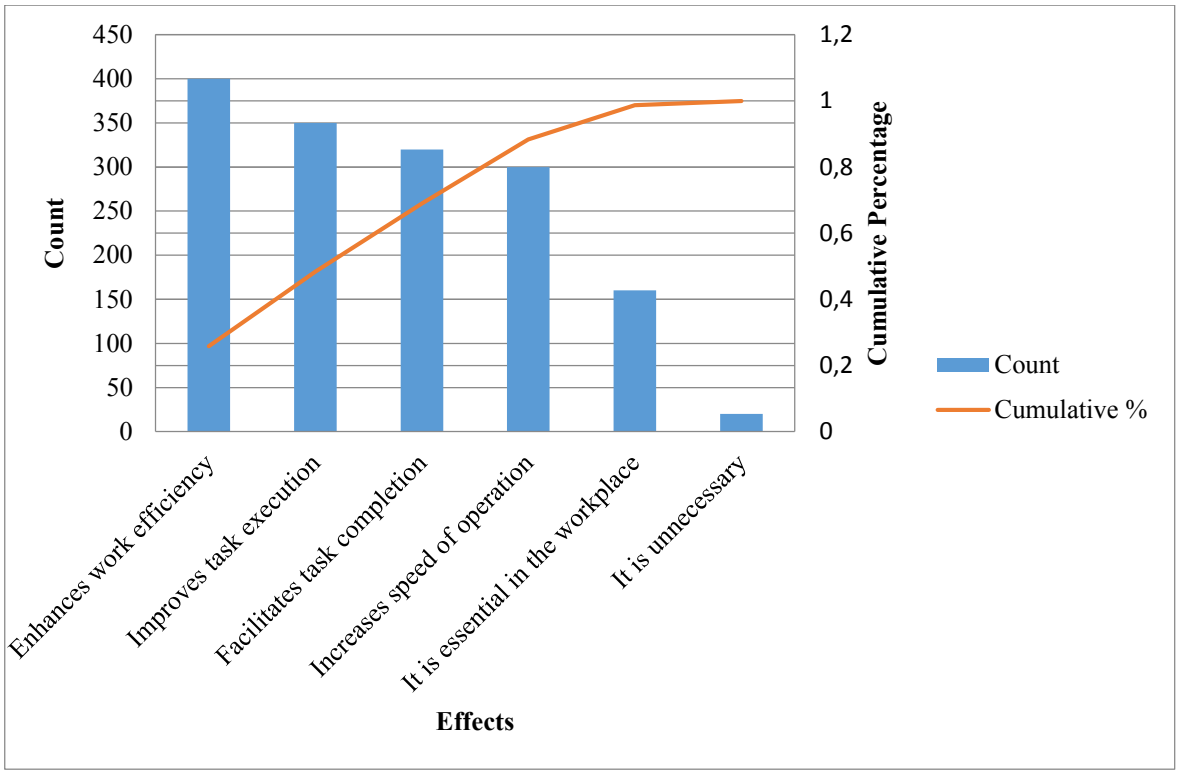

Figure 4. Effects of using ICT tools in an agile organization on the Pareto chart.
Source: In-house studies.

4. Discussion

The presented results of empirical research indicate that the use of ICT tools in agile organizations is an important element supporting both work efficiency and improving the implementation of organizational processes. The data obtained allow us to conclude that information and communication technology is widely accepted and perceived as indispensable in the workplace. Its role, in turn, goes beyond the technical aspect, becoming a tool that shapes an organizational culture based on flexibility, speed of action and cooperation.

The analyses carried out show that the key effects of the implementation of ICT are, first of all, an increase in work efficiency, improvement of the performance of tasks and facilitation of the performance of professional duties. The areas indicated in this way are responsible for a significant part of all declared effects. This is a confirmation that digital technologies play a fundamental role in improving internal processes and increasing the adaptability of organizations. At the same time, a relatively small number of respondents considered ICT unnecessary. This proves with certainty that there is a high level of technological awareness among the respondents.

The results presented in the "mustache" chart showed a clear variation in the intensity of the use of ICT tools in individual areas of organizational activity, confirming that their greatest use concerns sales and services, and to a lesser extent research, production or ICT services. In turn, the Pareto chart analysis made it possible to determine the hierarchy of ICT effects. It confirmed the fact that most of the positive results are centered around a few key factors determining the efficiency of an organization.

The collected empirical data confirmed that in agile organizations, ICT technologies have an integrating and supporting function, as they improve decision-making processes, increase the quality of internal communication and accelerate the flow of information. Research shows that the use of ICT in organizations with a high degree of agility is a strategic factor in development. It determines the ability of an organization to respond flexibly to market changes and maintain a competitive advantage.

Based on the results obtained, it is recommended that organizations, striving to increase their agility and competitiveness, consistently develop and integrate ICT tools in key areas of activity (especially in sales, services and operational processes). The implementation and replacement of information and communication technologies should be treated as a strategic element of management, allowing for flexible response to changes in the environment, faster decision-making and efficient use of resources. It is also necessary to simultaneously invest in the development of employees' digital competences and create an environment conducive to cooperation, innovation and knowledge exchange. Organizations should strive to create a model of ICT use that supports the decentralization of decisions, process automation and improvement of internal communication, while maintaining a high level of data security. The implementation and implementation of digital solutions should be linked to a continuous analysis of their impact on the efficiency and quality of work. Fiber technologies are a real tool supporting the development of an agile organizational culture.

5. Conclusions

The research had some limitations that should be taken into account when interpreting the results obtained. This research was based on a survey method. This means that the data obtained reflects the subjective opinions of respondents, and not actual measurements of the effectiveness of ICT use in organizations. The research sample, although representative in numbers, included mainly young people, mostly professionally active and living in large cities. This may have influenced the perception of the importance and role of ICT. The lack of distinction between the industries in which the surveyed organizations operate should also be included in the rebukes. Undoubtedly, this makes it difficult to fully analyse contextual differences in the way ICT tools are implemented. In addition, the study was cross-sectional

rather than longitudinal. This effect focused on the assessment of changes over time and the long-term effects of technology use in the context of organizational agility. It should also be noted that some respondents may not have had full knowledge of the strategic aspects of ICT implementation in their organizations, and this may have affected the relevance of the answers to some extent. Despite the limitations, the research results provide valuable information on the perception and importance of information and communication technologies in shaping agile organizations.

In the future, research on the use of ICT technologies in agile organizations should focus on an in-depth analysis of the relationship between the level of digitalization and the degree of organizational agility. It would also be necessary to take into account the specifics of individual industries and business models. It is worth expanding the research perspective to include long-term analysis. It would allow to assess the sustainability of the effects of technology implementation and their impact on the development of employee competencies, innovation and adaptability of the organization. An important direction may also be to explore the role of artificial intelligence, process automation and data analytics tools in supporting managerial decisions and creating a competitive advantage. Future research should also cover the cultural and social aspects of technology deployment (such as trust in digital systems, employees' attitudes towards technological change, and the impact of ICT on team relationships). It would also be interesting to conduct comparative studies internationally to identify differences in the level of digital maturity and agile management practices in different economic and cultural contexts. Such an approach will allow for a more complete understanding of the role of technology in shaping modern, flexible organizational structures capable of functioning effectively in conditions of constant variability and uncertainty.

These presented research results indicate that the use of ICT tools primarily contributes to increasing work efficiency, improving task performance and improving the organization of processes. These findings are in line with the results of other authors who analyze the relationship between ICT and organizational agility. Research by Chakravarty, Grewal and Sambamurthy (2013) confirmed that ICT competencies have both an enabling and supporting function in achieving organizational agility, which directly translates into the performance of companies. In turn, Zhang, Li and Chen (2023) proved that increasing organizational agility is an integral factor in successful digital transformation, while Elazhary, Alhawari, Alshurideh and Masa'deh (2023) showed that the quality of technological governance and IT management affects the flexibility and adaptability of an organization. The results of the research presented in another article, in which the positive effects of ICT implementation dominate, therefore remain consistent with the findings of the literature, confirming that ICT plays the role of a catalyst for efficiency and adaptability in agile organizational structures.

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