THE ROLE OF EMPLOYEE SKILLS AND THE APPLICATION OF ICT TOOLS IN THE CONTEXT OF DEVELOPING EMPLOYEE AGILITY

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Purpose: The article aims to investigate and understand the impact of key employee skills and ICT tools on the organizational agility of companies. It seeks to explore how individual characteristics and competencies of employees, combined with technology, shape an organization's ability to adapt in a dynamically changing environment.

Design/methodology/approach: The study employed a survey-based approach, collecting data from 930 respondents using the CAWI technique. It focused on analyzing the impact of employee skills and ICT tools on organizational agility.

Findings: The research revealed a strong correlation between employee skills in project management and organizational agility. It emphasized the significance of integrating technical skills with soft skills for enhancing agility.

Research limitations/implications: The study's limitations include its reliance on a survey method, potential non-representativeness of the sample across all sectors, and focus mainly on employee skills and ICT tools.

Practical implications: The findings suggest that organizations should invest in both ICT tools and employee skills development, particularly in areas of project management, to enhance organizational agility.

Social implications: The research highlights the importance of developing employee skills and using ICT tools in response to dynamic market changes, impacting the way organizations manage and adapt to change.

Originality/value: This study contributes new insights into the relationship between employee skills, ICT tools, and organizational agility, offering a comprehensive analysis of how these elements interact in a modern business context.

Keywords: employee agility, ICT tools, employee skills, organization, management.

Category of the paper: research paper.

1. Introduction

In today's complex and dynamic business environment, an organization's ability to quickly adapt to changing conditions is key. Organizational agility, as a response to these challenges, has become the foundation of modern management. This article examines the role of employee skills and ICT tools in the context of developing employee agility. By combining theory with practical observations, it is shown how organizations can effectively develop agility, becoming more competitive and innovative in current times.

The subject of the study is the analysis of organizational agility in the context of employee skills and the use of ICT tools. The study focuses on identifying key factors influencing an organization's ability to respond to changes, taking into account the role of technology and individual employee competencies.

The article aims to investigate and understand the impact of key employee skills and ICT tools on the organizational agility of companies. It seeks to explore how individual characteristics and competencies of employees, combined with technology, shape an organization's ability to adapt in a dynamically changing environment.

A hypothesis has been formulated that there is a strong correlation between key employee skills and the use of ICT tools and the organizational agility of companies. Organizations that invest in the development of their employees' competencies and effectively implement modern ICT tools have a greater ability to adapt in the face of environmental variability.

The article emphasizes the importance of organizational agility as a key element that allows organizations to effectively adapt to dynamically changing business conditions. It was observed that different technologies affect agility in different ways, although the overall trend points to the ever-increasing role of technology in shaping business practices. A key conclusion is also that optimal organizational agility is achieved by combining technical skills with employees' soft skills.

The article provides important guidelines for organizations aiming to increase their agility, highlighting the role of appropriate employee skills and the proper use of ICT technology. A new piece of knowledge is the revelation of a specific correlation between project management skills and agility, emphasizing the importance of these competencies in an organizational context. Moreover, the analysis points to the key role of personal traits in shaping agility, expanding the current understanding of this concept.

2. Literature Review

2.1. The essence and importance of organizational agility

Organizational agility refers to an organization's ability to quickly adapt to external and internal changing conditions while maintaining effectiveness and operational efficiency. This is a key element in today's dynamic business environment, where volatility, uncertainty, complexity, and ambiguity (known as VUCA) have become the norm. Agile organizations are better able to respond to changing customer needs, leverage new technologies, adapt to changing market regulations, and anticipate and respond to competitive threats. Agility allows organizations not only to survive but also to thrive in uncertain times, becoming more competitive and innovative (Skyrius, Valentukevič, 2020).

Organizational agility, being the key to success in today's complex business environment, is often seen as the most important pillar of modern management (Auerbach Publications, 2021; Varghese, Bini, 2019). Contemporary organizations face the challenge of not only quickly adapting to changes but also anticipating those changes and shaping the future. In this context, agility becomes not just a reactive response to change but also a proactive strategy that allows organizations to shape their environment (Akkaya, 2021; Sherehiy, Karwowski, 2017; Kt, Sivasubramanian, 2023).

Technology plays a crucial role in enhancing organizational agility. Information systems, cloud computing, and artificial intelligence enable organizations to respond faster to changes, automate processes, and tailor offerings to individual customer needs (Kumkale, 2022). However, agility is not just about processes or tools, but primarily about organizational culture. Agile organizations promote a culture of openness, collaboration, and continuous learning (Akkaya, 2021).

Despite many benefits, organizational agility is not without challenges. It requires continuous adaptation, investment in employee training, and changes in organizational culture (Sajdak, 2021). Moreover, an excessive focus on agility can lead to a lack of stability and certainty in organizational actions (Kumkale, 2022). It can be stated that organizational agility has a direct impact on improving organizational outcomes (Nafei, 2016). As market competition becomes increasingly fierce, companies must be able to quickly adapt to changing conditions to maintain their market position and achieve success. One of the key factors influencing organizational agility is the ability for business analysis and the use of information technology (Piecuch, 2021). In the era of digital transformation, the ability to collect, analyze, and interpret data has become a key element of organizational agility (Dudek, 2019). Organizations that invest in business analytics and business intelligence can better understand their business environment, predict market trends, and make informed strategic decisions (Chen, Siau, 2020).

Not only technology but also an organization's internal processes influence its agility. Process optimization, elimination of unnecessary stages, and increased efficiency can lead to a significant improvement in organizational outcomes. Modern approaches to process management focus not only on efficiency but also on flexibility and the ability to quickly adapt to changing conditions (Blickle, Heß, 2006).

In the context of globalization and increasing competition in international markets, organizational agility becomes the key to achieving a competitive advantage. Organizations that can quickly adapt to changing conditions are more likely to succeed in the long run.

2.2.   Key employee skills and their impact on organizational agility

Organizational agility is the key to success in today's dynamic business environment (Dyba, 2020; Anthonius, 2021; Brown, Owens, Bradley, 2011). For organizations to achieve the desired agility, it is essential to have employees equipped with the right skills (Matuszczyk, Okólski, 2023). Studies indicate that certain key employee skills have a direct impact on an organization's ability to quickly adapt to changing conditions (Prieto, Talukder, 2023; Meera Jyothirmai et al., 2022).

Among these key skills are the abilities to manage a project, be a leader, achieve set goals within a designated time and budget, handle multiple projects simultaneously, and manage a project team (Maulana, 2021). These skills are essential for employees at various levels of the organization, from project managers to team leaders (Auerbach Publications, 2021; Davies, 2013; Stuart, Huzzard, 2017; OECD, 2021).

Project management and the ability to achieve set goals within a designated time and budget are crucial to ensure that projects are carried out efficiently and cost-effectively. Being a leader and managing a project team are essential for effectively directing teams and ensuring that all employees are working towards common goals (Kumkale, 2022). Handling multiple projects simultaneously requires multitasking and priority management skills, which are key in a rapidly changing business environment (Ramadhana, 2021; OECD & International Labour Organization, 2023; IEDP Ideas for Leaders, 2013). These skills, combined with other key competencies such as communication, problem-solving ability, and adaptability, are essential for achieving organizational agility.

2.3. The importance of personal traits of employees in the context of organizational agility

Employees' personal traits play a crucial role in shaping organizational agility. Individual characteristics, such as organizational intelligence, have a direct impact on an organization's ability to quickly adapt to changing conditions (Rahimi, Mansouri, 2019). In the context of a crisis, employees' perceptions of the organization's strategic agility can influence their work engagement and well-being. Organizations that promote and support the development of employees' personal traits, such as adaptability, creativity, and teamwork ability, can gain a competitive edge in a dynamic business environment (Ludviga, Kalvina, 2023). Additionally, empowering employees to act and make decisions can lead to increased organizational competitiveness and agility. Supporting employees in developing their individual competencies and skills can contribute to enhancing organizational intelligence, which in turn affects the organization's ability to rapidly respond to changing market conditions (Seifollahi, Shirazian, 2021).

Thus, employees' personal traits are an integral part of organizational agility, and investing in the development of these traits can benefit both the employees and the entire organization (Skyrius, Valentukevič, 2021). Employees' personal traits, such as values and attitudes, can influence their job satisfaction and sales performance, which consequently impacts the overall efficiency of the organization (İlhan, Erolu, Toygur Eroğlu, 2023). These values, combined with the right personal traits, can influence how employees perceive and respond to organizational policies, which can affect their overall work performance (Zagazig City Study, 2020).

In an international business context, organizational innovations play a key role in achieving success (Varghese, Bini, 2019). Employees' personal traits, such as their values and attitudes, can influence an organization's ability to innovate, which in turn affects its international performance (Prange, Pinho, 2017). Therefore, employees' personal traits have a significant impact on an organization's ability to adapt to changing conditions and achieve organizational agility.

2.4. The role of ICT tools in shaping organizational agility

Information and Communication Technology (ICT) tools play a crucial role in shaping organizational agility (Kt, Sivasubramanian, 2023). Modern organizations increasingly rely on ICT technologies to enhance their ability to quickly adapt to changing market conditions and customer needs (Collins, 2013).

Collaborative ICT tools, such as project management systems, communication platforms, and real-time collaboration tools, enable employees to communicate and coordinate actions effectively, leading to greater organizational agility (Collins, 2013). With these tools, teams can work together regardless of location, which is especially important in globally developed organizations (Stroiska, Trippner-Hrabi, 2016). Mobile ICT tools, like apps and mobile platforms, allow employees to access organizational information and resources anytime and anywhere, enhancing their ability to swiftly respond to changing market needs (Routledge, 2020). ICT tools enable greater agility in responding to customer needs and adapting to dynamic market conditions (Palgrave Macmillan, 2013).

Modern digital tools not only facilitate communication and coordination within organizations but also contribute to creating a culture of continuous learning and adaptation (Skrzypek, 2017). In this context, tools for gathering employee feedback during organizational changes become extremely important (Sherehiy, Karwowski, 2017). They allow organizations to collect real-time feedback, enabling faster adaptation to the needs and expectations of employees (Sedej, Justinek, 2021).

Digital libraries, being one of the key ICT tools, have undergone an evolution that has impacted how organizations gather, store, and share information. They support organizations in knowledge management and provide employees access to key resources, leading to a greater ability for innovation and adaptation (Candela, Castelli, Pagano, 2011).

New trends in Customer Relationship Management (CRM) also leverage digital tools to better understand customer needs and adapt to them (Nazempour, Yang, Waheed, 2019). Modern CRM tools enable organizations to collect real-time customer data, analyze this data, and tailor offerings to individual customer needs, leading to greater organizational agility (Lima, Pacheco, 2021).

3. Empirical Study Results

3.1. Research Methodology

The subject of the study is the analysis of organizational agility in the context of employee skills and the use of ICT tools. The study focuses on identifying key factors influencing an organization's ability to respond to changes, taking into account the role of technology and individual employee competencies.

The article aims to investigate and understand the impact of key employee skills and ICT tools on the organizational agility of companies. It seeks to explore how individual characteristics and competencies of employees, combined with technology, shape an organization's ability to adapt in a dynamically changing environment.

A hypothesis was formulated that there is a strong correlation between key employee skills and the use of ICT tools and the organizational agility of companies. Organizations that invest in the development of their employees' competencies and effectively implement modern ICT tools have a greater ability to adapt in the face of environmental variability.

The research methodology was based on a survey approach. To accurately verify the presented issues, empirical studies were conducted at the turn of February and March 2022. A survey questionnaire was used for the research, which was completed by 930 respondents, following the CAWI technique standards. The choice of the survey method allowed for the collection of detailed data from a large group of participants in a relatively short time. The results obtained from the survey questionnaire provided valuable information on the perceptions and assessments of respondents in the scope of the discussed issues. The survey was designed to thoroughly investigate key areas related to organizational agility, employee competencies, and the application of ICT technology in the context of the researched issue.

Table 1 presents the sociodemographic data of respondents who participated in the survey. The data analysis covered four main categories: gender, age, position held, and company size. In the gender category, the majority of respondents were women, representing 61.7% of the sample, while men constituted 38.3%. In terms of age, the largest group was respondents under 25 years old, accounting for 66.1% of the sample. People aged 26-35 years constituted 18.1%, in the age range 36-45 years - 11.2%, and those over 45 years - 4.6%.

Regarding the position held, the majority of respondents were employees, accounting for 69.2% of those surveyed. Lower-level management constituted 14.1%, middle-level management 10.9%, and top management 5.8%. In relation to the size of the company in which the respondents work, the largest group were people working in large enterprises (over 250 employees), accounting for 39.0% of the sample. Micro-enterprises (less than 10 employees) and small enterprises (10-50 employees) were represented by 21.3% and 21.6% of respondents, respectively. Medium-sized enterprises (50-250 employees) accounted for 18.1% of those surveyed.

In terms of the sector of operation, the largest group (33.66%) comes from the transport, communication, utilities, housing, and trade sector. The finance, insurance, marketing, advertising, and real estate sector constitutes 31.94%, while the health, social care, education, scientific research, tourism and recreation, state administration, judiciary, police, and military sector represents 23.23%. Regarding the company's operational duration, the vast majority (68.06%) represents companies that have been in operation for over 8 years. Companies with experience ranging from 4 to 7 years account for 18.17%, and from 1 to 3 years - 10.75%. In relation to the type of business conducted, service-providing companies dominate (53.52%). Trade represents 29.55%, and production 16.92%. The survey allowed for multiple answers in this category. In terms of the geographical scope of company operations, international activity prevails (44.8%). National-scale activity represents 30.4% of companies, local activity 15.8%, and regional activity 8.9%.

Table 1.
Sociodemographic data of the respondents

1. Gender	N	%
Woman	574	61.7%
Man	356	38.3%
Total	930	100.0%
2. Age	n	%
Below 25 years	615	66.1%
26-35 years	168	18.1%
36-45 years	104	11.2%
Above 45 years	43	4.6%
Total	930	100.0%
3. Position held	n	%
Top management	54	5.8%
Middle-level management	101	10.9%
Low-level management	131	14.1%
Employee	644	69.2%
Total	930	100.0%
4. Company size	n	%
Micro-enterprise (less than 10 employees)	198	21.3%
Small enterprise (10-50 employees)	201	21.6%
Medium enterprise (50-250 employees)	168	18.1%
Large enterprise (more than 250 employees)	363	39.0%
Total	930	100.0%
5. Sector of operation		
Sector 1 – agriculture, forestry, fisheries	32	3.44%
Sector 2 – mining, manufacturing, and construction	72	7.74%
Sector 3 – transport, communication, municipal and housing services, and trade	313	33.66%
Sector 4 – finance, insurance, marketing and advertising, and real estate transactions	297	31.94%
Sector 5 – healthcare, social care, education, scientific research, tourism and recreation, public administration, judiciary, police, and military	216	23.23%
Total	930	100.00%
6. Duration of company's operation:		
Below 1 year	28	3.01%
From 1 to 3 years	100	10.75%
From 4 to 7 years	169	18.17%
More than 8 years	633	68.06%
Total	930	100.00%
7. Type of business conducted		
Production	197	16.92%
Trade	344	29.55%
Services	623	53.52%
Total	1164*	100.00%
8. Geographical scope of the company's operation		
Local	147	15.8%
Regional	83	8.9%
National	283	30.4%
International	417	44.8%
Total	930	100.0%

* - possibility to provide more than 1 answer.

Source: own elaboration based on conducted research.

3.2. Presentation of Research Findings

During the study, an effort was made to assess the competencies of the surveyed employees in using ICT tools. Table 2 presents the assessment of respondents' competencies in using information and communication technologies (ICT) on a scale from 1 to 5, where 1 indicates the lowest level of competency, and 5 the highest.

The majority of respondents (405) rated their competencies at level 4. Another significant group (275) admitted to having skills at level 3. 182 respondents assessed their competencies at the highest, fifth level. Meanwhile, 56 respondents admitted to having skills at level 2, and the smallest group, consisting of 12 people, rated their competencies at the lowest, first level.

Table 2.
Employees' competencies in using information and communication technologies (ICT)

Scale 1-5	Number of respondents
1	12
2	56
3	275
4	405
5	182

Source: own elaboration based on conducted research.

Further verification focused on the ability to adapt to rapidly occurring changes, on a scale of 1 to 5. Table 3 presents the assessment of respondents' skills in adapting to rapidly occurring changes. The ratings were presented on a scale from 1 to 5, where 1 indicates a lack of ability to adapt to changes, and 5 indicates a high level of adaptation to dynamic changes.

The majority of respondents (461) rated their adaptive skills at level 4. Another large group (294) believed they possess a high ability to adapt to rapid changes, rating themselves at level 5. 160 respondents assessed their skills at the average level of 3. A smaller number of respondents admitted to a lower level of adaptive skills, with 13 rating themselves at level 2 and only 2 individuals admitting to the lowest level of adaptation, rating themselves at level 1.

Table 3.
Skills to adapt to rapidly occurring changes

Scale 1-5	Number of respondents
1	2
2	13
3	160
4	461
5	294

Source: own elaboration based on conducted research.

An important feature of the study was the distinction of skills, attributes, and personality traits, which are also indicators of agility. Table 4 presents the assessment of agile employees' skills in various aspects of project management. Respondents evaluated their skills in the scope of individual competencies, choosing one of the five available answers: "Definitely NO", "Rather NO", "No opinion", "Rather YES", and "Definitely YES".

In the "Manage a project" category, the largest group of respondents (549) answered "Rather YES", while 163 people rated themselves as "Definitely YES". Meanwhile, 135 respondents had no opinion on the matter, 69 answered "Rather NO", and 14 "Definitely NO".

In the aspect of being a leader, 480 respondents answered "Rather YES", and 217 "Definitely YES". 124 people had no opinion, 91 answered "Rather NO", and 18 "Definitely NO".

Regarding achieving set goals within the stipulated time, 528 respondents answered "Rather YES", and 310 "Definitely YES". 66 people had no opinion, 20 answered "Rather NO", and 6 "Definitely NO".

In the category of achieving goals within the set budget, 531 respondents rated themselves as "Rather YES", and 218 as "Definitely YES". 144 people had no opinion, 32 answered "Rather NO", and 5 "Definitely NO".

In relation to managing multiple projects simultaneously, 442 respondents rated themselves as "Rather YES", and 187 as "Definitely YES". 176 people had no opinion, 96 answered "Rather NO", and 29 "Definitely NO".

In the category of managing a project team, 441 respondents answered "Rather YES", and 176 "Definitely YES". 200 people had no opinion, 87 answered "Rather NO", and 26 "Definitely NO".

Table 4.
Agile skills of employees

	Definitely NO	Rather NOT	No opinion	Rather YES	Definitely YES
Manage the project	14	69	135	549	163
Be a leader	18	91	124	480	217
Achieve set goals within the designated time	6	20	66	528	310
Achieve set goals within the allocated budget	5	32	144	531	218
Execute multiple projects simultaneously	29	96	176	442	187
Manage the project team	26	87	200	441	176

Source: own elaboration based on conducted research.

Subsequently, areas were identified in which applied ICT technologies support and develop organizational agility. Table 5 presents the areas of application of information and telecommunication technology (ICT) that support organizational agility. For each area, the number of respondents who considered the given area significant in the context of supporting agility, as well as the percentage share of these answers in relation to all responses, was provided.

The majority of respondents (614, accounting for 12.1% of all responses) identified "Communication" as a key area of ICT application supporting organizational agility. Other large groups of respondents indicated "Group work" (602 responses, 11.8%) and "Remote work" (530 responses, 10.4%) as significant application areas.

Other areas highlighted by respondents include "Decision-making" (496 responses, 9.7%), "Project management" (459 responses, 9.0%), "EDI – electronic document flow" (381 responses, 7.5%), "CRM – customer relationship management" (357 responses, 7.0%), "E-commerce" and "E-business" (respectively 333 and 330 responses, both at 6.5%).

Fewer respondents pointed to areas such as "Business process virtualization" (260 responses, 5.1%), "SCM – supply chain management" (244 responses, 4.8%), "Networking" (238 responses, 4.7%), "B2B or B2C" (198 responses, 3.9%), and "Other" (50 responses, 1.0%).

Table 5.
Areas of application of information and communication technology (ICT) supporting organizational agility

Areas of application of ITC	N*	%
Teamwork	602	11.8%
Decision-making	496	9.7%
Project management	459	9.0%
EDI – electronic document flow	381	7.5%
B2B or B2C	198	3.9%
SCM – supply chain management	244	4.8%
CRM – customer relationship management	357	7.0%
Communication	614	12.1%
Networking	238	4.7%
Virtualization of business processes	260	5.1%
E-commerce	333	6.5%
E-business	330	6.5%
Remote work	530	10.4%
Other	50	1.0%
Total	**5092**	**100.0%**

Source: own elaboration based on conducted research.

The analysis of the conducted research allows for the formulation of several important conclusions regarding the competencies and characteristics of employees, as well as the role of ICT technology in the context of organizational agility. The majority of respondents rate their skills in using information and telecommunication technologies as good or very good, indicating a high level of proficiency in ICT technology within the surveyed group. A significant number of employees believe they are capable of adapting to rapid changes, which is crucial for organizational agility.

In terms of agile skills, most respondents believe they are capable of managing projects, being leaders, and achieving set goals within a specified time and budget. This ability to manage projects and be a leader is essential in a dynamically changing business environment.

Regarding personality traits, most respondents consider themselves to be flexible, assertive, and capable of remote work. The high rating of these traits indicates an ability to adapt to new working conditions, which is essential for maintaining organizational agility.

Finally, ICT technologies play a key role in supporting organizational agility. Communication, group work, and remote work are the main areas where ICT technologies are considered most valuable. This points to the need for investment in tools and technologies that support these areas of activity in order to increase organizational agility and respond to dynamically changing business requirements.

3.3. Structural model and its assumptions

The research aimed to understand how various ICT tools influence and develop the organizational agility of companies, understood as the ability to respond to changes and unforeseen situations. A key objective of the analysis was also to understand how individual characteristics and skills of employees, related to project management and their personality, impact business efficiency and how they are perceived in the context of organizational agility.

The structural model, estimated using the maximum likelihood method, takes into account observable endogenous variables, such as employee skills in executed projects, their personality traits, and the ICT tools used. The model also includes unobservable endogenous variables that refer to employee skills, their competency assessment by the employer, and areas of ICT tool utilization. Additionally, the model contains exogenous variables that may account for measurement errors or other undetected factors influencing the analysis.

For this purpose, a structural model was estimated using the maximum likelihood method (see Fig. 1). There was no basis for rejecting the null hypothesis that the residual values of the empirical and theoretical matrices are equal to zero ($\chi 2 = 1058.27$; $p = 0.001$). The root mean square error of approximation (RMSEA) value of 0.095 indicates that the model fits the data well.
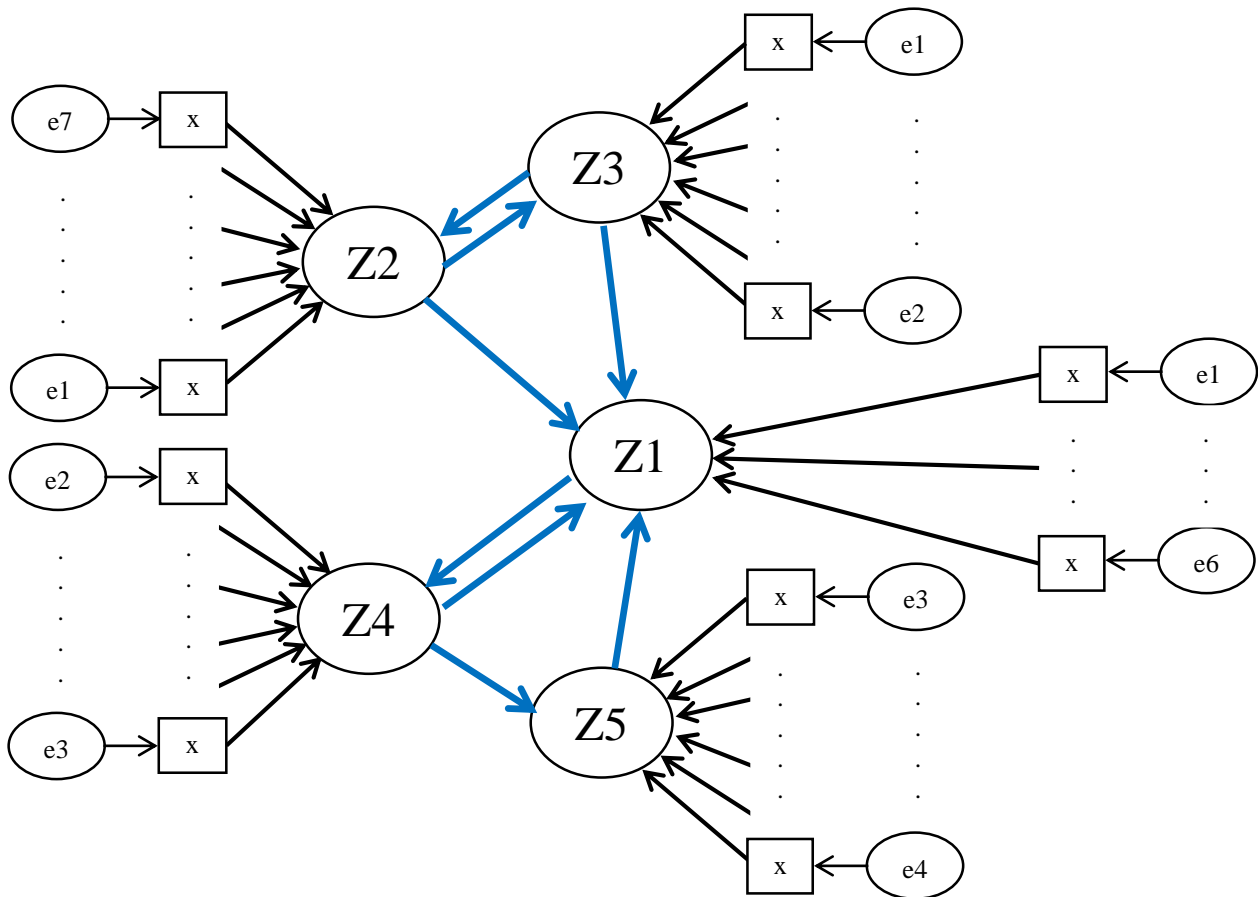
Figure 1. Estimated structural model.

Source: own elaboration based on conducted research.

3.4. Discussion

The structural model estimated using the maximum likelihood method includes observable endogenous variables:

X1 - In the projects you carry out, can you: [Manage the project],

X2 - In the projects you carry out, can you: [Be a leader],

X3 - In the projects you carry out, can you: [Achieve set goals within a specified time],

X4 - In the projects you carry out, can you: [Achieve set goals within the budget],

X5 - In the projects you carry out, can you: [Execute multiple projects simultaneously],

X6 - In the projects you carry out, can you: [Manage a project team],

X7 - At your workplace, is your: [Competence] taken into account,

X8 - At your workplace, is your: [Innovativeness] taken into account,

X9 - At your workplace, is your: [Creativity] taken into account,

X10 - At your workplace, is your: [Open-mindedness] taken into account,

X11 - At your workplace, is your: [Engagement] taken into account,

X12 - At your workplace, is your: [Dedication] taken into account,

X13 - At your workplace, is your: [Risk management ability] taken into account,

X14 - At your workplace, is your: [Reliability] taken into account,

X15 - At your workplace, is your: [Ingenuity] taken into account,

X16 - Your personality traits include: [Flexibility],

X17 - Your personality traits include: [Assertiveness],

X18 - Your personality traits include: [Mobility and remote work],

X19 - Your personality traits include: [Problem-solving ability],

X20 - Your personality traits include: [Adaptability to new working conditions],

X21 - Your personality traits include: [Ability to implement innovative ideas],

X22 - Your personality traits include: [Acceptance of new duties],

X23 - Your personality traits include: [Ability to work in an age-diverse team],

X24 - Your personality traits include: [Ability to work in a multicultural environment],

X25 - Group work,

X26 - Decision-making,

X27 - Project management,

X28 - EDI – electronic document flow,

X29 - B2B or B2C,

X30 - SCM – supply chain management,

X31 - CRM – customer relationship management,

X32 - Communication,

X33 - Networking,

X34 - Business process virtualization,

X35 - E-commerce,

X36 - E-business,

X37 - Remote work,

X38 - Others,

X39 - Spreadsheets,

X40 - Databases,

X41 - Data visualization tools,

X42 - Corporate portals,

X43 - Social media portals,

X44 - Data warehouses,

X45 - Business intelligence and Big data,

X46 - Cloud computing,

X47 - Internet of Things,

X48 - Mobile technologies,

X49 - Artificial intelligence,

X50 - Others.

The structural model estimated using the maximum likelihood method includes observable endogenous variables:

Z1 - In the projects you carry out, can you,

Z2 - At your workplace, is your contribution taken into account,

Z3 - Your personality traits are,

Z4 - Indicate the areas where applied ICT supports/enhances organizational agility (ability to respond to changes and unforeseen situations),

Z5 - Indicate which ICT tools are most commonly used in your company.

Unobservable exogenous variables:

e1, e2, e3, e4, e5, e6, e7, e8, e9, e10, e11, e12, e13, e14, e15, e16, e17, e18, e19, e20, e21, e22, e23, e24, e25, e26, e27, e28, e29, e30, e32, e33, e34, e35, e36, e37, e38, e39, e40, e41, e42, e43, e44, e45, e46, e47, e48, e49, e50.

Non-standardized and standardized model coefficients are presented in Tables 6 and 7. Table 7 provides detailed estimates for 50 variables, labeled from X1 to X50. For each of these variables, four values are presented. The first column, "Variables", serves as an identifier for a specific variable. The second column, "Estimated Parameter Value", displays the estimated value for each variable. The next column, "Estimation Error", shows the estimation error associated with the parameter estimate for each variable. The fourth column, "Critical Value", provides the critical value for the estimate of each variable. The last column, "p Value", indicates the significance level for the estimate; interestingly, all values in this column are marked with ***, suggesting that all estimates are statistically significant. Table 8 provides detailed information about parameter estimates for each of the analyzed variables and their statistical significance level.

Based on table 6, the following conclusions can be drawn:

All estimates are statistically significant: All values in the "p Value" column are marked with ***, indicating a high level of statistical significance for all estimates. This suggests that each variable significantly influences the research model.

Diversity of estimated values: The estimated values for individual variables differ, indicating the diversity of these variables' influence on the phenomenon under study.

Estimation Errors: Although the estimated parameter values vary, the estimation errors for most variables are quite similar. This means that the accuracy of the estimation is consistent among different variables.

Critical Values: Critical values for most variables are also similar, which may indicate consistency in assessing the significance of estimates.

In summary, Table 6 indicates that all analyzed variables have a significant impact on the research model, with varying degrees of estimated parameter value. Estimation errors and critical values for these variables are quite similar, indicating consistency in assessing significance and accuracy of estimates.

Table 6.
Unstandardized model coefficients

Variables	Estimated parameter value	Estimation error	Critical value	p-value
X1	1.75864	0.085	18.587	***
X2	1.6465	0.084	14.326	***
X3	1.7177	0.057	15.587	***
X4	1.74262	0.068	15.987	***
X5	1.57886	0.085	18.861	***
X6	1.57352	0.086	18.874	***
X7	1.44714	0.075	16.874	***
X8	1.1214	0.098	16.587	***
X9	1.20684	0.087	15.985	***
X10	1.28516	0.082	16.521	***
X11	1.51122	0.541	15.388	***
X12	1.3083	0.548	15.457	***
X13	0.95942	0.598	15.872	***
X14	1.35102	0.084	13.524	***
X15	1.24066	0.305	12.894	***
X16	1.43646	0.088	14.784	***
X17	1.05198	0.064	14.856	***
X18	1.31898	0.071	14.876	***
X19	1.48274	0.088	14.784	***
X20	1.45782	0.078	14.796	***
X21	1.08402	0.068	14.854	***
X22	1.37416	0.098	14.784	***
X23	1.424	0.087	14.856	***
X24	1.23176	0.085	18.587	***
X25	1.07156	0.084	14.326	***
X26	0.88288	0.057	15.587	***
X27	0.81702	0.068	15.987	***
X28	0.67818	0.085	18.861	***
X29	0.35244	0.086	18.874	***
X30	0.43432	0.075	16.874	***
X31	0.63546	0.098	16.587	***
X32	1.09292	0.087	15.985	***
X33	0.42364	0.082	16.521	***
X34	0.4628	0.544	15.488	***
X35	0.59274	0.548	15.457	***
X36	0.5874	0.597	15.852	***
X37	0.9434	0.084	13.524	***
X38	0.089	0.301	12.864	***
X39	1.05554	0.088	14.684	***
X40	1.157	0.064	14.856	***
X41	0.47348	0.071	14.876	***
X42	0.52866	0.088	14.754	***
X43	0.64436	0.078	14.796	***
X44	0.37024	0.068	14.854	***
X45	0.36312	0.098	14.784	***
X46	0.30438	0.087	14.556	***
X47	0.22784	0.076	14.657	***
X48	0.72624	0.095	14.554	***
X49	0.20648	0.067	14.351	***
X50	0.17266	0.076	14.257	***

Table 7.
Standardized model coefficients

Variables	Estimated parameter value
X1	0.988
X2	0.925
X3	0.965
X4	0.979
X5	0.887
X6	0.884
X7	0.813
X8	0.630
X9	0.678
X10	0.722
X11	0.849
X12	0.735
X13	0.539
X14	0.759
X15	0.697
X16	0.807
X17	0.591
X18	0.741
X19	0.833
X20	0.819
X21	0.609
X22	0.772
X23	0.800
X24	0.692
X25	0.602
X26	0.496
X27	0.459
X28	0.381
X29	0.198
X30	0.244
X31	0.357
X32	0.614
X33	0.238
X34	0.26
X35	0.333
X36	0.33
X37	0.53
X38	0.05
X39	0.593
X40	0.65
X41	0.266
X42	0.297
X43	0.362
X44	0.208
X45	0.204
X46	0.171
X47	0.128
X48	0.408
X49	0.116
X50	0.097

Note: *** indicates p < 0.001.
Source: own elaboration based on conducted research.

Based on the analysis of values in the "Estimated Parameter Value" column in Table 6, the variables that have the greatest impact on organizational agility are:

X1 - In the projects you carry out, can you: [Manage the project] with an estimated value of 1.75864.

X4 - In the projects you carry out, can you: [Achieve the set goals within the budget] with an estimated value of 1.74262.

X3 - In the projects you carry out, can you: [Achieve the set goals within the set time] with an estimated value of 1.7177.

X2 - In the projects you carry out, can you: [Be a leader] with an estimated value of 1.6465.

X5 - In the projects you carry out, can you: [Execute multiple projects simultaneously] with an estimated value of 1.57886.

These variables indicate the key skills and characteristics that are important for organizational agility, such as the ability to manage projects, achieve goals within set timeframes and budgets, and be a leader.

The key skills and characteristics that have the greatest impact on organizational agility include:

Project Management: The ability to effectively manage projects is paramount for organizational agility.

Goal Achievement: Achieving set goals within a designated time and budget is crucial for maintaining agility in an organization.

Leadership: Being a leader and the ability to lead a team is essential for organizational agility.

Multitasking: The ability to execute multiple projects simultaneously is important for maintaining agility and flexibility in a dynamically changing environment.

In general, organizational agility is strongly associated with management skills, goal achievement, and leadership in the context of projects.

Table 7 presents the standardized coefficients of the model for 50 variables, from X1 to X50, indicating the strength and direction of the relationship of each variable with the dependent variable in the model. The highest coefficient values, close to 1, such as for variables X1 (0.988), X3 (0.965), and X4 (0.979), indicate the greatest influence of these variables in the model. Coefficients in the range of 0.5-0.9 suggest a medium influence, while values below 0.5, like for X28 (0.381) or X50 (0.097), indicate a low influence on the dependent variable. An additional note regarding the $p<0.001$ value emphasizes that all presented estimates are highly statistically significant. In short, the analysis of this table helps understand which variables have the greatest influence on the phenomenon studied in the conducted research.

Table 4 emphasizes the importance of specific skills and ICT tools in the context of their impact on organizational agility. The most significant turned out to be project management skills, achieving set goals within a designated time, and budget. This indicates that effective project management and the ability to achieve set goals are key to organizational agility.

The coefficients for variables representing employees' personal traits also indicate their importance. Leadership, flexibility, and the ability to adapt in changing conditions are key to maintaining agility in a dynamically changing business environment. Overall, the results from Table 9 confirm that both technical skills related to ICT and employees' soft skills are essential for companies' organizational agility.

The above interpretations are valid only when the values of other variables remain unchanged. The coefficient values thus describe the direction (positive/negative) and the strength of the influence of the explanatory variable on the explained variable. The strength of influence on the explained variable can be compared between explanatory variables using standardized coefficients. The values of non-standardized coefficients depend on the units in which the variables are measured.

4. Conclusions

Based on the analysis of the data contained in Tables 6 and 7, clear relationships were observed between specific employee skills and organizational agility. Skills in project management, achieving set goals within a specified time and budget, and being a leader proved to be particularly important. The significance of these skills is highlighted by their high value in the structural model, suggesting their pivotal role in shaping organizational agility.

Additionally, the analysis points to the importance of personal traits of employees in the context of organizational agility. Flexibility, adaptability, and leadership are not only important for individual effectiveness but also for the overall ability of the organization to respond to changes.

In the context of ICT tools, a varied impact of different technologies on organizational agility was observed. While some tools seem to be more influential than others, the overall trend points to the increasing role of technology in shaping agile business practices.

In conclusion, the research indicates that both technical skills related to ICT and soft skills of employees are essential for organizational agility. In the age of rapid technological and business changes, such a combination becomes key to organizational success. Based on the conducted analyses and interpretations of the results, several key elements of new knowledge in the field of organizational agility were identified. Firstly, there is a strong correlation between employees' project management skills and organizational agility. Specifically, the ability to achieve set goals within a specified time and budget, as well as being a leader, are key indicators of agility in an organizational context.

Secondly, the personal traits of employees, such as flexibility, adaptability, and leadership, play a significant role in shaping organizational agility. These traits not only influence individual employee effectiveness but also the ability of the entire organization to respond to changes.

Thirdly, the diversity of ICT tools used in the organization has a varied impact on organizational agility. While all ICT tools contribute to agility, some of them clearly have a more significant impact compared to others.

Fourthly, the integration of technical skills related to ICT with the soft skills of employees is key to achieving optimal organizational agility. Combining these two areas allows organizations to effectively respond to dynamically changing business conditions. Thus, organizational agility is a complex construct that is shaped both by technical skills and the personal traits of employees.

It's also worth mentioning the limitations of the conducted research. The limitations of this study primarily arise from the nature of the sample. The study was based on the analysis of responses from 930 respondents, which, although a significant number, may not be representative of all sectors or organizational cultures. Additionally, the study mainly focused on employee skills and the use of ICT tools, which might overlook other key factors influencing organizational agility, such as organizational culture or management structure. The survey method, although widely used, also carries limitations, such as potential errors arising from respondent answers or their interpretation. Lastly, the dynamically changing technological environment means that conclusions drawn from current data might not be relevant in the future as new technologies and tools emerge.

Comparing this research with the findings of other researchers would be valuable. For instance, Prieto and Talukder (2023) focused on the concept of "resilient agility" as a key condition for the sustainable development of employees and organizations. Another interesting reference is the work of Grugulis and Vincent (2011), who discuss the impact of changing boundaries on shaping employee skills in the context of fragmented organizational forms. Comparing these studies with the results of this analysis reveals the diversity of approaches to the issue of organizational agility and employee skills in academic literature.

In light of the research results and current trends in the literature on organizational agility, several directions deserve further exploration. Firstly, a deeper analysis of personal traits of employees, such as flexibility or adaptability, could provide more detailed information about their specific role in shaping organizational agility. In this context, it would be worth investigating which personal traits are most valuable for different types of organizations or in different industry sectors.

Secondly, although ICT tools play a key role in enhancing agility, there's a need for a more detailed analysis of how specific technologies and their applications influence agility in different organizational contexts. Research could focus on identifying technologies with the most potential in the context of agility and developing best practices for their implementation.

Another direction could be to investigate how organizations can effectively combine technical skills related to ICT with the soft competencies of employees to achieve optimal agility. Such research could provide practical guidelines for managers and team leaders regarding training, development, and team management in a dynamically changing environment.

Lastly, considering that organizational agility is key to success in today's complex business environment, it's worth reflecting on the future of this concept. What are the future challenges related to agility? What new technologies or strategies might emerge in the coming years? Answers to these questions can provide valuable insights for future research in this field.

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