SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2025
ORGANIZATION AND MANAGEMENT SERIES NO. 237

THE IMPORTANCE OF CREATIVE PROBLEM SOLVING IN THE DIGITAL ECONOMY USING DESIGN THINKING TO SHAPE ORGANIZATIONAL RESILIENCE

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Purpose: The aim of this article is to identify the importance of creative problem solving in the digital economy using the Design Thinking (DT) method in shaping organizational resilience. The article attempts to integrate theoretical perspectives on resilience, digital transformation, and DT methodology to identify mechanisms that enable organizations to adapt to environmental change and disruption.
Design/methodology/approach: The article is based on a systematic review of the literature and a comparative analysis of case studies of innovative projects implemented on the basis of DT in companies and institutions in the field of the digital economy.
Findings: The analysis indicates that the creative implementation of innovative projects using the Design Thinking method strengthens organizational resilience by: supporting flexibility and innovation, building credibility and trust among users thanks to the human-orientation of innovative solutions. This increases the organization's adaptability in uncertain conditions.
Research limitations/implications: The limitation of this article is that it uses only secondary data, which does not allow for full empirical verification of the findings. Future research should include quantitative and qualitative studies that take into account sector specific characteristics and cultural context.
Practical implications: The findings indicate that managers can integrate the implementation of innovative projects based on the DT creative process with digital transformation processes in order to increase the adaptability of the organization, minimize innovation costs, and strengthen competitiveness. This also contributes to increased efficiency and flexibility through the implementation of digital tools and services tailored to user needs.
Social implications: The use of DT in digital services improves people's quality of life, increases the transparency of administration, and promotes the development of inclusive digital services in line with user needs, strengthening public trust in technological solutions and digital tools.
Originality/value: The originality of the article lies in the integration of three areas: organizational resilience, digital transformation, and creative problem solving using the Design Thinking method. The results provide a new theoretical perspective and practical guidance for managers and researchers.

Keywords: Design Thinking, creative problem solving, creativity, organizational resilience, digital economy.
Category of the paper: Literature review and case study.

1. Introduction

To ensure In an era of rapid technological change, global disruption, and growing market uncertainty, organizational resilience has become a key mechanism for the development of businesses and institutions. Organizational resilience is defined as an organization's ability to anticipate, prepare, respond, and adapt in the face of change and disruption, as well as recover from crisis (Lengnick-Hall, Beck, Lengnick-Hall, 2011). Resilience also encompasses the ability to learn, transform, and capitalize on emerging development opportunities (Lengnick-Hall, Beck, Lengnick-Hall, 2011).

In conditions requiring rapid response to change and uncertainty, creativity, supporting creative problem-solving and generating ideas for innovative solutions, becomes increasingly important. The literature emphasizes that creative problem-solving is the foundation of innovation activities and is inextricably linked to organizational adaptation processes (Mumford et al., 2013). The ability to generate and implement innovative ideas strengthens dynamic capabilities that enable organizations to adapt to disruptions and recover from crises (Teece, 2018).

In this context, methods that support creative thinking and innovative approaches to problems are gaining importance. One of the most recognizable such methods is Design Thinking. This method is widely described in research as a creative, user-centered approach that combines empathy, interdisciplinarity, iteration, and prototyping (Brown, 2008; Liedtka, 2018).

Digital transformation and digital innovation are considered important factors supporting organizational resilience. Research indicates that digitalization fosters organizational learning, innovation, and operational agility (Awad, Martín-Rojas, 2024), which are key to strengthening organizational resilience. The dynamic development of the digital economy creates both opportunities and challenges for organizations operating in a complex and uncertain environment. In the face of dynamic change and the need to quickly adapt to changing conditions, the importance of digital fluency, associated with the ability to use digital tools and their critical and creative use in solving complex problems, is growing (Voogt et al., 2015). The digitization of business processes, the growing importance of data-driven technologies, and the pressure to quickly adapt to changing market conditions are making organizational resilience one of the key factors determining the sustainability and development of enterprises (Duchek, 2020).

Therefore, the development of innovative digital tools is crucial, which in turn is related to the effective implementation of innovation projects. Applying the Design Thinking approach can be helpful in this regard. Implementing digital transformation projects based on the DT methodology promotes a better understanding of customer needs and the creation of innovative technological solutions that address the challenges of a dynamic environment (Awad, Martín-Rojas, 2024). Literature analysis indicates that the integration of DT-based design processes with digital transformation supports building resilience by developing the learning, innovation and adaptability capabilities of the organization (Oliveira, 2024).

Despite a growing number of publications, knowledge about combining DT with organizational resilience in the digital economy remains limited. While the literature increasingly examines digital transformation and its impact on resilience, there are fewer studies that connect Design Thinking as a specific method for creative problem-solving in the digital economy with building and strengthening organizational resilience. Most studies focus on describing innovative applications of DT in digital transformation projects. However, few directly analyze the impact of DT on specific resilience indicators or the ability to adapt in crisis conditions (Duchek, 2020).

The aim of this article is to identify the importance of creative problem-solving in the digital economy using the Design Thinking (DT) method in shaping organizational resilience. The article therefore focuses on explaining how implementing innovative projects using Design Thinking in the context of the digital economy, based on a creative approach, can contribute to shaping organizational resilience. To achieve this goal, a literature review was conducted to identify key concepts, mechanisms, and research gaps that justify the need for such research. Case studies on the implementation of Design Thinking in the context of the digital economy were also analyzed.

2. Literature review

2.1. The importance of creative problem-solving within the implementation of innovative projects in shaping organizational resilience

Creative problem-solving is a key factor enabling organizations to function in conditions of uncertainty and change. Mumford et al. (2013) emphasize that the ability to generate original ideas and experiment is a significant factor in competitive advantage, especially in turbulent environments. Research indicates that the ability to generate and implement innovative ideas strengthens an organization's adaptability and allows it to recover more quickly from disruptions (Amabile, 1996; Zhou, Hoever, 2014). Akgün and Keskin (2014) emphasize that product and service innovation is correlated with an organization's improved ability to survive market volatility. Therefore, it plays a fundamental role in innovation processes.

Other authors, such as Lengnick-Hall, Beck, Lengnick-Hall (2011), emphasize that organizational resilience is also related to the ability to transform and leverage crises as a catalyst for innovation. Within innovation projects, creativity is not limited to the generation of novel ideas but also encompasses processes of systematic experimentation, learning, and practical implementation of solutions (Drazin et al., 1999).

Therefore, the importance of creativity can be analyzed through the lens of dynamic capabilities, which form the foundation of organizational resilience. Teece (2018) emphasizes that the ability to integrate, build, and reconfigure resources enables organizations to adapt to new market conditions. Creative problem-solving supports the development of these capabilities by creating conditions conducive to exploration and exploitation, consistent with the concept of ambidexterity (March, 1991; O'Reilly, Tushman, 2013).

From the perspective of innovation projects, an organizational culture focused on openness, experimentation, and tolerance for error is crucial to fostering creativity. Edmondson (1999) points out that psychological safety in teams fosters open knowledge sharing and risk-taking, which are prerequisites for generating innovative solutions. Interpersonal relationships and team collaboration enable the integration of diverse cognitive perspectives, which increases the potential for creativity and resilience (Paulus, Nijstad, 2003). The role of leaders and managers is crucial in this regard. Research indicates that when creative problem-solving is supported by leaders and the organizational structure, organizations respond more quickly to disruptions and recover more quickly (Vogus, Sutcliffe, 2007).

Creative problem-solving also strengthens organizational learning processes, which, according to Duchek (2020), are a key component of organizational resilience. Nonaka and Takeuchi (1995) argue that the knowledge conversion process (SECI) is based on the interaction of explicit and tacit knowledge, which fosters the creation of innovative solutions. In innovative projects, the testing and prototyping phases are particularly important, as they not only accelerate the implementation of new solutions, but also develop organizational resilience through the ability to quickly learn from mistakes and iteratively improve processes (Brown, 2008; Liedtka, 2018).

Analyzing the literature on the subject, significant factors that foster organizational creativity can be identified, including:

- simultaneous support for the exploration of new solutions and the use of existing resources within the concept of ambidexterity (March, 1991; Andriopoulos, Lewis, 2009),
- dynamic team learning processes (Edmondson, 1999),
- development of cognitive abilities through practices such as continuous testing and prototyping (Nonaka, Takeuchi, 1995; Brown, 2008),
- interpersonal relationships that facilitate knowledge flow (Nonaka, Takeuchi, 1995),
- an organizational culture that supports tolerance for error and experimentation (Edmondson, 1999).

Creative problem-solving within innovation projects therefore contributes to increasing organizational resilience by synergistically impacting the following key areas: developing dynamic capabilities, strengthening an organizational culture open to change, and enhancing teams' competencies in learning and adaptation. This enables organizations to be better prepared for disruptions and transform crises into a source of competitive advantage.

Analysis of the literature indicates the need for further research on how creative approaches impact organizational resilience. It also explores the measures of these impacts (e.g., recovery time, scope of adaptation), what organizational resources determine the effectiveness of creative problem-solving, and how this impact evolves across various industries and organizations.

2.2. Design Thinking in the context of projects related to the digital economy.

The digital economy, characterized by the growing importance of information technology and digital tools such as big data, artificial intelligence, and the Internet of Things, requires organizations to be able to quickly create and implement innovative solutions. In this context, the Design Thinking (DT) method, which combines the user perspective with creative problem-solving, is gaining particular importance (Brown, 2008; Kelley, Kelley, 2019). Research indicates that DT is becoming an increasingly common method supporting the effective design of innovative services and products (Brown, 2008; Liedtka, 2018).

In innovation projects related to digital transformation, considering the needs of end users is crucial. DT is based on empathy and understanding user experiences, which allows for better adaptation of new digital solutions to real market expectations (Carlgren et al., 2016). The DT process, consisting of phases such as empathy, problem definition, idea generation, prototyping, and testing, is consistent with the nature of dynamic digital environments (Brown, 2008; Awad, Martín-Rojas, 2024). The iterative nature of the method reduces implementation risk by quickly verifying hypotheses and adapting solutions to user needs during development (Beckman, Barry, 2007). The literature emphasizes that prototyping is not only a solution-creating technique but also a tool for organizational learning, increasing adaptability to unpredictable technological changes (Seidel, Fixson, 2013).

DT is used in many areas of the digital economy. In the financial sector, this method supports the creation of new models of digital banking and mobile-based services that are more intuitive and accessible to users (Carlgren et al., 2016). In healthcare, the use of DT enables the design of digital diagnostic tools and medical applications that increase service accessibility and improve patient experience (Plattner, 2012). In the public sector, the use of DT enables the development of innovative e-government platforms that facilitate institutional interaction with the public (Kimbell, 2011).

The impact of DT on organizational culture in digital processes is also important. Implementing this method fosters a work environment focused on interdisciplinary collaboration, openness to experimentation, and tolerance for errors. This increases the chances

of success for innovative projects (Liedtka, 2018; Carlgren et al., 2016). Research shows that organizations using DT achieve higher levels of employee engagement in digital transformation projects and develop dynamic capabilities that foster organizational resilience (Awad, Martín-Rojas, 2024).

It is important to emphasize that DT also supports the integration of new technologies into existing business models. The ability to quickly test and adapt concepts enables reducing the costs of poor decisions and more efficient use of digital resources (Seidel, Fixson, 2013). As a result, this method not only contributes to the creation of innovative solutions but also increases the organization's resilience to technological and market risks.

In summary, applying Design Thinking to digital transformation projects is an effective way to combine innovation with adaptability. This method allows organizations to better respond to the challenges of digital transformation, develop new business models, and foster a culture open to experimentation. As a result, DT serves as a catalyst for innovation and a factor that strengthens organizational resilience in conditions of dynamic technological change.

2.3. Integrating Design Thinking in the implementation of projects for the development of the digital economy with mechanisms for building organizational resilience

The connection between Design Thinking (DT), which supports the implementation f innovative projects, and mechanisms for building organizational resilience is gaining ground in the scientific literature. Researchers indicate that implementing innovative projects can foster the development of dynamic organizational capabilities, which are the foundation of resilience (Teece, 2018; Williams et al., 2017). The DT method can play a significant role in this regard. A key element of this integration is the link between empathy for users, iterative prototyping, and solution testing with organizational adaptation processes. DT enables the creation of innovative digital services that not only meet customer needs but also strengthen the organization's ability to cope with disruptions (Brown, 2008; Liedtka, 2018). Design Thinking (DT) can be a tool supporting the development of these processes, as it promotes learning, interdisciplinary collaboration, and adaptability, which are the foundation of organizational resilience (Liedtka, 2018; Awad, Martín-Rojas, 2024).

Integrating DT with organizational resilience mechanisms involves creating an environment conducive to continuous testing and prototyping, which reduces the risk of digital project failure. The iterative nature of DT strengthens an organization's ability to respond to technological and market disruptions by quickly adapting solutions to changing conditions (Seidel, Fixson, 2013).

The literature emphasizes that organizational resilience depends not only on structures and processes, but also on organizational culture and interpersonal relationships (Vogus, Sutcliffe, 2007). DT supports the development of an organizational culture in which experimentation, collaboration, and tolerance for error are essential elements supporting innovation and

adaptability (Carlgren et al., 2016). Therefore, this method fosters the building of dynamic capabilities that enable organizations to capitalize on emerging opportunities in the digital economy while simultaneously reducing vulnerability to disruption (Teece et al., 2016).

A significant aspect of integrating DT with organizational resilience is the role of empathy and user-centricity. This allows organizations to better identify changing customer needs, allowing them to adapt their business models more quickly and minimize the risk of competitive disadvantage (Brown, 2008). Applying DT to digital solutions projects also fosters stronger stakeholder relationships, which is considered a key dimension of resilience, as diverse networks support the organization during times of crisis (Williams et al., 2017).

Literature indicates that DT supports resilience-building processes by developing organizational competencies related to learning, creative problem-solving, and innovation. In this regard, digital tools are playing an increasingly important role, supporting not only the act of generating new ideas but also enabling their transformation, testing, and refinement in a dynamic and interactive manner (Mumford et al., 2013). For example, implementing DT-based projects related to digital solutions contributes to the development of competencies in data analysis, agile work methods, and technology integration, which enhances the organization's ability to maintain stability in times of disruption (Plattner, 2012; Awad, Martín-Rojas, 2024).

In summary, integrating DT with organizational resilience mechanisms involves combining iterative innovation processes with the development of dynamic adaptive capabilities. From a management perspective, DT can strengthen an organization's ability to function and thrive in conditions of uncertainty through: greater operational flexibility, improved communication and collaboration, increased acceptance of digitization processes, employee innovation, a culture of experimentation, and building trust between the organization and its stakeholders (Vogus, Sutcliffe, 2007). This allows this method to serve not only as a tool for supporting innovation but also as a strategic driver of long-term organizational resilience.

3. Methods

This article uses a secondary data analysis approach, which allows for a synthetic overview of the existing scientific and practical work in the area of creative problem-solving using the Design Thinking method and its importance for organizational resilience in the digital transformation process.

First, a systematic review of the scientific literature was conducted using the Scopus, Web of Science, and Google Scholar databases. The analysis included scientific articles, books, and monographs published between 2000 and 2025, focusing on three key areas:

- the importance of creative problem-solving in shaping organizational resilience,
- the application of Design Thinking in innovation processes related to the digital economy,
- the relationship between creative problem-solving using the Design Thinking method and an organization's ability to respond to uncertainty and disruption.

The literature selection process was guided by criteria of quality (publications in indexed journals), currency, and relevance to the research topic.

The second stage of the study involved an analysis of existing case studies on the implementation of Design Thinking in organizations in the field of the digital economy. The case studies were drawn from the literature and research reports published in renowned journals and academic monographs. The analysis was qualitative in nature and based on the identification of:

- the main areas of application of Design Thinking related to the design and implementation of digital services and tools,
- the effects on organizational resilience (e.g., increased flexibility, adaptability, reduced response time to market changes),
- the barriers and factors facilitating the effective implementation of the method in the context of digital transformation.

This approach enabled the compilation of findings from several case studies, allowing for the identification of specific conditions and effects of Design Thinking implementation.

The results of the literature and case study analysis were subjected to a comparative synthesis, allowing for the identification of recurring patterns and relationships. The use of secondary data from various sources increased the credibility of the conclusions by combining theoretical (literature) and practical (case studies) perspectives.

The choice of methods based on literature and case study analysis was based on two premises. First, the issue of Design Thinking's impact on organizational resilience in the digital economy is relatively new and requires a thorough synthesis of existing research findings. Second, the availability of a growing number of practical implementations allows for a qualitative assessment of the effectiveness and determinants of this approach. The methods employed thus enable both the systematization of the state of knowledge and the development of application-specific conclusions relevant to management practice.

4. Results

The analysis focuses on the following four case studies of digital economy projects implemented using the Design Thinking methodology:

- IBM project example - IBM z14 mainframe system.
- IRIS Bank project example in Indonesia - improving the quality of digital banking services.
- Eudaemon Technologies project example - digitally streamlining the data collection and tracking process.
- Hospital pharmacy project example in the Asir region of Saudi Arabia - improving outpatient services.

The case studies are described using the following structure: project background, project participants, problem to solve, project goal, stages, and achieved results. The case studies are then compared and synthesized, taking into account their impact on organizational resilience.

IBM project example – IBM z14 mainframe system

IBM is an example of a company focused on Design Thinking projects, based on three fundamental elements of its approach: diverse teams, a focus on users, and continuous improvement (IBM Design, 2025). IBM combines DT with Agile methodologies in its project implementation (Eickhoff et al., 2018). The company has developed DT ideas, strategies, and tactics in a unique way to support team-based project implementation (IBM Design, 2025). Research conducted by Forrester Consulting on behalf of IBM clearly confirmed the effectiveness of the DT methodology and a number of the following benefits three years after its implementation (Hrpolska, 2019):

- financial savings (amounting to $20.6 million),
- economic benefits (nearly $50 million),
- shorter solution design time (up to 75% thanks to DT tools),
- accelerated decision-making,
- more effective teamwork,
- faster error identification and improvement through iteration,
- increased customer satisfaction.

An example of IBM's DT implementation is the IBM z14 project, developed based on the "IBM Design Thinking" method and Agile practices for the digital economy (Eickhoff et al., 2018).

Project implementers: A diverse and multidisciplinary team created by IBM, employing over 1000 engineers working on the IBM z14 mainframe system (Eickhoff et al., 2018; IBM Design, 2025).

Problems to solve: The primary challenge was the need to respond faster to customer requirements while maintaining high quality and secure transaction processing, supporting digital transformation.

Project goal: Using IBM Design Thinking methodology and Agile practices to understand user needs and adapt the solution to their perspective, delivering value across the project.

Project stages: The project implementation process was based on an iterative approach utilizing IBM Design Thinking and Agile methodologies, engaging key company stakeholders, i.e., user-sponsors, at an early stage (Eickhoff et al., 2018). The project stages were based on a cycle model that views the design process as a continuous loop consisting of three recurring activities (IBM Design, 2025):

- Observe – observing and thoroughly understanding user behavior and challenges, gathering research information to ensure solutions address their actual needs.
- Reflect – analyzing, synthesizing, and giving meaning to observational results, prioritizing them to ensure user understanding across the team.
- Make – creating rapid prototypes to test ideas and hypotheses with users to achieve a result focused on achieving effective, relevant, and proven innovative solutions.

Project outcomes: This project is an example of supporting the digital transformation of IT services and products. The z14 system, a secure, scalable transaction and data platform, was designed with the needs of administrators and corporate users in mind (IBM Redbooks). It supports faster digital transformation by supporting secure, encrypted cloud-based services, enabling improved customer service quality (IBM Redbooks). The use of IBM's methodology, based on an iterative process of continuous development, prototyping, testing, and re-creation, allowed for faster adaptation of the solution to user needs (Eickhoff et al., 2018). IBM's methodology, combining design thinking with Agile practices, enabled rapid iteration and minimized the risk of errors in a costly hardware-software environment (IBM Design, 2025). This increased product adaptability, accelerated solution testing, shortened correction times, better aligned the system with corporate client needs, and improved collaboration with key clients, which is directly related to strengthening the company's organizational resilience (Eickhoff et al., 2018; IBM Design, 2025; Lengnick-Hall, Beck, Lengnick-Hall, 2011). This contributes to greater flexibility and faster response to market needs, while reducing the risk of costly changes (Carlgren et al., 2016).

IRIS Bank project example in Indonesia – Improving the quality of digital banking services

An example of how the Design Thinking approach was applied to an innovation project by Bank IRIS is described based on research published by Simanjuntak and Ghazali (2025). The project, implemented by Bank IRIS, was developed in response to the challenges of digital transformation and the desire to improve digital banking services. The transition to digital banking revealed a number of challenges the bank had to face.

Project implementers: The project was implemented by the Bank IRIS team in Jakarta using the Design Thinking method (Simanjuntak, Ghazali, 2025).

Problems to solve: Bank IRIS faced a large number of technical issues with its digital services, including recurring frequent connection errors, poor online customer service, and declining user satisfaction with its banking applications. Low customer loyalty and the risk of customer defection to competitors were also a problem (Simanjuntak, Ghazali, 2025).

Project goal: Develop innovative solutions to improve the quality of digital banking by better understanding user needs, eliminating system errors, and streamlining customer service.

Project stages: The project was implemented using the DT method and divided into the following five stages (Simanjuntak, Ghazali, 2025):

- Empathize – online complaints and reviews were analyzed, in-depth interviews were conducted with two customers, and surveys were conducted with five corporate customers.
- Define – key issues related to the poor quality of services offered were identified, including difficulty logging in, frequent application outages, lack of effective communication in customer service, and connectivity issues.
- Ideate – customer-generated improvement ideas were identified, including the use of Content Delivery Networks (CDNs), AI-based chatbots, a new application interface, additional security features, a better support system, the use of a web index to minimize transaction risk, and employee training programs.
- Prototype – a narrative prototype of the new banking application was prepared.
- Test – the developed prototype was tested with customers and modified based on their feedback to address the issues identified in the empathy phase.

Project outcome: An improved banking app was created, with an improved interface, a more stable login system, and a better online customer service channel. As a result, IRIS Bank saw increased customer satisfaction and improved digital service quality. This contributed to its operational resilience in the face of increasing competition (Simanjuntak, Ghazali, 2025).

An example of a project by Eudaemon Technologies – digital improvement of the data collection and tracking process

The case study illustrates an exploratory design thinking approach to the rapid implementation of digitalization solutions (Mesa et al., 2022). The project addressed the challenges faced by Australian manufacturing SMEs related to the high levels of risk and uncertainty associated with implementing new technologies and digital tools. The companies struggled with digital transformation challenges, the risk of selecting appropriate technologies, limited digital competencies, and uncertainty regarding the cost-effectiveness of implementing digital tools (Mesa et al., 2022).

Project implementers: An interdisciplinary research and design team was established for the project, based on collaboration between academics from the University and a manufacturing SME using the Design Thinking method (Mesa et al., 2022).

Problems to solve: The project focused on the challenges faced by Eudaemon Technologies, which needed to improve its data collection and tracking process to manage production in a virtual environment. Despite its automated production process, Eudaemon struggled with data collection and processing. The company's IoT-enabled equipment was not fully utilized (Mesa et al., 2022).

Project goal: The primary goal was to identify the impact of technologies and practices on improving Eudaemon Technologies' production capabilities. Initially, the goal was to identify tools for creating dashboards to simplify data analysis and enable remote monitoring and control of production processes (Mesa et al., 2022). Specific project goals included (Mesa et al., 2022):

- review the existing IoT 4.0 environment,
- determine design assumptions for creating a digital production process dashboard,
- determine the input data and components required to create the dashboard.

Project stages: The project was based on an iterative process based on the Design Thinking methodology, encompassing four main phases (Mesa et al., 2022):

- Discover – activities aimed at understanding the problem through an analysis of existing practices and production equipment at Eudaemon Technologies, with the involvement of various stakeholders. A review of existing innovative solutions on the market was also conducted. A series of consultations were held with local technology providers and university experts.
- Define – a list of requirements and selection criteria were defined, based on which selected IoT platforms were selected.
- Develop – prototypes were developed and tested, allowing the team to analyze each presented solution using simulated data. This phase concluded with the development and presentation of several proof-of-concept prototypes.
- Deliver – after analyzing the proof-of-concept prototypes and the identified criteria, the platform with the greatest potential was selected. After improvements, it was fully integrated into Eudaemon's existing data collection and analysis process.

Project outcomes and results: The iterative design thinking process used had a key impact on: expertise, reduced investment risk through rapid testing of prototype solutions, and the creation of an effective and sustainable solution tailored to the needs without the need for high resources and costs. It also mitigated the barriers to company digitalization (Mesa et al., 2022). The solution created as part of the project contributed to:

- mproved product efficiency and quality,
- eliminating many time-consuming steps and tasks in the company's data management process,

- minimizing data entry errors,
- increasing the flexibility of operations,
- facilitating supervision at production plants around the world.

Thanks to this process and the results achieved, the organization's flexibility and ability to learn and adapt were strengthened, which positively impacted the company's organizational resilience.

An example of a hospital pharmacy project in the Asir region of Saudi Arabia – improving outpatient services

This case study is based on a publication by Almaghaslah et al. (2021), presenting the results of a project implemented in the pharmaceutical sector in Saudi Arabia using Design Thinking methodology. The project focused on understanding the context of pharmaceutical service delivery in selected hospitals (Almaghaslah et al., 2021).

Project implementers: The project was implemented by an interdisciplinary project team in the pharmacies of two hospitals in the Asir region (Almaghaslah et al., 2021).

Problems to be solved: Patients in hospital pharmacies complained about long queues, inefficient service processes, uncomfortable pharmacy conditions, and insufficient service quality. Staff overload and a lack of digital tools supporting patient management were also issues.

Project Objective: To evaluate and improve the patient experience in two hospital pharmacies in the Asir region using DT (Almaghaslah et al., 2021).

Project stages: The innovation project was conducted in 2020 based on the Stanford University D-School Design Thinking methodology and was divided into the following stages (Almaghaslah et al., 2021):

- Empathize – semi-structured interviews with patients were conducted and the pharmacy environment of the hospitals selected for the study were observed.
- Define – based on the analysis of the obtained results, the following key problems were identified: uncomfortable customer service areas in pharmacies, lack of an effective queue management system, inefficient flow of medication orders and deliveries, lack of electronic prescriptions, and lack of equal treatment of patients based on gender. At the end of this stage, the most important needs were synthesized and prioritized.
- Ideate – using selected creative thinking methods and techniques such as brainstorming and mind mapping, solution ideas were identified, including a queue management system, the introduction of electronic prescriptions, redesigning pharmacy waiting rooms to improve the comfort of waiting in line, and solutions for patients with disabilities. 4. Prototype – Prototypes were developed to address defined challenges in the customer service process in pharmacies.

- Test – tests of the proposed interior design solutions and software solutions were conducted in the context of the identified needs and expectations of customers in both hospital pharmacies.

Project Outcome: In response to identified customer needs, a prototype of a digital queue management system was created. Solutions were proposed to address individual customer expectations, creating the potential to improve the pharmaceutical service experience using modern technologies and digital tools (Almaghaslah et al., 2021). These solutions can increase organizational resilience by supporting innovation and human-centric innovation, thus building greater credibility and trust among users.

Comparison of the analyzed case studies

The table below summarizes four different case studies using Design Thinking in the digital economy (Table 1). It considers the project context, the method of applying Design Thinking, and the results achieved in terms of organizational resilience. The comparison demonstrates that, despite the diversity of industries and geographies, Design Thinking enables effective solutions to digitalization challenges, improves service quality, and increases organizational agility and adaptability.

Table 1.
Comparison of case studies on the application of Design Thinking in the digital economy and its impact on organizational resilience

Case study	Context	Application of Design Thinking	Effect on organizational resilience
IBM – IBM z14 mainframe system (Eickhoff et al., 2018; IBM Design, 2025)	Project to develop a new z14 mainframe system for the digital economy; over 1000 IBM engineers involved.	An iterative process based on the Observe–Reflect–Make model, integrating DT and Agile; stakeholder engagement and solution prototyping.	Faster response to market needs, better system adaptation to customers, shorter time to market for innovations, reduction of the risk of costly mistakes.
IRIS Bank (Indonesia) (Simanjuntak, Ghazali, 2025)	Improving digital banking services in response to system errors and declining customer satisfaction.	The classic five-step DT process (Empathize–Define–Ideate–Prototype–Test), with interviews, surveys, and application prototype iteration.	A more stable banking application, increased customer satisfaction, improved loyalty, and service quality, contributing to enhanced operational resilience.
Eudaemon Technologies (Australia) (Mesa et al., 2022)	SMEs in the manufacturing sector; need to improve the process of collecting and tracking production data.	Iterative DT approach (Discover–Define–Develop–Deliver), prototyping of IoT solutions and dashboards for data analysis.	Reducing the risks of digitization, improving quality and efficiency, increasing flexibility and adaptability, supporting resilience to digital challenges.

Cont. table 1.

Hospital pharmacies in the Asir region (Saudi Arabia) (Almaghaslah et al., 2021)	Problems with long queues and outpatient service in hospital pharmacies.	The DT process in the Stanford D-School model; patient research, problem mapping, prototyping of a queueing system and e-prescriptions.	Improving patient experiences, developing a prototype digital queueing system, increasing user trust, orienting towards innovation, which affects organizational resilience in healthcare.

Source: own study based on: Almaghaslah, Alsayari, Alyahya, Alshehri, Alqadi, Alasmari, 2021, p. 854; Eickhoff, McGrath, Mayer, Bieswanger, Wojciak, 2018, pp. 1:1-1:9; IBM Design, 2025; Mesa, Renda, Kuys, Cook, 2022, p. 14358; Simanjuntak, Ghazali, 2025, pp. 2172-2184.

The analysis of four case studies indicates that applying Design Thinking methodology in various contexts of the digital economy, from IT and banking, through manufacturing, to the healthcare sector, enables effective solutions to complex digitalization-related problems, which increases an organization's resilience. The results of the analysis indicate that:

- IBM demonstrated that DT combined with Agile increases the speed and precision of implementing complex IT solutions, strengthening an organization's adaptability.
- IRIS Bank demonstrated that a classic DT process improves the quality of digital services and customer loyalty, strengthening an organization's competitive resilience.
- Eudaemon Technologies demonstrated that DT reduces the risk of digitization in the SME sector through rapid prototyping and stakeholder collaboration.
- Hospital pharmacies demonstrated the potential of DT in the public sector, where digital tools can improve patient service and strengthen trust in institutions.

The common denominator across all cases is that Design Thinking increases organizational resilience by:

- responding more quickly to change,
- reducing risks in digitalization,
- improving the quality of services and user experience,
- building user trust through human-centricity,
- strengthening flexibility and the ability to respond to threats and emerging opportunities to implement innovation.

5. Discussion and conclusions

The issues addressed in this article provide a new theoretical perspective, identifying Design Thinking (DT) as a systemic tool that can serve as a bridging mechanism between digital transformation and organizational resilience. The conducted literature analysis and case studies indicate that the use of DT methodology in projects related to the digital economy is an important factor in strengthening organizational resilience. This is influenced by user-

centricity, iterative testing and prototyping, and working in interdisciplinary teams. This promotes increased organizational agility, shortened innovation cycles, and reduced risk of failure. As a result, organizations implementing DT become more capable of quickly responding to changing market conditions and adapting in the face of unpredictable disruptions.

The results of the analyses confirm that creative problem-solving can be considered a strategic organizational resource supporting digital transformation processes. Creativity in the digital economy is essential for designing innovative digital tools and services, which is crucial for building competitive advantage in conditions of uncertainty (Bai et al., 2020). This, in turn, increases an organization's resilience to potential threats and disruptions. The high level of creativity used in implementing innovative projects using the Design Thinking method enables the design of more inclusive innovative solutions applicable across various fields (Nambisan et al., 2019).

The research conducted, based on secondary data, literature, and case studies, limits the generalizability of conclusions and the possibility of directly verifying the empirical relationship between the use of Design Thinking and organizational resilience. At the same time, it should be emphasized that the presented research and case studies focus primarily on selected sectors (IT, finance, healthcare), which limits the possibility of full generalization of the results. Future research should therefore encompass a broader spectrum of industries and analyze the relationships between DT practices and organizational culture, leadership, and digital transformation processes in a longitudinal approach. This justifies the need for research that combines qualitative and quantitative approaches.

From a practical implications perspective, the findings confirm that DT can be an effective tool supporting organizations in creatively designing innovative digital solutions, while simultaneously strengthening their strategic and operational resilience. Companies implementing DT should invest in developing employee design competencies, create space for experimentation, and build learning mechanisms within interdisciplinary teams.

In the social dimension, the dissemination of DT practices in the digital economy can contribute to the creation of more inclusive solutions that respond to real user needs, while also supporting social responsibility and sustainable development. Therefore, the use of DT in organizational digitization processes becomes not only a tool for strengthening competitiveness but also a mechanism for building societal resilience in the face of the challenges of the digital era.

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