Information Management and Business Review (ISSN 2220-3796)
Vol. 16, No. 3(S), pp. 229-240, Sep 2024

A Systematic Review of Organizational Resilience Through Digital Technology Adoption: Trends and Insights in a Decade

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Abstract: Numerous organizations have been compelled to adopt new ways of managing work and the environment because of the pandemic. Understanding the resilience dynamics during the adoption of digital technology is more important than ever considering challenges like terrorism, economic recessions, mass migration, cyberattacks, and a variety of other socio-political and economic trends. Reviewing publications that examine the connection between digital technologies and organizational resilience from 2014 to 2024 is the goal of this project. The PRISMA approach was used to conduct a systematic review. 47 relevant papers were found as a consequence of this, most of which came from the Scopus database. This implies that academics are engaged in the subject. The papers consistently cited the diffusion of innovation (DOI) theory and the technology-organization-environment (TOE) framework, with a bias towards quantitative research methods. Five major themes emerge from the analysis: digital transformation, organizational resilience, business performance, innovation, and adoption of digital technology. By providing new perspectives, the study closes gaps in the literature. It was believed that the Journal of Technological Forecasting and Social Change was a valuable source of information on studies on digital adoption. Based on the results, the report offers recommendations and points up directions for future research to increase organizational resilience by utilizing digital technology. Organizations may leverage digital technology to effectively overcome obstacles and prosper in a constantly changing landscape by implementing these suggested practices.

Keywords: *Organizational resilience, digital technology adoption, systematic review, business performance*

1. Introduction and Background

The concept of organizational resilience is particularly crucial in the current context, marked by rapid and frequent economic, social, and environmental changes on a global scale (Do et al., 2022). The capacity of an organization to bounce back from setbacks and adjust to change is known as organizational resilience (Akpan et al., 2022; He et al., 2022). Businesses and stakeholder groups need to adopt new practices and promote interdependencies to develop stability and adaptation against external shocks (Do et al., 2022). This is essential for systems resilience. Although SMEs are beginning to acknowledge the benefits of circular business practices in fostering resilience (Annarelli et al., 2020), there are still substantial obstacles to their continuous implementation that affect adoption rates. In response to these challenges, business owners are increasingly aware that enhancing organizational resilience can drive organizational growth and safeguard long-term success (Zhang et al., 2021).

To identify knowledge gaps in digital technology adoption and organizational resilience, especially in medium-sized enterprises (SMEs), a thorough study of the literature was conducted. This particular point has not received much attention in earlier research. For instance, Akpan et al. (2022) examined how dynamic capabilities and organizational resilience relate to Nigerian manufacturing enterprises. He et al. (2022) investigated the effects of digital transformation on workers and organizations during turbulent times, as well as how it influences organizational resilience. Xia et al. (2022) investigated how business networks could strengthen organizations' organizational resilience similarly. The relationship between the use of digital technology and organizational resilience is still not well studied despite these measures, especially when it comes to SMEs. To fill this information vacuum and comprehend this recently emerged field of research better, a comprehensive review of the literature was conducted. The present study was informed by the following research questions to create a pertinent systematic literature review as stated below:

- What are the trends of literature related to organizational resilience and digital technology adoption in a decade?

- What research themes will be generated based on the finalized articles on organizational resilience and digital technology adoption in a decade?

The study employs a thorough literature review technique to examine research on organizational resilience and the adoption of digital technologies. This approach is required to comprehend the trends and research results. A review approach called PRISMA Statement (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) was used to assemble the literature from 2014 to 2024. The study is presented, and then the literature on the connection between digital technology use and organizational resilience is thoroughly reviewed. Chapter 3 explains the research technique, while Chapter 4 presents the study's findings. The research topic categorization process is explained in detail in Section 5, and the study's conclusions and possible directions for future research are covered in Section 6.

2. Literature Review

Organizational Resilience

Organizational resilience can be defined as an organization that possesses the "ability to endure significant business disruptions caused by unexpected, unforeseen, or catastrophic events, allowing organizational systems to function beyond their planned capacities without major losses" (Zhang et al., 2021). The concept of resilience, in its various forms, has been increasingly adopted in other disciplines (Tengblad, 2020). For example, in ecology, resilience has become fundamental in understanding how ecosystems can withstand change and stress while maintaining their fundamental balance (Akpan et al., 2022). Over recent decades, experts in organizational and business studies have broadened the application of resilience concepts (Tengblad, 2020). Despite numerous studies on organizational resilience dating back to the 1970s, notably the significant work by Thomson and Lehner (1976), there is no universally accepted theoretical foundation for the concept (Molinillo & Japutra, 2017). Terms like adaptability, agility, flexibility, improvisation, recovery, redundancy, and robustness do not equate to organizational resilience (Molinillo & Japutra, 2017). Resilience refers to how organizations respond to adversity, emphasizing their ability to recover and thrive amid uncertainty, discontinuity, and catastrophe (He et al., 2022; Yang et al., 2021). Therefore, enterprises must take measures to enhance organizational resilience to maintain competitiveness and ensure sustained viability (Annarelli et al., 2020). Consequently, this paper aims to propose a method for evaluating the effectiveness of organizational resilience strategies and associated initiatives within the service sector (Marcucci et al., 2022). Within this broader context, businesses encounter a plethora of emerging digital technology adoptions that are gaining significance, particularly in areas of cybersecurity and digital transformation (Annarelli et al., 2020).

Digital Technology Adoption

Digital technology utilization by small and medium-sized enterprises (SMEs) entails incorporating digital platforms and tools into their operations to increase productivity, efficiency, and competitiveness in the current economic environment (Ayinla & Adamu, 2018). Digital technologies are helping small and medium-sized businesses (SMEs) expand their client base, optimize internal workflows, and enhance internal communications (Skare & Riberio Soriano, 2021). Essential components of digital adoption for small and medium-sized enterprises (SMEs) include digital marketing tools, cloud computing, data analytics, mobile apps, and e-commerce platforms. According to Figueiredo et al. (2021), these technologies aid SMEs in breaking through conventional growth barriers, breaking into new markets, and maintaining their competitiveness in a digitally driven economy. Additionally, digital technology gives SMEs the capacity to swiftly alter their company strategies, enhancing their adaptability, according to Saleem et al. (2023). The literature on innovation emphasizes this point (Egala et al., 2024). In a similar vein, recent research has examined an organization's readiness to adopt new technologies or to digitally modify its ongoing operations (Omrani et al., 2024).

Small and medium-sized enterprises (SMEs) need to be prepared for substantial interruptions to their routine operations, which might endure for several months or even years. The development of efficient procedures that boost productivity and promote sustainability, the production of value for significant stakeholders and consumers, and the broad adoption of data-driven technology-based systems can all lead to these disruptions. These are all aspects of digital transformation practices (Blichfeldt & Faullant, 2021). SMEs require managerial, financial, and technological capabilities to implement such new technology (Blichfeldt & Faullant, 2021).

3. Research Methodology

The Review Protocol – PRISMA

The study used PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), as its review methodology (Figure 1). As stated by Sierra-Correa and Cantera Kintz (2015) and Shaffril et al. (2017), PRISMA has three primary benefits and is a widely used technique in management research. These advantages include the ability to specify exact research questions for systematic analysis, to establish clear inclusion and exclusion criteria, and to make effective use of scientific literature databases while working under time constraints. To get things started, specific study questions were established by the review methodology. Then, a rigorous approach was put into practice, incorporating rules for eligibility, screening, and identity. The suitability and applicability of the selected articles were then verified by a quality review. The collected data was carefully analyzed and validated once it was extracted from the source to guarantee its correctness and dependability.

Systematic Search Strategy

The papers came from two major bibliographic databases, Web of Science (WoS) and Scopus, and they spanned a decade from 2014 to 2024. The selection of these databases was based on their broad coverage of topics, which includes social sciences, business management, finance, economics, and allied fields. Large repositories of peer-reviewed abstracts and citations are known to be hosted by WoS and Scopus, and these resources are frequently used for systematic literature reviews (Durach, Wieland & Machuca, 2014). The articles that were obtained from these databases were screened and filtered using the UiTM e-database program. Based on previously published research, search terms were determined.

Table 1: The search string used for the systematic review process

Database	Keyword used
Scopus	TITLE-ABS-KEY (("Organization Resilience" OR "Organization" OR "Resilience") AND ("Digital") AND ("Technology") AND ("Adoption") AND ("SMEs"))
Web of Science	TS= (("Organization Resilience" OR "Organization" OR "Resilience") AND ("Digital") AND ("Technology") AND ("Adoption") AND ("SMEs"))

The identified list of keywords was used to create the search string in Table 1. Certain keyword combinations were used in the search process since the review questions were designed with titles and abstracts in mind. A total of 95 articles were produced using this strategy; 35 came from WoS and 60 from Scopus. Five records, however, had to be deleted from the dataset because they were duplicates. After that, the information was transferred to an Excel file for cleaning and sorting. Following an extensive analysis, an additional 20 publications were excluded from the dataset due to eligibility requirements (Table 2). Seventy pieces were thus kept for additional examination.

Table 2: The inclusion and exclusion criteria

Criterion	Inclusion	Exclusion
Literature type	Journal article	Book series, books, book chapters, conference proceedings, editorials, non-research publications, reviews, and opinion pieces
Language	English	Non-English
Timeline	Between 2014 and 2024	<2014
Indexes	Social Science Citation Index, Business Management Citation Index (Web of Science)	Science Citation Indexed Expanded (Web of Science)

Quality of Assessment

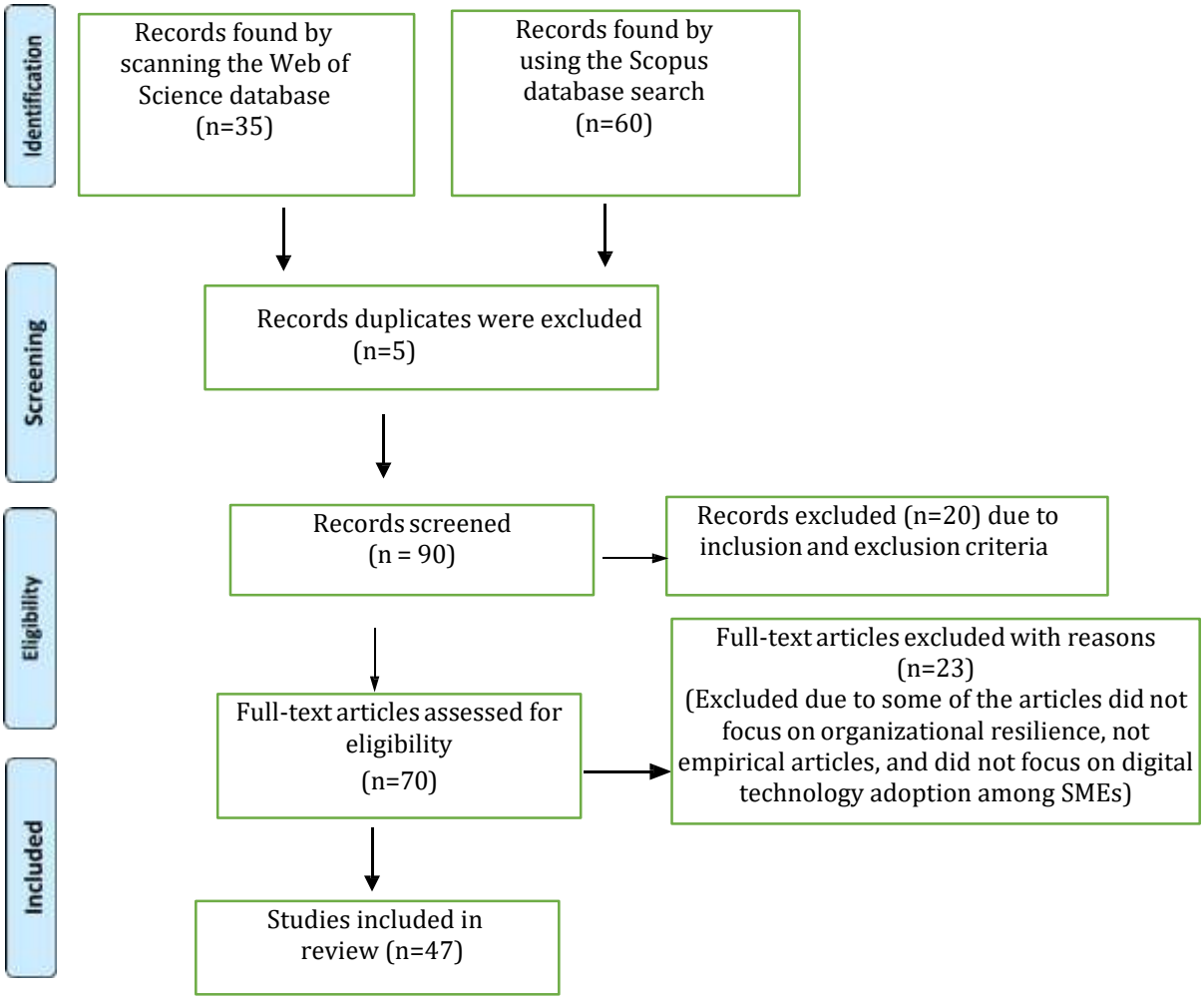
A mixed qualitative and quantitative research assessment method was used by two reviewers to examine 70 publications. After reading the articles, the reviewers classified their quality into three categories: good, mediocre, and poor. Reviewers' consensus over an article's quality led to its inclusion. In situations where there

was disagreement among the other reviewers, a third reviewer was assigned to evaluate the manuscript (Petticrew & Roberts, 2006). 23 studies were determined to be unsuitable for further investigation after this evaluation, leaving the remaining articles for examination.

Data Abstraction and Analysis

Evaluation and analysis were performed on the 47 papers that were still retrieved from Scopus and Web of Science (WoS). Reviewing the abstracts was the first step in the data extraction process. Next, the complete texts were carefully examined to find pertinent themes pertaining to organizational resilience. Researchers conducted a thematic analysis to uncover these themes by engaging in discussions to resolve any discrepancies or differing interpretations of the data until a consensus was reached on the identified themes. Subsequently, themes were refined and renamed as needed, and the details were presented in a structured manner. The classification of research themes is discussed in Section 5.

Figure 1: The flow diagram of the study is adopted from PRISMA

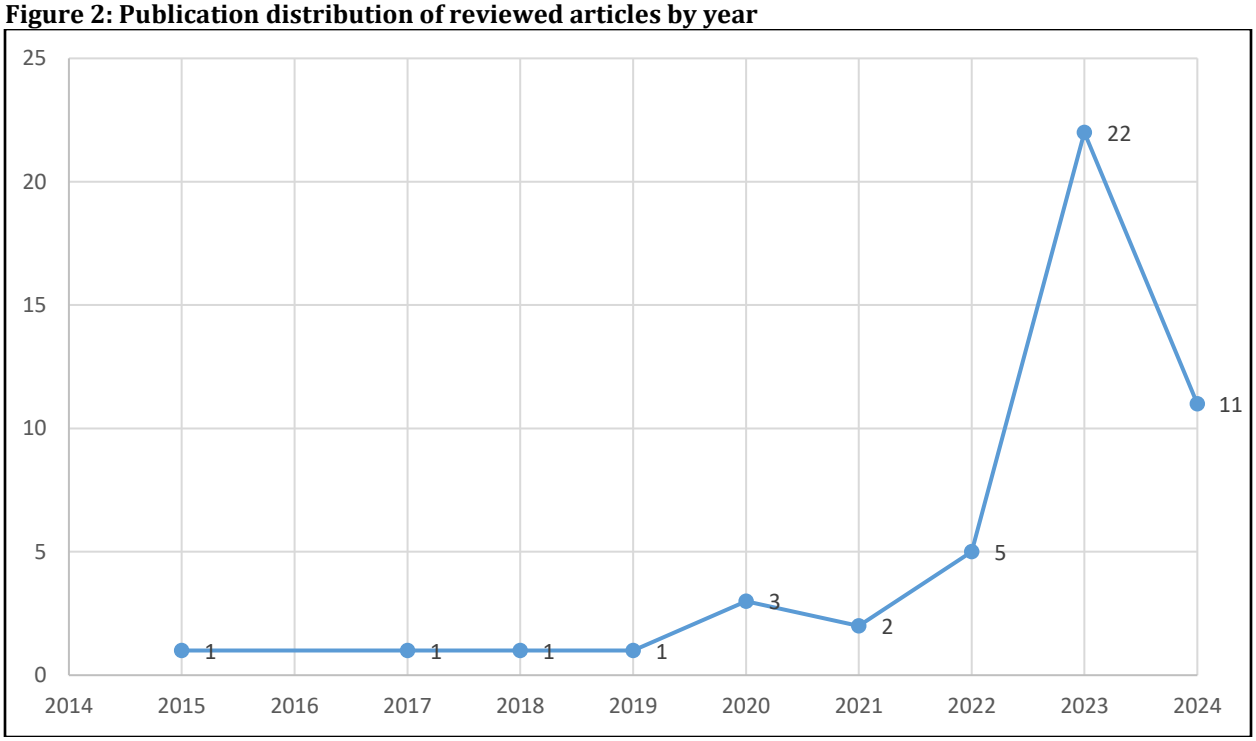


4. Results

An extensive and methodical review of the literature revealed a trend of increasing interest in the field of organizational resilience through the implementation of digital technologies. According to the results, 2023 will have the most articles published in this field. The year 2024, with 11 articles, comes next (Figure 2). In 2015, the research area of organizational resilience through digital technology adoption was just getting started, with only one article published. Organizational resilience (OR) is becoming more and more apparent to business owners as a means of expanding their enterprises and safeguarding their long-term viability

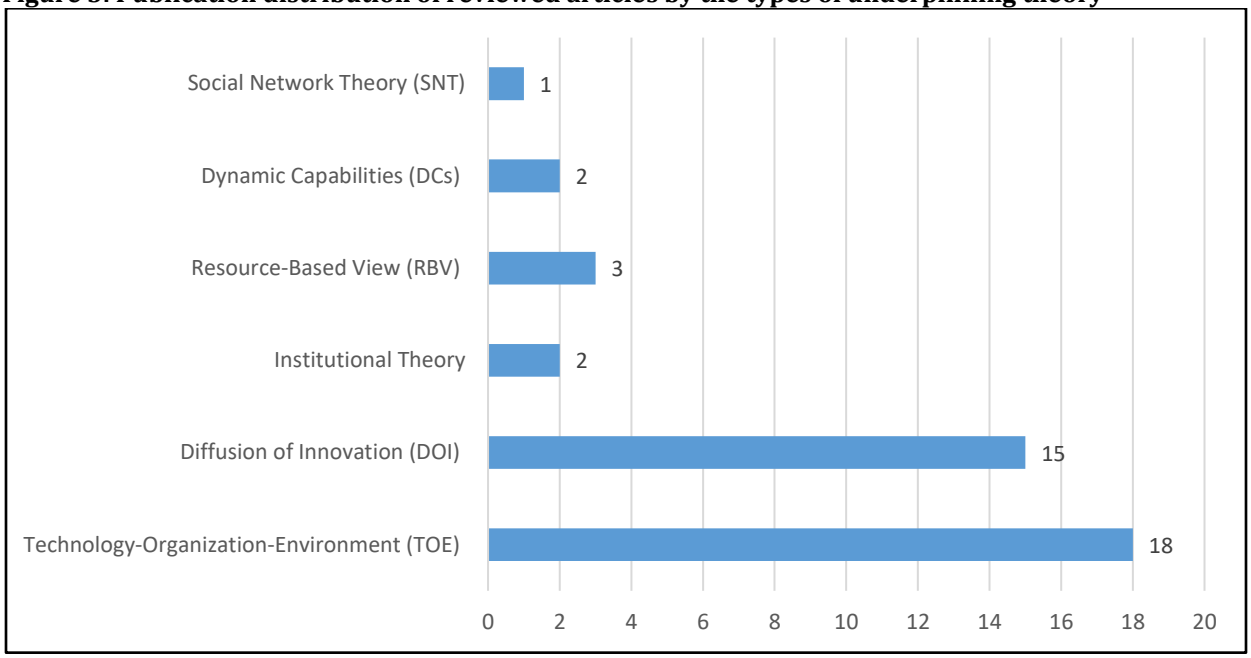
(Canhoto et al., 2021). For example, during COVID-19, numerous businesses were compelled to close their operations due to state-wide mandates from various countries across the world.

Figure 2: Publication distribution of reviewed articles by year



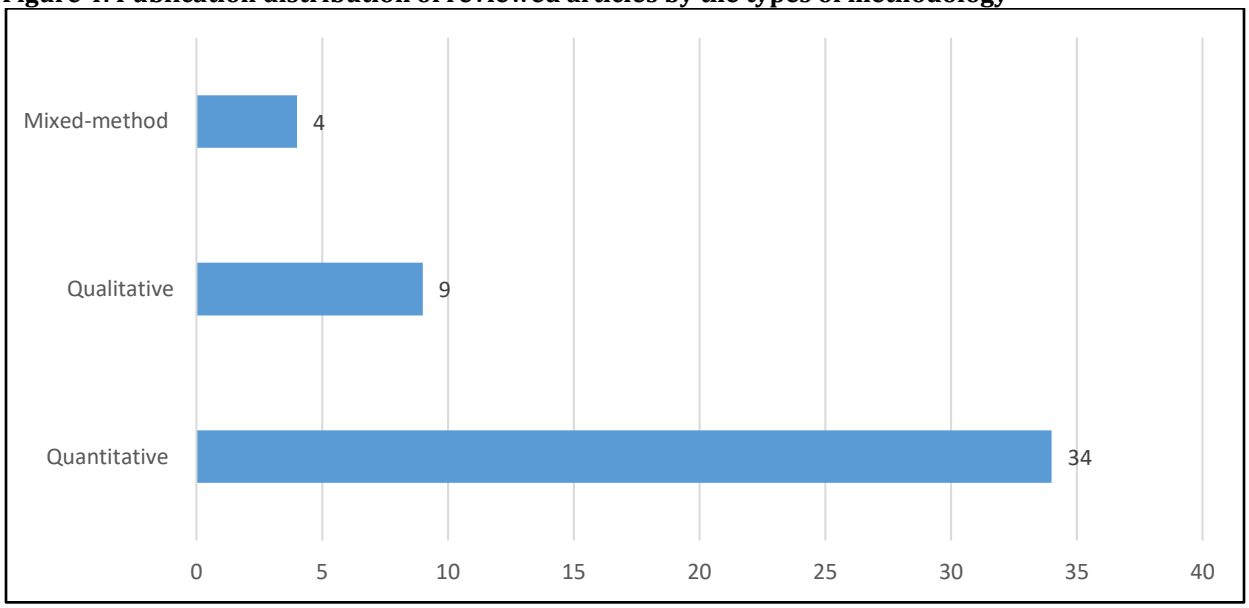
Recently, the Technology-Organization-Environment (TOE) paradigm has become the main underpinning theory in research. This theory was applied in a number of studies, including those by Giua et al. (2022), Branstad and Solem (2020), Makinde et al. (2022), and Skare and Ribeiro Soriano (2021). The information systems industry first developed the Technology Acceptance and Utilization for the TOE framework to illustrate how various factors, including the technology's features, the organizational context, and the external environment, affect new technology adoption and utilization (Ricci et al., 2021). Research on the adoption of digital technologies by Barrenho et al. (2021), Branstad and Solem (2020), Dearing and Cox (2018), and Makovhololo and Batyashe (2017) demonstrates the extensive usage of the Theory of Diffusion of Innovation (DOI) in the past 10 years. However, limited studies focused on organizational resilience. Details are presented in Figure 3.

Figure 3: Publication distribution of reviewed articles by the types of underpinning theory



The research methodology distribution in the papers that were reviewed is shown in Figure 4. About 34 and 9 of the examined papers used qualitative and quantitative techniques, respectively. Only four of the study's publications used a hybrid method. Research examining technology readiness, e-commerce uptake, top management support, and SME performance has been known to employ the quantitative technique (Jiao et al., 2022; Omrani et al., 2024; Roundy et al., 2017).

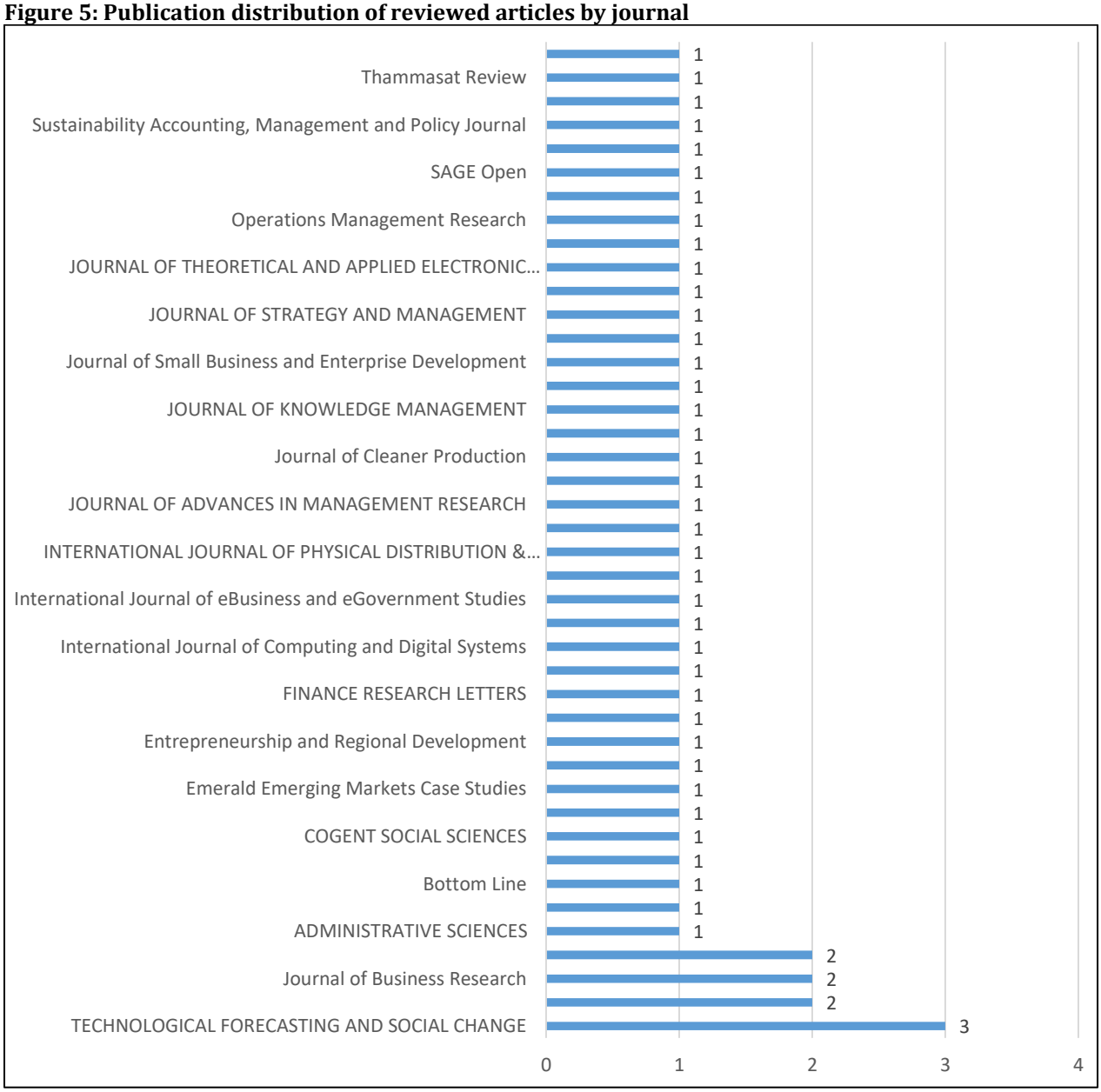
Figure 4: Publication distribution of reviewed articles by the types of methodology



The analysis of journals published on organizational resilience through digital technology adoption from 2014 to 2024 is shown in Figure 5. Based on the assessment, three publications from the Journal of Technological Forecasting and Social Change and two from the Journal of Business Research and Administrative Science indicated that the latter is a major venue for sharing research on digital adoption. Because of its specialized emphasis and established reputation in the field, the Journal of Technological Forecasting and Social Change

(JTFS) has become an essential forum for sharing research on digital adoption. JTFS gives academics a platform to disseminate their most recent studies on societal change, technology forecasting, and the uptake of new technologies. The multidisciplinary approach of the magazine facilitates the examination of several elements of digital adoption, encompassing both the technological and socio-economic dimensions. In addition, JTFS is well known for its comprehensive peer-review process, which ensures the validity and quality of the research that is published. Academics' regard for the publication contributes significantly to its status as a trustworthy platform for exchanging research on digital adoption. Branstad and Solem's 2020 study, which looked at the factors affecting SMEs' adoption of digital technology, demonstrates the significance of JTFS in this sector. Apart from contributing to the existing knowledge base on the topic, the research provided valuable insights into the opportunities and challenges associated with the use of digital technologies. Branstad and Solem (2020) made sure that a large audience of academics, policymakers, and business professionals interested in comprehending and helping SMEs implement digital technology could access their study by publishing it in JTFS.

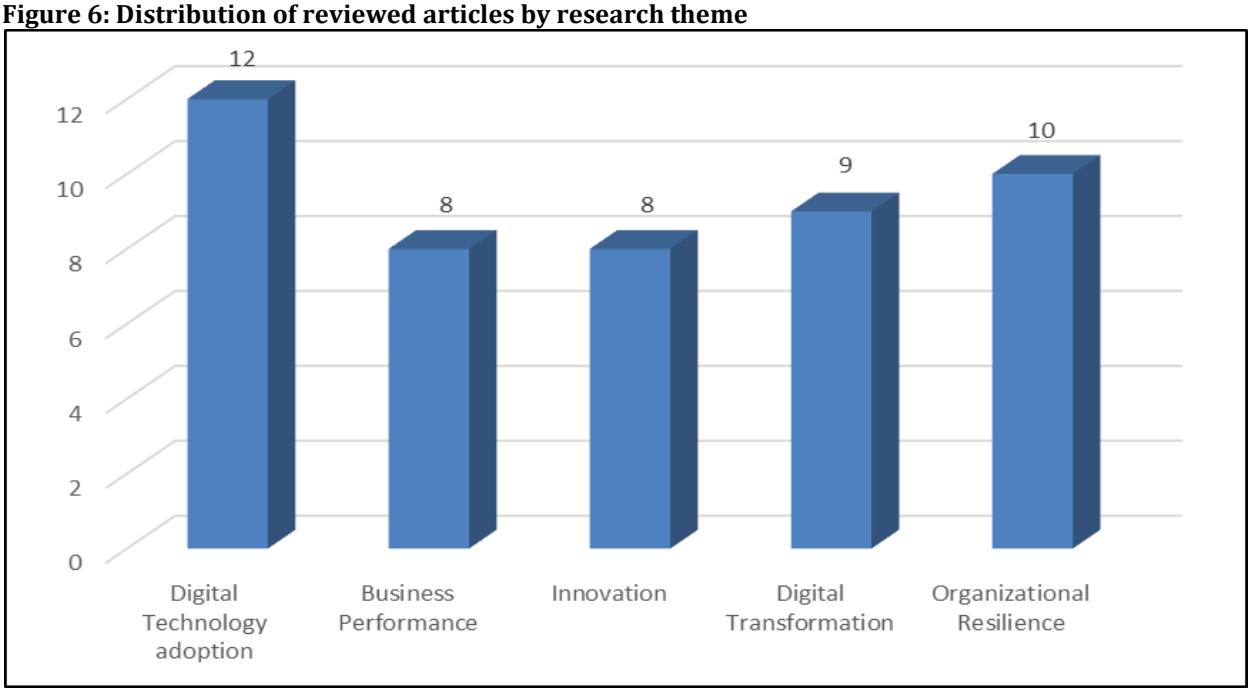
Figure 5: Publication distribution of reviewed articles by journal



Discussion of Research Themes

The primary topics arising from the studies released between 2014 and 2024 are the focus of this section. The themes derived from the completed articles were produced through the application of thematic analysis. Five primary issues emerged from the review: organizational resilience, innovation, digital transformation, business performance, and adoption of digital technology. The findings offer a thorough examination of the adaptation strategies used in organizational resilience nowadays (see Figure 6). Details of the five major themes are discussed below.

Figure 6: Distribution of reviewed articles by research theme



Digital Technology Adoption

Among the 47 studies reviewed, 12 specifically concentrated on digital technology adoption over the decade covered by the article, underscoring a strong interest in examining the dynamics, implications, and strategies involved in this area. Digital adoption refers to the process by which users, including employees and consumers, are trained to efficiently use new technologies—such as software, applications, and websites—so they can fully benefit from digital tools and solutions (Skare & Riberio Soriano, 2021). SMEs, or medium-sized enterprises, are frequently regarded as important players in both established and emerging economies. Information and communication technology (ICT) and e-commerce adoption hurdles have been studied previously in relation to organizational resilience, with a focus on industrialized nations (Makinde et al., 2022). SMEs can leverage digital technologies to modify and synchronize their business strategies.

Business Performance

Evaluating a company's performance is critical to determining if it has achieved its goals (Akbar et al., 2020) and plays a major role in investment choices (Ribau et al., 2017). Researchers frequently look at many aspects that affect the problems or success of businesses. Financial performance, operational efficiency, innovation, adaptability, and market performance are the main areas of attention when analyzing SMEs' performance. Cegarra-Navarro et al. (2016) state that although firm performance is an often-discussed subject, there isn't a single definition for it. In general, it may be seen as either the quantification of a company's operations that lead to goal accomplishment (Cegarra-Navarro et al., 2016) or as an organization's achievement measured against particular criteria (Eikelenboom & de Jong, 2019). Even after a great deal of research, performance is still viewed as a complicated, multifaceted phenomenon (Mubarak et al., 2019).

Innovation

Innovation is crucial for organizations to excel in a dynamic and competitive environment. Embracing innovation promotes growth, increases efficiency, improves customer satisfaction, and enhances overall resilience and market competitiveness (Aizstrauta et al., 2015). By emphasizing innovation, businesses can pave the way for sustained success and longevity. Existing literature highlights the substantial influence of ambidextrous innovation on organizational evolution and adaptation (Branstad & Solem, 2020). Ambidextrous innovation involves traits such as attentiveness to evolving markets, continuous learning and experimentation, and strategic realignment of resources, and capabilities during the innovation journey (Arunachalam et al., 2022).

Digital Transformation

Utilizing information, computers, networking, and communication technologies to integrate internal and external resources is a key component of an organization's digital transformation (Mergel et al., 2019). According to Verhoef et al. (2021), the purpose of this integration is to change the organization's vision, strategy, structure, capabilities, procedures, and culture to better match it with the rapidly evolving digital environment. Scholars have examined in considerable depth the connection between effective organizations and digital technologies. The development of business models (Ebert & Duarte, 2018) and the effect of technical improvements on organizational vulnerability (Verhoef et al., 2021) are often the two primary grounds of dispute when addressing digital transformation. Porfírio et al. (2021) state that experts support the adoption of digital transformation approaches to assist organizations in achieving long-term, sustainable goals by understanding the relationship between digital transformation and the external environment.

Organizational Resilience

However, organizational resilience was the subject of ten of the 47 studies that were examined overall. Organizational resilience is the capacity of an organization to endure significant disruptions in operations caused by unforeseen or catastrophic events. According to this skill, the company can continue functioning outside of its set bounds without suffering significant losses (Herbane, 2019). The idea investigates how companies respond to external risks including natural disasters, diseases like the COVID-19 pandemic, and downturns in the industry or economy (Akpan et al., 2022). The value of organizational resilience in a setting that is uncertain and changing quickly has received a lot of attention lately (Annarelli et al., 2020). Specifically, service organizations need this resilience to be sustainable since they are more likely to be affected by sudden changes in the external environment (Akpan et al., 2022). Consequently, organizational resilience has become an essential element for service-oriented businesses in the current unpredictable economic landscape.

5. Conclusion and Future Research Agenda

To better understand organizational resilience and digital technology uptake among SMEs, this research has thoroughly evaluated the corpus of existing literature. In today's fast-paced and cutthroat business world, understanding organizational resilience is becoming more and more important for a company's survival and growth. 47 pertinent articles have been found after a comprehensive investigation of two databases. The five primary research topics that emerged from the use of the theme analysis approach are innovation, business performance, organizational resilience, digital transformation, and adoption of digital technology.

According to Miranda et al. (2016), the adoption of new technology is often driven by the objective of "altering the organization's current state to pursue enhancements" to provide a product or service that fulfills consumer satisfaction. This is often done in an attempt to promote innovation. Process reorganization is a tactic that businesses are using increasingly frequently to enhance internal resources and achieve cost-cutting goals so they can maintain their competitiveness in the market. However, resilience is seen as a complex idea that deals with how a group of people and an organization react to uncertainty (Do et al., 2022). Most studies on resilience are based on two main viewpoints: (1) emphasizing fixed human qualities and skills, and (2) emphasizing a process marked by ongoing little improvements (He et al., 2022). As per Do et al. (2022), the initial perspective focuses on the present and defines resilience as the capacity to promptly return to pre-crisis performance levels following an unforeseen disaster. Personal qualities have an impact on this skill. According to the second point of view, organizations continuously evolve and become more capable of managing difficult situations by accumulating experiences and the knowledge that comes from those experiences.

Research on other topics including innovation, corporate performance, and digital transformation has been less focused in the last 10 years. Regarding digital transformation, Priyono et al. (2020) proposed that contextual variables might impact the degree to which SMEs adopt digital transformation. Three distinct paths were delineated by them: small and medium-sized enterprises (SMEs) possessing advanced digital capabilities expedite their shift towards fully digitalized operations; those confronting liquidity constraints but lacking digital maturity digitize solely their sales function; and SMEs with limited digital skills but robust social capital support opt for a different path. To boost business performance, Harini et al. (2023) stressed the need to foster entrepreneurial skills and e-commerce adoption for SMEs. They argued that leveraging e-commerce in operational and marketing domains can lead to enhanced SME performance. Lastly, in the realm of innovation, Zhang et al. 2021) underscored its significant impact on organizational growth and adaptation. Meanwhile, Arunachalam et al. (2022) highlighted innovation as attributes of essential elements, such as market responsiveness, continuous learning, and resource reconfiguration, in the innovation process.

While the significance of enhancing organizational resilience through the use of digital technology by SMEs is becoming more widely recognized, several study topics still require further attention. The body of research suggests that 34 papers are primarily quantitative, with 9 qualitative investigations and 4 using a mixed-method approach. Consequently, it is advised that more focus be placed on qualitative or mixed-method approaches in future research. It is necessary to go deeper into case studies and use other inductive or interpretive methodologies to comprehend how and why the adoption of digital technology might strengthen organizational resilience. A deeper investigation of organizational resilience can be accomplished using qualitative designs, which will produce new insights.

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