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INTRODUCTION IN THE FORMS OF DIGITALIZATION IN COMPANIES

Mihaela GLENCORA PETRIȚA
Doctoral School of Economic Sciences, Faculty Economic Sciences, University of Oradea, Oradea, Romania
glencora82@yahoo.com

Abstract: *Digitalization has become a central theme in both academic and professional domains, driven by rapid technological advancements and the growing demand for systematic transformation. This study conducts a comprehensive literature-based analysis to identify the main forms, trends and conceptual developments associated with digitalization in companies. The findings reveal an increasing scholarly focus on topics such as digital transformation, artificial intelligence, Industry 4.0 and e-governance. Additionally, results point to a diversification of digital applications across sectors including education, healthcare, public administration and agriculture. By offering a structured and critical overview of the literature, this study enhances the understanding of the multidimensional scope of digitalization and outlines future research directions.*

Keywords: *digitalization; digital transformation; platform economy; business model; digital strategy; analysis*.

JEL classification: *M15, M21*

1.Introduction

In recent years, digitalization has become a central focus of academic inquiry and business innovation, impacting key areas such as education, public administration, healthcare, and corporate strategy. While numerous studies have explored the implications of digitalization from sector – specific perspectives such as its effects on higher education (Diaz – Garcia et al, 2022), or on public sector efficiency (Cazan, 2022), there remains a need for a synthesized view that captures the multifaceted nature of digital transformation within companies.
Digital tools are increasingly facilitating collaboration between students, educators and institutions, with online learning platforms and digital communication tools enhancing interaction and knowledge. In the educational sector, digitalization not only transforms teaching methodologies but also broadens access to learning, equipping students with competencies for a digitally – driven world.
In the healthcare domain, digitalization enables remote consultation, overcoming geographic constraints and offering critical solutions during emergencies such as the COVID – 19 pandemics. These developments have significantly improved the accessibility, efficiency and overall quality of medical services. From digitized administrative records to telemedicine platforms, the digital shift in healthcare is reshaping both patient experiences and health system management.
Despite these advancements, the literature remains fragmented and often lacks a clear theoretical integration. Therefore, this study aims to analyze and synthesize key

academic contributions, identify trends and conceptual shifts and provide a foundation for future research on digitalization in business contexts.

2. Research Methodology

The study adopts a systematic literature review methodology in order to investigate the evolving forms and conceptual developments of digitalization in companies. The research focuses on academic literature up to 2024, indexed in the Web of Science Core Collection, with the goal of mapping key trends, thematic areas and analytical perspectives.

2.1. Objectives of the study
The primary objectives of this research are as follows: to identify and categorize the main forms and dimensions of digitalization in business contexts; to synthesize conceptual trends and theoretical perspectives related to digital transformation; outline emerging directions for future academic inquiry and practical application.

2.2. Literature selection and search strategy
The search strategy was conducted in the Web of Science database using a combination of keywords, including: digitalization, digital transformation, digital business models, platform economy, artificial intelligence in business. The following inclusion criteria were applied: peer – reviewed journal articles published in English; publication focusing on company – level or sectoral implementations of digitalization; studies with theoretical, empirical or conceptual relevance to the business environment.

3.Digitalization of Business in International Companies

The digital transformation of companies is not merely about adopting new technologies; it is a strategic process that involves the continuous improvement of business operation, the standardization of processes and the integration of digital tools across both internal and external business networks. Companies undergoing digital transformation are fundamentally rethinking their business models to improve efficiency and enhance their value propositions for consumers.
As noted by Barmuta et al. (2020), a critical aspect of digital transformation is the acquisition of human resources who possess the necessary skills and knowledge to operate in a digitalized environment. This includes not only technological expertise but also the agility to implement digital solutions across various business functions. Transforming business operations requires regular evaluation of customer satisfaction and feedback to ensure that digital solutions meet consumer demands effectively.
According to Treyak et al. (2021), international companies are distancing themselves from traditional paper – based technologies in favor of integrated digital systems that streamline business management. The creation of large – scale databases enable the simplification of managerial processes, allowing for more efficient decision-making. These companies are actively engaged in adapting and consolidating operating programs to create comprehensive digital ecosystems. The product of this digitization is not only software but also the integration of these tools within the company's core business processes, leading to increased operational efficiency and customer

satisfaction. Digitalization can be assessed through three main directions: *digital transformation*: the complete overhaul of traditional business models into digital platforms, *emergence of new IT services*: developing digital tools and services that enhance existing business models, *digital automation*: digitizing traditional business processes to improve efficiency.
Tretyak et al. (2021) proposed a visual model for monitoring and assessing digitalization processes within companies, which aids in understanding how businesses can strategically manage their digital transformation. Figure 1 below represents the digitalization monitoring framework.

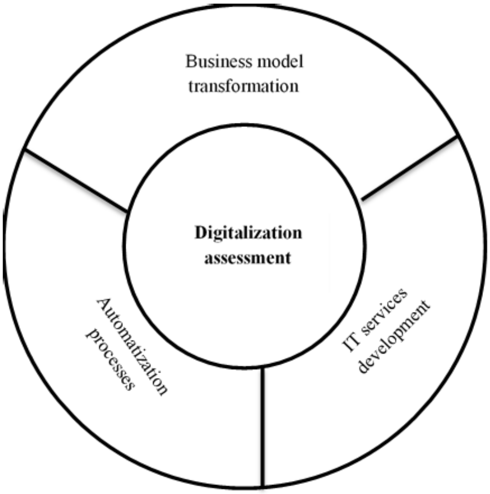

Figure 1. Digitalization monitoring and assessment in companies
Source: Tretyak1 et al. (2021)

The digital transformation process extends beyond the traditional realm of IT infrastructure; it necessitates a profound change in organizational strategies, business processes, innovation mechanisms and governance structures. This shift has led to the development of new ways to organize firms' value chains and inter-organizational relationships, increasingly situated within digital ecosystems and markets. As Cennamo et al. (2020) argue the „scope of transformation" refers to the depth of changes brought about by digitalization in the organizational framework, while „ ways of co-generation and delivery of value" focuses on how firms create and deliver value collaboratively within digital ecosystems.
To remain competitive, firms must also navigate the transition from traditional pipeline-based business models to platform-based models. Van Alstyne et al. (2016) emphasize that success in the platform economy requires managing networks and creating dynamic ecosystems that foster collaboration and value exchange.
Furthermore, digital platforms are increasingly driving customer entrepreneurship an emerging form of innovation that enables consumers to actively participate in the creation of value. This model, as discussed by Park et al. (2020), presents new opportunities and challenges for traditional firms, particularly in terms of relationship management and the development of sustainable business ecosystems.

Klimanov & Tretyak (2019) advocate for a **systemic and relational view** of business models, highlighting networks as crucial sources of value, innovation, and competitive advantage. Instead of focusing solely on internal operations, this model examines **how firms interact with others** to co-create and deliver value. This perspective is essential for understanding businesses in the digital age and the platform economy.
Supply chain survivability during crises requires: fast and flexible operations, investment in digital infrastructure, strong collaboration and diversified sourcing. COVID -19 accelerated the move toward resilient, digital, and decentralized supply chain models. Future readiness depends on strategic thinking paired with operational agility (Sharma et al, 2020).

4. Forms of digitalization in companies

Digital platforms have emerged as one of the most significant innovations in business models over the past two decades. A digital platform is an organization that primarily creates value by enabling direct interactions between two or more types of affiliated clients, Tretyak et al. (2021). These platforms facilitate interactions, create new business opportunities, and provide efficient scalable solutions to meet the diverse needs of users.
Leonardi (2020) suggests that digital transformation involves six interconnected phases crucial for its success: leadership commitment, technology utilization, employee adoption, data - driven behavior change, local performance enhancement, alignment with corporate goals.
At the core of this transformation process lies business model (BM), which serves as the bridge between business processes and strategic planning. Rachinger et al. (2018) refer the business logic triangle, where business processes are situated at the bottom, while strategic planning is positioned at the top. The architectural level, represented by the BM, defines how value is created and captured by offering specific value propositions to customers (Teece, 2018). This model is essential for understanding how businesses navigate their digital transformation.
Linde et al, (2021), outline a three-phase evaluation framework that companies can use to assess digital business model opportunities before final commercialization: assessing the value, managing risks, financial modeling.
The structured approach enables companies to navigate the complexities of adopting digital business models while managing risk and ensuring that these models align with their broader strategic goals.
One of the primary drivers of digitalization is Artificial Intelligence (AI). AI is revolutionizing industries by automating processes enhancing productivity and complementing human capabilities. Its application span across sectors, significantly altering business operations. AI’s impact is particularly evident in sectors such as finance, healthcare and manufacturing where AI tools are utilized for predictive analytics decision - making and process optimization Krapa et al. (2024). Figure 2 illustrates a framework for evaluating digital business model opportunities.

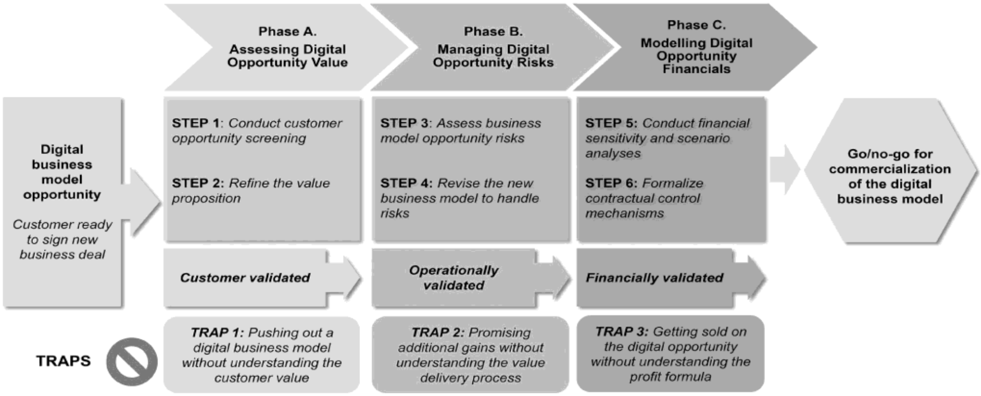

Figure 2. A framework to evaluate digital business model opportunities
*Souce:*Linde et al. (2021), *Evaluation of Digital Business Model Opportunities*

In the financial service sector, the development of digital technologies has paved the way for financial technology (fintech), a new wave of innovation. Fintech offers faster more efficient processes and lower costs than traditional banking services. It encompasses a wide range of activities, including payment transactions, fundraising, insurance services and investment management, (Nizar, 2017). The rise of fintech has disrupted traditional banking systems and introduced new business models that leverage technology to meet consumer needs more effectively.
The digital transformation of a company is based on the continuous improvement of business processes, standardization, internal and external integration using digital technologies. In the course of the transformation, companies offer consumers new products and services, consumers participate in the design, testing, production and distribution of new products, which requires a regular evaluation of customer satisfaction. In addition, any company striving for transformation needs appropriate human resources with the knowledge and skills to work effectively in the digital environment and able to quickly implement digital projects (Parviainen et al. 2017).
Moreover, AI applications in finance are being used for predictive analytics, such as forecasting decision - making, bankruptcy prediction, credit rating, fraud detection systems, such as expert systems, are widely used in the financial sector to identify and mitigate fraudulent activities. Figure 3 below demonstrates the application of AI in finance and its significant role in transforming business operations within the financial sector.

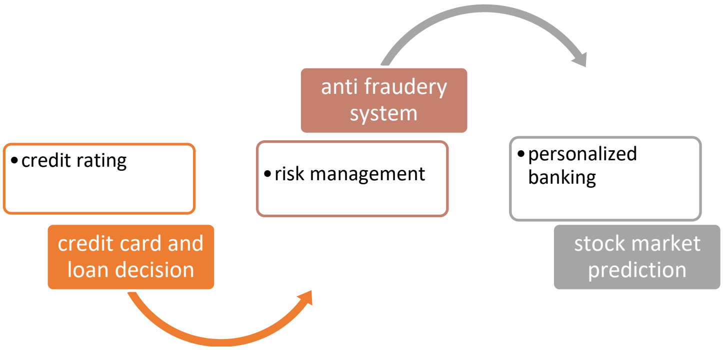

Figure 3. Artificial Intelligence in Finance
Source: Deepa. B et al. (2022), *Imperative Role of Integrating Digitalization in the Firm's Finance: A Technological Perspective*

5.Conclusion

Digitalization is perceived differently in the academic environment depending on the cultural context, technological infrastructure and the openness of institutions toward innovation. The study identified several key directions that reflect both positive perceptions and criticisms regarding the implementation of digitalization especially in education and healthcare.Positive perception: increased accessibility, flexibility, administrative efficiency, innovation in teaching.
Digitalization allows access to educational and informational resources from anywhere in the world, reducing geographical barriers and facilitating knowledge exchange. The learning process becomes more adaptable to individual student needs offering a more personalized education. Reducing bureaucracy and improving administrative efficiency are key positive aspects of digitalization in education and other sectors such as public administration. Digitalization enhances the educational experience by implementing new tools and platforms that facilitate interaction and collaboration between teachers and students.
In conclusion, digitalization represents a significant opportunity for improvement in various sectors such as education healthcare and public administration, but its implementation requires a careful approach that considers both the potential benefits and associated challenges. It is essential to understand the diversified impact of digitalization and develop strategies tailored to maximize its advantages and minimize its disadvantages. Furthermore, a balance must be struck between innovation and the protection of fundamental values such as equity, diversity and autonomy.

6.Limitations and Further Research

The limitations of this research stem primarily from the non-exhaustive nature of the existing specialized literature. Furthermore, the article addresses the forms of digitalization in a broad and generalized manner, without offering an in-depth analysis of how digital implementation varies according to company size, geographical location, or industry sector. Future research would benefit from the inclusion of qualitative case studies to explore, in greater detail, how organizations adopt and adapt digital strategies in practice.

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