Digital Transformation and Organizational Change: A Literature Based Framework

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Abstract

Digital transformation is changing the way organizations are structured and operate, but many of its impacts remain unclear. In this article, we break digital transformation into three key components: digitization and full-scale transformation. We then present an integrated framework that addresses not only technological changes, but also shifts in organizational structure and culture. By reviewing literature from 2018 to 2024 and examining real-world examples, from the successes of companies like Amazon and GE to the struggles seen in cases like Blockbuster and Nokia, we show that digital transformation can lead to flatter hierarchies and more agile, data-driven decision-making processes. However, challenges remain, such as cultural resistance and the difficulties of integrating legacy systems. Our findings show that successful transformation requires careful alignment of technology, culture and strategy. Moreover, we propose a diagnostic tool designed to assess an organization's digital maturity and emphasize that digital transformation is not a one-time event but a continuous strategic journey aimed at maintaining competitive advantage in a rapidly evolving digital environment.

Key words: Digital transformation, digital organization, technology adoption, business model innovation, strategic management

Anotacija

Skaitmeninė transformacija keičia organizacijų struktūrą ir veikimo būdus, tačiau daugelis jos poveikių išlieka neaiškūs. Šiame straipsnyje skaitmeninę transformaciją suskaidome į tris pagrindinius komponentus: skaitmenizavimą ir visapusišką transformaciją. Toliau pateikiame integruotą sistemą, kuri apima ne tik technologinius pokyčius, bet ir organizacinės struktūros bei kultūros poslinkius. Apžvelgdami literatūrą nuo 2018 iki 2024 metų ir nagrinėdami realaus pasaulio pavyzdžius – nuo tokių įmonių kaip „Amazon" ir „GE" sėkmės istorijų iki tokių atvejų kaip „Blockbuster" ir „Nokia" patirtų sunkumų – parodome, kad skaitmeninė transformacija gali lemti plokštesnes hierarchijas ir lankstesnius, duomenimis grįstus sprendimų priėmimo procesus. Vis dėlto išlieka tokių iššūkių kaip kultūrinis pasipriešinimas ir sunkumai integruojant esamas sistemas. Mūsų tyrimai rodo, kad sėkminga transformacija reikalauja kruopštaus technologijų, kultūros ir strategijos suderinimo. Be to, siūlome diagnostinį įrankį, skirtą organizacijos skaitmeninei brandai įvertinti, ir pabrėžiame, kad skaitmeninė transformacija nėra vienkartinis įvykis, o nuolatinė strateginė kelionė, kurios tikslas – išlaikyti konkurencinį pranašumą sparčiai besikeičiančioje skaitmeninėje aplinkoje.

Reikšminiai žodžiai: skaitmeninė transformacija, skaitmeninė organizacija, technologijų įsisavinimas, verslo modelio inovacijos, strateginis valdymas.

Introduction

The advent of digital technologies has started a new era that is forcing organizations of all sizes and sectors to embark on transformational journeys - collectively referred to as 'organizational digital transformation' - that go beyond simple technological adaptation. Instead, they represent a profound shift in the way businesses operate, engage with customers and stay relevant in a digitally-driven world (Volberda et al., 2021).

The adoption of digital technologies affects almost all areas of modern business, including production, organizational hierarchies and relationships with partners, suppliers and customers. These developments enable businesses to achieve greater flexibility and efficiency, optimize production processes, create value propositions for innovation ecosystems and respond to market needs in a timely manner (Plekhanov et al., 2023).

Over the last decade, the business infrastructure has undergone a digital transformation through increased connectivity between products, processes and services. With the widespread

adoption of computer technology and the global adoption of the internet in the 1990s, information technology (IT)-enabled business transformations started to gain importance. Digital technologies have radically transformed the business strategies, processes, capabilities, products and services of many businesses in different sectors and industries. In addition, these technologies have fundamentally reshaped traditional business strategies by transforming them into a modular, distributed and global structure by moving business processes beyond the boundaries of time, distance and function (Vial, 2019). With the expanding scope and driving force of IT systems, digital transformation research has spread to many disciplines such as business, management and economics. Today, digital transformation has become an interdisciplinary research area with contributions from entrepreneurship, strategic management, operations management, marketing and organizational science as well as IT (Plekhanov et al., 2023).

According to the literature, digital transformation is a multidimensional phenomenon involving a wide range of stakeholders such as organizations, consumers, digital platforms, technological stakeholders and government agencies. For example, Nambisan et al. (2019) and Paul et al. (2024) stated that the issue of digital transformation should be addressed with a multi-disciplinary and multi-stakeholder approach. Henderikx & Stoffers (2022) conducted a systematic literature review to clarify the definition and dimensions of digital transformation and conducted an exploratory qualitative study to better understand the risks and impacts of the concept. Gebayew et al. (2018) reviewed studies on digital transformation in literature and emphasized that organizations need to change their business plans or policies to a new digital business model to achieve their goals.

The term digital transformation has been widely used to describe the adoption of digital technologies and the replacement of non-digital processes with digital ones. This has led to changes across the organization as well as the emergence of new business models (Vial, 2019).

Although many studies have examined digital transformation from the perspectives of technology adoption and business model innovation, a key issue remains largely overlooked: the dynamic relationship between digitalization and organizational structure. Many previous works tend to focus on digital transformation as a technical or strategic challenge, but they often neglect how this process fundamentally reshapes an organization's design and cultural fabric. This oversight is critical because if organizations do not adjust their structures and cultural paradigms accordingly, they may miss out on fully capitalizing on digital innovation.

To address this gap, our study puts forward a comprehensive framework that brings together the definitions, stages, activities, and outcomes of digital transformation. We conducted a systematic review of literature from 2018 to 2024 and analyzed a range of real-world cases—from the digital successes of companies like Amazon and GE to the challenges faced by Blockbuster and Nokia. Our goal is to illustrate how digital transformation can lead to flatter hierarchies, more agile decision-making, and significant shifts in organizational culture.

Beyond the internal mechanisms of change, our research also considers broader implications across business, entrepreneurship, and strategic management. By including examples of both successful and unsuccessful digital initiatives, our framework offers practical insights into what drives success while also drawing attention to common challenges, such as cultural resistance and difficulties integrating legacy systems. Additionally, our study outlines a roadmap for future research, emphasizing emerging issues like ethical considerations and the social impacts of technological advances, thereby providing a balanced view of the opportunities and obstacles presented by digital transformation.

Materials and Method

The complexity of the implementation of digital technologies and their impact on various aspects of social life is not yet fully understood. The aim of this paper is to better grasp this

complexity at different levels of analysis, to develop a research agenda that can guide academics and practitioners, and to provide an in-depth understanding of the following questions.

- What are the concepts and characteristics of digital transformation?
- What is the impact of digital transformation on businesses?

In order to answer the research questions, the article first explains why digital transformation is needed. Based on different definitions in literature, the concept is tried to be explained within a general framework. As a research method, systematic review is used. First, sources in national and international literature, especially in the last six years, were collected. The scope of the study was determined by using Google Scholar database. In the advanced search section of the database, the key words 'digital transformation', 'businesses', 'entrepreneurship', 'digitalization', 'digital business' and 'innovation adoption' were used and the search was limited to sources published between 2018-2024. Second, these findings were analyzed and finally, they were synthesized. The past six years were selected as the basis of the study because theoretical models from early digital transition research (e.g., Vial, 2019; Verhoef et al., 2021) provide a more structured understanding of digital transition than earlier fragmented perspectives. Older studies often lacked empirical validation or relied on outdated case studies that do not reflect current industry realities. Modern literature integrates cross-disciplinary insights from business, economics, and digital innovation.

The rest of the paper is organized as follows: digital transformation is explained in the next section. Corporate organizational model is discussed in the third section. Afterwards, approaches used in digital transformation and digital transformation tools are stated. Subsequently, challenges in digital transformation and advantages of digital transformation are clarified. Next, the impact of digital transformation on organizations and successful and unsuccessful digital transformation practices are identified. Finally, conclusions are mentioned.

Digital Transformation

Digital transformation is addressed with various definitions in literature and covers a wide variety of concepts and dimensions.

Today, digital transformation is a very current and popular concept in academia and business. In the era of the fourth industrial revolution, almost every sector such as business, education, banking, government and manufacturing is undergoing digital transformation. For this reason, the elements of digital transformation, its drivers, barriers, ways to create value and other related issues have been frequently discussed in academic circles for the last 20-25 years (Verina & Titko, 2019).

In a broad sense, digital transformation involves the adoption of advanced digital technologies that transform such services or a business. Moreover, it mainly encompasses disruptive technology for better productivity with value creation and enhancing societal welfare (Schilirò, 2024a).

Kraus et al. (2022) argued that digital transformation can be defined as the integration of digital technology into all aspects and operations of an organization, leading to infrastructural changes in how the organization is run and how it delivers value to its customers.

Saldanha (2019) stated that digital transformation can also be referred to as 'digital transformation 2.0' and that it utilizes new technologies such as Artificial Intelligence, Machine Learning and the Internet of Things to create innovative business models, streamline operations and gain valuable insights from data. In this context, current digital transformation is directly related to the Fourth Industrial Revolution. Digital transformation 2.0 represents a more comprehensive approach that makes technology an integral part of an organization's strategy and culture, rather than merely a tool to achieve specific goals.

The definitions in Table 1 provide an important basis for addressing the scope and application areas of digital transformation in a broad perspective. Each definition emphasizes different aspects of digital transformation, revealing the wide-ranging effects of this process, ranging from strategic management to operational processes of enterprises.

Table 1: *Digital Transformation Definitions*

Authors	Definitions
(Hess et al., 2016)	Digital transformation refers to the transformation of an enterprise's product, process, business model and organizational structure using digital technologies.
(Nasiri et al., 2020)	Digital transformation is a tool used to transform business processes, culture and organizational elements to adapt to the changing market requirements presented by digital technologies.
(Verhoef et al., 2021)	Digital transformation is a process in which digital technologies are used to analyze and transform collected data into usable information for evaluation, decision-making, development of new digital business models, contributing to the value creation of businesses, increasing performance and impact.
(Brosnan et al., 2023)	Digital transformation is a mechanism that enables an organization to renew its business model, operating model and all aspects of its value chain using technology and digital resources.
(Parviainen et al., 2022; Sinap, 2024)	Digital transformation is defined as the changes in ways of working, roles and business offerings that result from the adoption of digital technologies in an organization or its operational environment.
(Heavin & Power, 2018)	Although digital transformation brings challenges, current research shows that this digital phenomenon presents a significant opportunity for organizations to innovate and redefine the way they do business. Digital transformation is considered from two main perspectives: the technology and the customer or user perspective.

Digital transformation is a comprehensive strategic change process in which businesses and organizations redesign their products, processes, business models and organizational structures using the opportunities offered by digital technologies; adapt to changing market dynamics and customer expectations; develop data-driven decision-making capabilities and aim to create sustainable value. This process involves not only the adoption of technological innovations, but also the promotion of fundamental changes at cultural, organizational and operational levels.

Traditional Corporate Organizational Structure Model

Traditional organizational structures adopt hierarchical structures operating with a top-down chain of command and a clear division of labor. In such structures, management is usually pyramidal, with the board of directors and CEO at the top, followed by middle managers and field staff. Authorization and responsibilities at each level are clearly defined, ensuring that decisions and orders are communicated in a sequential and precise manner. The functional division of labor is clearly structured, with the finance department responsible for financial management, the marketing department for marketing activities, and the technical department for product research and development. This structure allows departments to focus on their core functions and ensures an organized working order (Schilirò, 2024b). Due to a clear functional division of labor, the responsibilities of each department are professionally defined. For example, the finance department is responsible for financial management, the marketing department for marketing and the technical department for product research and development. This clear division of labor allows each department to focus on its core functions. Standardized workflows, with their fixed and easily manageable structure, allow businesses to effectively audit each process, reduce uncertainty, increase predictability and provide control.

Since the decision-making process is slow and power is often concentrated in senior managers, many important decisions need to be approved at various levels. This complicates the decision-making process, making it difficult for businesses to respond quickly to market changes. In rapidly changing business environments, this slow mechanism often results in missed opportunities. Furthermore, the rigid nature of standardized workflows can stifle innovative initiatives. Therefore,

businesses need to not only focus on existing processes but also take strategic steps to increase their organizational flexibility in order to improve their innovation and change capabilities (Kidschun et al., 2019).

Lack of incentives for innovation, rigid structures and standardized work processes greatly limit the creativity of employees. In such a work environment, employees can often only fulfil their duties in accordance with established procedures and find no room for innovative thinking or creative approaches. This rigidity stifles the innovative potential of employees, limiting the ability of enterprises to foster innovation-oriented growth and development.

Approaches Used in Digital Transformation

Digital transformation includes various approaches and methods for businesses to transform through technological and organizational innovations. In digital transformation processes, it is important for organizations to determine their strategic goals, plan technological investments and restructure their business models. In Schiliro's study, it is emphasized that digital transformation is a strategic process that reshapes not only technology, but also business processes and organizational structure (Schilirò, 2024b).

Digital maturity models are used to assess the current digital competencies of organizations and their stages in transformation processes. In Talafidaryani's study, it is stated that these assessments help organizations to identify their strengths and weaknesses in their digitalization journey (Talafidaryani, 2023).

Automating repetitive business processes with software robots is an effective method to increase the operational efficiency of enterprises. In Fidan's study, it is stated that RPA reduces costs and reduces error rates by accelerating business processes (Fidan, 2024).

Digital transformation enables more flexible and network-based structures to replace traditional hierarchical structures. In Li and Gong's study, it is stated that these changes in organizational structures improve team collaboration and decision-making processes (Li et al., 2024).

Change management models are used to deal with employee adaptation and cultural resistance in the digital transformation process. In Schiliro's study, it is emphasized that change management is key to success in the transformation process (Schilirò, 2024b).

These approaches and methods help to manage the digital transformation process effectively and increase the competitive advantage of businesses. Each method can be tailored to the strategic goals and needs of the organization.

Digital Transformation Tools

A range of tools and technologies are available to support and implement digital transformation.

Big Data and Data Analytics*:* Big data analytics is used to extract meaningful information from large data sets. This helps businesses understand customer behavior, improve business processes and make data-driven decisions.

IoT (Internet of Things): IoT enables physical objects to connect and share data over the internet. Using this data, businesses can improve their products and services, predict maintenance, and provide better customer experience.

Digital Workflows and Business Process Management (BPM): Digital workflows are used to automate and manage business processes. This is useful for increasing operational efficiency and reducing errors.

Mobile Apps: Mobile applications provide easy access to customers and employees and make services more accessible. It can also be used for data collection and analysis.

Virtual and Augmented Reality: Virtual reality (VR) and augmented reality (AR) can be used in many areas such as education, product development and marketing.

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Cloud Computing: Cloud computing provides businesses with a range of services that deliver and store data and applications online. This makes business processes more flexible and efficient.

Blockchain Technology: Blockchain is a technology for storing data and recording transactions in a secure and transparent way. It is mainly used for financial transactions and supply chain management.

Managers of businesses believe that digital transformation is primarily "tech-driven," giving new technology ideas like big data (BD), artificial intelligence (AI), the internet of things (IoT), cloud computing (CC), social networks (SNs), blockchain, and others undue attention. The more fundamentally significant role of digital transformation's "processual" nature is overlooked by this "tech-oriented" viewpoint, which calls for a more extensive and profound "transformational" effort on the business model, competitiveness, human capital, structure, strategy, and human talent (Leao and da Silva, 2021). In an attempt to respond appropriately to digital transformation's challenges, many businesses continue to adopt a "me-too" strategy model, which allocates internal resources and capabilities poorly around technological "hypes and hopes" and adopts new technological concepts as a trend rather than as a true business imperative, all the while expecting positive outcomes (Leao and da Silva, 2021).

Challenges in Digital Transformation

Although most businesses understand the need for digitalization, they face various obstacles that prevent them from initiating or fully benefiting from this transformation. While the digitalization process involves three main phases such as initiating, implementing and coordinating the transformation, businesses have to deal with different challenges in each of these phases (McAffee et al., 2011).

Employees may feel that new technologies threaten their job roles and responsibilities, which can make change management difficult. In addition, manufacturing companies are used to existing legacy business models and systems, making it difficult to transition to innovative and digitally orientated models.

Digital transformation processes often require large investments and companies may struggle in this transformation journey due to budget constraints. For technology integration, it is not enough just to purchase tools; it is also critical to increase the knowledge and skills of employees to use these tools efficiently (Albukhitan, 2020).

The inflexibility of company structures is another barrier to digital transformation. The industrial internet and new technologies may require the restructuring of existing organizational structures and these processes may sometimes encounter resistance (Sigurjonsson et al., 2024).

Deficiencies in data management can negatively affect decision-making processes by making it difficult to process data effectively and securely. The incompatibility of legacy systems and infrastructures with new technologies is another important factor that makes transformation difficult (Sigurjonsson et al., 2024).

All these challenges require strategic planning, strong leadership, collaboration and cultural change to ensure that digital transformation is realized in a sustainable manner. For successful digital transformation, strong leadership, effective strategic planning and a culture that encourages employees to participate in change are critical.

Advantages of Digital Transformation

Digital technologies are not only limited to technical developments, but also fundamentally change the way businesses operate. Digital transformation is effective in many areas, from increasing operational efficiency to innovations, from improving customer experience to providing competitive advantage. This process represents a complete restructuring of modern business practices, going beyond just using technology as a tool. Digital transformation plays a multidimensional and transformative role in the success of businesses.

Improved operational efficiency is one of the hallmarks of digital transformation. This transformation acts as a driving force by accelerating processes, eliminating barriers and optimizing workflows. Through automation, data analytics and the effective use of digital tools, organizations can achieve significant improvements in every aspect of their business processes, greatly increasing their efficiency while reducing operational costs (Minchin, 2021).

Digital transformation meets the growing expectations of today's consumers by delivering enhanced customer experiences. Customers of the digital age expect more personalized, seamless and fast interactions. Through data-driven insights, organizations can significantly increase customer satisfaction and loyalty by providing tailored experiences, user-friendly interfaces and timely responses (Ellitan, 2020).

It serves as a platform for innovation and competitive advantage. It encourages creativity and supports experimentation within organizations. Companies that adopt digital technologies have the opportunity to develop new products, services and business models. By adapting to market dynamics quickly and flexibly, they gain competitive advantage and become leaders in their sectors (Minchin, 2021).

The Impact of Digital Transformation on Organizations

In recent years, research on the impact of digital transformation on business organizational structure has increased. Researchers generally agree that digital transformation leads to significant changes in the business organizational structure (Zhao et al., 2024). The application of digital technologies makes knowledge transfer faster and more direct and reduces the need for intermediate levels of management, which leads to a flattening of the organizational structure. The use of digital tools promotes interdepartmental collaboration, eliminates traditional functional barriers and creates a more flexible model of team cooperation. Digital technology makes decision-making more data-driven, increasing accuracy and efficiency. Through digital tools and platforms, businesses can coordinate and manage internal workflows more efficiently, thus improving overall operational efficiency (Li et al., 2024).

In the area of enterprise digital transformation, there are several key factors shaping the journey, each with its own challenges and impacts as shown in Figure 1.
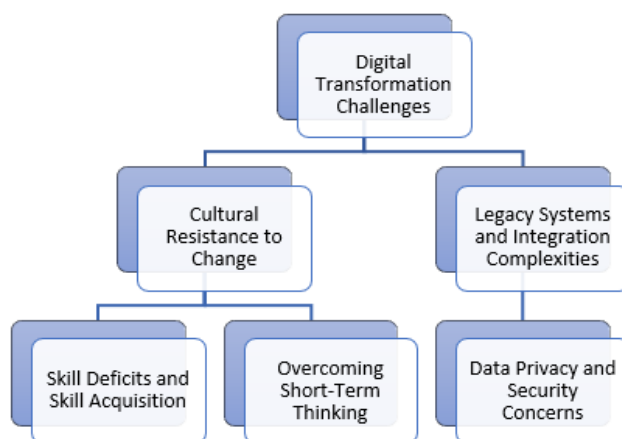

Figure 1. Organizational digital transformation challenges

First and foremost, cultural resistance is a major obstacle in the digital transformation process. The shift from traditional practices to a digitally oriented mindset requires a fundamental change in employee attitudes, behaviors and approaches. However, many organizations struggle with resistance to change, fear of technology and the lure of entrenched habits. This can seriously hamper the smooth adoption and implementation of digital initiatives (Hai et al., 2021).

Another complex aspect of this area is legacy systems and integration challenges. Many organizations have to contend with the presence of legacy systems that are not fully compatible

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with existing digital solutions. Integrating new technologies with these legacy infrastructures requires a large amount of time and resources and presents a multifaceted challenge that requires careful planning and analysis (Zaki, 2019).

Moreover, the rapid evolution of digital technologies has raised serious concerns about skills gaps and talent acquisition. While the demand for competent professionals who can work effectively in the digital world is growing rapidly, there is a serious shortage of such experts. Organizations are faced with the challenging task of closing skill gaps within the existing workforce and attracting new talent competent in specialized areas such as data analytics, artificial intelligence, and cybersecurity (Martínez-Morán et al., 2021).

Empirical Analysis of Organizational Structural Changes

Many empirical studies have been conducted in recent years to reveal the impact of digital transformation on organizations with quantitative and qualitative data. These studies help us understand the dynamics of digital transformation through surveys, case studies and comparative analysis.

Survey Studies. Guangming Cao et al.'s study, published in Information & Management in 2025, collected survey data from more than 250 firm managers to examine the relationship between digital transformation, organizational culture and product innovation. These data were analyzed with partial least squares structural equation modeling (PLS-SEM), showing that certain types of cultures (e.g., innovative cultures such as adhocracy) increase companies' capacity for digital transformation, which indirectly improves new product performance (G. Cao et al., 2025). Similarly, Alshammari and colleagues' empirical research in 2023 revealed how organizational culture dimensions influence digital transformation project success based on the results of a survey of 264 employees. According to the findings of this study, employee empowerment in particular has a statistically significant and positive impact on digital transformation success, whereas other cultural factors such as organizational support for change, new working practices or teamwork were not found to be as effective as expected (Alshammari et al., 2024). This result supports the importance of employee initiative and empowerment in digital projects with numerical data.

Case Studies. Imran et al's study, published in the Journal of Change Management in 2021, examined the digital transformation journey of four large enterprises from the industrial sector. This qualitative research identified the factors that facilitated digital transformation, both within each case and in comparison, with others. The results showed that the flexibilization of organizational structures, cultural transformation and visionary leadership were decisive in producing successful transformation outcomes in all the companies studied. In light of the findings, the researchers provide an integrated framework, emphasizing the need to transform social and technical systems in harmony. These case studies go beyond numerical data to understand the contextual and human aspects of transformation. For example, insights such as how the failure of senior management in one company to adequately communicate the digital vision to employees negatively impacted the project's progress, or how the spread of the gains of a small pilot project across the entire organization in another company created momentum for change, complement the generalized survey findings (Imran et al., 2021).

Sectoral Reports and Surveys. In addition to academic studies, large-scale surveys conducted by consulting companies and industry organizations also provide valuable data. For example, regular digital transformation surveys published by firms such as PwC, Deloitte and McKinsey reveal the transformation maturity and trends of hundreds of companies. A McKinsey report showed that digital transformation success rates vary by industry, with success rates as high as 26% in digitally competent industries such as technology and telecom, and as low as 4-11% in traditional industries (e.g. automotive, oil & gas) (*Unlocking success in digital transformations*, 2018). Deloitte's Global Digital Transformation reports provide a statistical overview of the digital investment areas that senior executives prioritize (cloud, artificial intelligence, data analytics, etc.)

and the main barriers to transformation (cultural resistance, lack of talent, legacy IT systems, etc.). In line with academic research, these sectoral reports emphasize the need for top management commitment, employee skills development and a clear roadmap for successful transformation.

Digital transformation (DT) is not just about implementing new technologies; it requires a fundamental organizational shift that affects strategy, processes, structures and culture. Companies embarking on DT often experience structural shifts in how they are organized and cultural shifts in how employees think and behave. Recent empirical studies highlight that successful digital transformation requires rethinking traditional hierarchical structures and developing a supportive organizational culture (Spyridon, 2023).

This section examines the evidence for structural and cultural changes driven by digital transformation. It draws on empirical findings (surveys, case studies, and quantitative analyses) since 2018 to highlight key changes such as flattened hierarchies, accelerated decision-making, new digital roles, enhanced collaboration, innovation-focused values, employee empowerment, and learning-oriented cultures. Example company cases are included to illustrate these changes in practice.

Structural Changes in the Digital Era. Flatter Hierarchies and Agile Structures: One prominent structural impact of digital transformation is the flattening of organizational hierarchies. Traditional multilayered management structures are often too rigid and slow for the fast-paced digital era. Empirical research finds that companies need to "realize the flattening of organizational structure and improve flexibility" to respond rapidly to market changes (M. Cao et al., 2024). By pushing decision authority downwards, firms can react more quickly. For example, digital transformation initiatives often replace siloed departments with cross-functional teams or "squads" that bring together IT, data, and business specialists, thereby cutting across old departmental boundaries. This shift toward agile team-based structures has been observed as a common pattern in surveys of transforming firms (M. Cao et al., 2024).

New Roles and Organizational Units: Alongside structural flattening, many organizations create new roles and units to support their digital strategy. A clear example is the rise of the Chief Digital Officer (CDO) role. By the late 2010s, about one-fifth of large companies worldwide had designated a CDO to lead digital transformation efforts (Pierre Péladeau, 2019). This figure marked an increase from earlier years and was especially high in Europe (where nearly 39% of large firms had a CDO) (Pierre Péladeau, 2019). The emergence of CDOs and their subordinate digital strategy or innovation departments marks a structural shift: companies are turning digital initiatives into dedicated organizational units. Other new positions such as data scientists, UX designers and agile coaches have also proliferated and changed the organizational chart. Many firms are setting up innovation labs or "digital factories" separate from traditional business units to develop new digital products. These structural additions coexist with efforts to integrate digital expertise across the firm. Notably, case evidence suggests that simply appointing new digital leaders is not a panacea; their effectiveness depends on connecting silos and influencing the structure and culture of the broader organization. Still, empirical data links such roles with better transformation outcomes; for example, companies with an engaged CDO are 1.6 times more likely to report a successful digital transformation (Morgan Blake, 2019).

Cultural Changes in the Digital Era. Digital transformation goes beyond structural adjustments; it also demands a cultural shift. Companies need to become more open, collaborative, and innovative to thrive in a digital age. While changing a company's culture is often seen as the toughest part of this transformation, it is essential for fostering collaboration, innovation, employee empowerment, and a commitment to learning (M. Cao et al., 2024). This section highlights key cultural shifts observed in digitally transforming organizations, including moves toward collaboration, innovation, employee empowerment, and learning orientation.

Collaboration and Breaking Silos: Digital transformation often fosters a culture of greater collaboration and knowledge-sharing. As noted earlier, many firms flatten structures and form cross-functional teams – culturally, this breaks down the "silo mentality" and encourages employees to work together across departments. Researchers have found that organizations need to promote cross-departmental collaboration and information circulation to succeed in digital initiatives . With digital tools, communication becomes more transparent, and teamwork becomes the norm. A study by (M. Cao et al., 2024) observed that after digital restructuring, companies placed new emphasis on open communication and teamwork, replacing the previous mindset of isolated departments . For example, instead of protecting information, employees are encouraged to share data and insights freely through digital dashboards or wikis. This cultural shift enhances agility and innovation, as diverse expertise is pooled to solve problems. Surveys support this trend: in one global survey, 84% of executives said that digital transformation had increased the need for cooperation across formerly separate business units. In summary, a collaborative culture – often enabled by new digital collaboration tools and championed by leadership – is a hallmark of transformed organizations (M. Cao et al., 2024).

Employee Empowerment and Autonomy: Digital transformation tends to empower employees and push decision-making downward, which is both a structural and cultural shift. Culturally, leadership must trust employees and encourage initiative. A "digital culture" has been described as a code of conduct giving employees latitude to make judgment calls and on-the-spot decisions (Hemerling, J et al., 2018). This is evident in agile organizations where front-line teams are empowered to respond to customer feedback or data insights immediately, without waiting for high-level directives. Surveys by consulting firms consistently find that empowerment is a key trait of digital culture. Boston Consulting Group, for instance, reported that companies explicitly addressing culture in their transformations instill behaviors like greater autonomy and proactive decision-making at lower levels (Hemerling, J et al., 2018). In practice, companies shifting to a digital culture often train and encourage employees to experiment, solve problems, and take ownership of outcomes (Hemerling et al., 2018). Such empowerment also boosts morale and talent retention, as people feel trusted and valued.

Learning Orientation: Given the rapid evolution of digital tools, a culture of continuous learning has become imperative. Many organizations undergoing digital transformation are moving from a static, know-it-all culture to a dynamic, "learn-it-all" culture (Knowledge at Wharton, 2018). Microsoft's CEO Satya Nadella famously used this phrase to drive cultural change at Microsoft – moving away from arrogance born of past success to an emphasis on curiosity and growth mindset (Knowledge at Wharton, 2018). Empirically, this occurs as companies invest more in employee training, reskilling programs, and encouraging knowledge sharing. Cao et al. (2024) identify talent training and skills development as a fundamental step in digital transformation that accompanies organizational and cultural change (M. Cao et al., 2024). Many companies set up continuous learning platforms or learning days for employees to acquire new digital skills. The cultural norm changes such that it is valuable to keep one's skills up to date and adaptable. For example, Nadella's transformation at Microsoft involved encouraging every employee to adopt a growth mindset, an idea borrowed from psychologist Carol Dweck, which improved collaboration and innovation as employees became more open to new ideas and learning from failures (Knowledge at Wharton, 2018).

In summary, digital transformation triggers significant structural and cultural changes in organizations, as supported by a growing body of empirical evidence. Structurally, companies tend to become flatter, more networked and agile. Hierarchies are streamlined and decision-making is accelerated, often through new cross-functional teams and roles dedicated to digital initiatives. Culturally, successful digital transformers empower employees at all levels to use new technologies, creating an environment of collaboration, innovation and continuous learning. These structural and

cultural shifts are deeply interrelated: a flat structure fosters an empowered culture, and an innovative culture benefits from agile structures. While every organization's journey is unique, the general lesson is clear: digital transformation is as much a organizational and human transformation as it is a technological one. Achieving sustained success in the digital age requires flattening the old hierarchies and freeing people to collaborate, experiment, and learn. The empirical findings outlined above provide academic and practical validation that such deep organizational changes are both necessary and effective in the era of digital disruption.

Successful and Unsuccessful Digital Transformation Practices

Successful Digital Transformation Practices. Businesses with successful digital-based management and motivated employees are committed to change and focus on changes in customer needs and expectations. Business model transformation is made possible by digital business change, new digital business models and digital globalization. This transformation takes place by adding more digital content to existing products and services and introducing new digital solutions (Gerald C. Kane et al., 2015).

Amazon has adopted a customer-centric strategy by focusing on digital transformation to overcome geographical limitations and traditional shopping models in the retail sector. Strengthening customer loyalty with data analytics, personalized shopping experiences and services such as Amazon Prime, this company has reshaped the industry with its innovations in e-commerce and technology (Ellitan, 2020).

To maintain relevance in the digital age, General Electric (GE) focused on Internet of Things (IoT) solutions by equipping its industrial equipment with sensors and developing an IoT platform called Predix. This step enabled them to improve their operational efficiency by providing data-driven insights to their customers and strengthened GE's position in the digital age (Ghosh et al., 2022).

Starbucks focused on mobile apps and data analytics to increase customer engagement in a digitalized world. While customers can order and pay through the app, it has strengthened customer loyalty and increased operational efficiency with offers and rewards offered through its digital loyalty program (Kim & Park, 2021).

Alibaba focused on its digital platforms such as Taobao and Tmall in pursuit of its goal of leadership in Asian and global e-commerce. The company transformed e-commerce and became a global power by improving platform efficiency with cloud computing and artificial intelligence (Wei et al., 2020).

Although The New York Times suffered serious losses in sales due to the decline of print media in the face of digitalization, it struggled to survive in this process by embracing digitalization. By focusing on digital editions and completely reshaping its managerial structure during the digital transformation process, the newspaper continues to offer high-quality journalism and content online that has earned the trust of its readers (Lozic, 2020).

Walmart has faced similar problems to the New York Times. While the New York Times is one of the world's largest newspaper publishers, Walmart is one of the world's largest retail chains. With the introduction of online sales of goods, it has had to organize its own sales and retain some of its buyers that it might lose due to changing buying habits. To make things easier for consumers, Walmart has changed its online return policies, offers the lowest prices and competes with Amazon with a model that does not require a membership to order online (Lozic, 2020).

IKEA is a Swedish furniture company that is an example of a traditional organization successfully implementing digital transformation. IKEA has developed an augmented reality (AR) application that allows customers to virtually experience furniture in their homes.

Digital transformation is mostly applied in production, which is the operational stage of the value chain, but it also has a significant impact on the supply chain, marketing, R&D and after-sales services. Digital transformation can be summarized as the integration of digital technologies into all

operations of an organization. This leads to infrastructural changes in how the organization is run and how it delivers value to its customers. Increases in sales and production, innovations in value creation and new ways of communicating with customers are all benefits of a successful digital transformation. In addition, digital transformation brings technologies such as machine learning and analytics, providing endless opportunities for organizational solutions and increased internal efficiency (Hess et al., 2016).

Successful case studies demonstrate how clear vision, strategic planning, technology adoption and effective execution can drive organizational growth and innovation. These examples demonstrate how organizations have harnessed the power of digital transformation to adopt customer-centric strategies, adapt to changing consumer habits, improve operational efficiency and gain competitive advantage.

Failed Digital Transformation Practices. Blockbuster is an example of how failing to keep up with digital transformation can have devastating effects on a company. Once the leader in the video rental industry, the company was late to adapt to the digital streaming and online rental trend and was unable to compete with the vast library of content and user-friendly services offered by competitors such as Netflix. Blockbuster developed strategies such as a DVD mailing service and an online platform, but these initiatives were both late and inadequate. As a result, unable to keep up with the digital transformation, the company filed for bankruptcy in 2010 and was forced to close most of its stores. This highlights the importance of innovation and timely adaptation to changing market dynamics (Vaz, 2021).

Nokia, once the leader in the mobile phone industry, has struggled to compete with the rise of smartphones, especially the iPhone and Android devices. It tried to compete by launching smartphones running the Symbian operating system. However, these devices failed to gain enough traction in the market due to their limited app ecosystem and outdated user interfaces (West & Wood, 2014).

Toys "R" Us, Toys "R" Us, a major toy retailer, faced the challenge of competing with e-commerce giants like Amazon and adapting to changing consumer shopping habits. It partnered with Amazon to manage its online sales, but the partnership did not bring the expected results because Amazon made deals with multiple companies like Toys "R" Us. The company also invested heavily in its own e-commerce platform but failed to compete effectively. Big box stores like Walmart, Kmart, Target and Costco, as well as other toy stores, have been competing to sell products at low prices due to competition in the market. However, Toys R us did not change the prices of its toys, and although it has managed to become one of the leading brands in the toy industry, many people prefer to buy toys from big box stores at affordable prices because of the price advantage. The failure to transition to digital retail and its inability to compete with online giants contributed to the company's downfall (Lee & Abdul Raziff, 2021).

Successful case studies demonstrate how having a clear vision, strategic planning, technology adoption and effective execution can drive organizational growth and innovation. They demonstrate how organizations have harnessed the power of digital transformation to adopt customer-centric strategies, adapt to changing consumer habits, improve operational efficiency and gain competitive advantage.

The failed examples highlight the critical need for timely and effective strategies in response to digital change. These examples show that failure to adapt can lead to a number of consequences, including declining market share, falling revenues, loss of customers and even bankruptcy downsizing. It has also been observed that factors such as insufficient innovation, misjudgment of competition and ineffective management of digital investments play an important role in most failures. Once again, innovative thinking, flexibility and customer focus are at the heart of a successful digital transformation.

Discussions

The empirical analysis presented in this study synthesizes the findings from a broad literature review based primarily on the academic articles reviewed in this research. The aim of this study is to identify and reflect on recurring themes that intersect across various academic contexts, thereby providing a solid foundation for understanding the underlying dynamics of digital transformation.

The synthesis of the reviewed materials reveals a clear convergence around organizational structure changes and digital strategy and business models, along with technology adoption areas such as Artificial Intelligence, Internet of Things and Big Data. These areas are critical to enabling meaningful transformations at various levels of organizational operations.

The evolution of business models and digital strategies is another key theme. As highlighted by (Fidan, 2024) and (Foerster-Metz et al., 2018), digital transformation requires more than process optimization; it entails a reconfiguration of value creation mechanisms, stakeholder engagement and revenue generation frameworks. This rethinking is often strategic in nature and aligns digital capabilities with long-term market positioning.

In addition, leadership and organizational culture emerge as intangible but indispensable elements. Authors such as Omol (2024) emphasize the role of visionary leadership, cultural readiness and change advocacy in overcoming resistance and driving transformation. These studies suggest that digital maturity is deeply intertwined with human capital development and internal mindset shifts.

However, despite all this work, there are still significant gaps. While strategic and operational issues are covered in detail in the literature, there is a dearth of research that delves deeper into ethical issues such as data privacy, algorithmic bias and the societal impacts of AI. However, these areas hold great potential for future empirical work, especially as ethical governance becomes increasingly central to digital strategies.

Recommendations

This section provides recommendations for successful digital transformation within organizations. These are summarized in Figure 2 below.
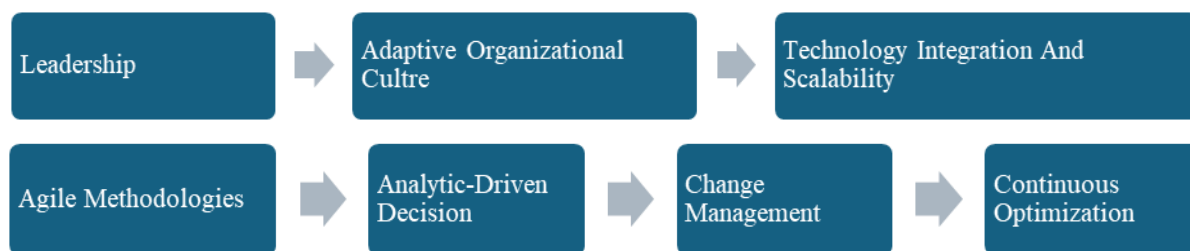

Figure 2. Organizational digital transformation recommendations

Based on our reflections after reviewing multiple sources and critically analyzing the key principles presented in the literature, we believe that digital transformation impacts organizations the most by reshaping their internal mindset and structural resilience. Leadership must provide a strong vision not only to initiate change but also to sustain momentum in the face of uncertainty. This vision should serve as a unifying purpose that drives the entire organization towards a digitally enabled future. But beyond setting direction, leadership must support cultural transformation by encouraging innovation, experimentation and continuous learning. Digital initiatives risk becoming disjointed or superficial without such adaptive and supportive leadership.

Equally important is the need to develop a culture of adaptability. This is not just about being open to change; it is about actively embracing uncertainty and encouraging people at all levels to take initiative. Organizations that encourage their people to think critically, challenge outdated norms and collaborate across functions are much more likely to thrive in a fast-moving digital

environment. We believe that adapting also means breaking down internal silos, enabling faster communication and more agile decision-making. When employees feel that their voices matter and their ideas can shape outcomes, they become catalysts for meaningful change.

A successful digital transformation also requires a scalable and intelligently integrated technological backbone. It is not enough to adopt digital tools in isolation; systems must work in harmony and evolve together. From my perspective, agile methodologies and data-driven decision making are no longer optional; they are essential. Teams need to experiment, measure progress quickly and adjust course with confidence. This is why digital transformation should not be seen as a final destination, but as a continuous journey that needs to be monitored, optimized and realigned with both internal and external realities. Organizations that embed continuous feedback loops into their operational rhythms become more resilient and forward-looking.

Finally, one of the most powerful but often under-appreciated elements of transformation is customer centricity. In an era of rapidly changing expectations, putting the customer at the center of decision-making is not only a competitive advantage, it is a necessity. Digital tools allow us to understand customer behavior, preferences and pain points more clearly than ever before. But it's not just about collecting data; it's about translating these insights into personalized experiences that build loyalty and trust. At the same time, companies must manage change with empathy and openness, communicating clearly, collaborating with ecosystem partners and creating an internal culture that cares about responsiveness. When all these elements - visionary leadership, adaptability, technology and passion for customers - work together, digital transformation becomes more than a strategy; it becomes a living capability.

Conclusions

This study has explored how digital transformation is reshaping not only the technological landscape of organizations, but more critically their structural and cultural foundations. Through a comprehensive review of recent literature, empirical research and real-world examples, the research confirms that digital transformation requires a fundamental rethinking of traditional organizational models.

Our findings suggest that successful digital transformation is associated with flatter organizational hierarchies, faster and more decentralized decision-making, and the creation of agile, cross-functional teams. Structurally, roles such as Chief Digital Officers, data scientists and innovation hubs are becoming increasingly common, indicating a shift towards dedicated digital leadership and innovation capabilities. Culturally, digitally mature organizations empower employees, encourage collaboration across silos and invest in continuous learning. These elements are not isolated, but mutually reinforcing: flat structures support empowered teams, while adaptive cultures enable agile operations.

Case studies of companies such as Amazon, GE and IKEA show that aligning digital strategy with structural and cultural readiness is essential for sustainable innovation and competitive advantage. On the other hand, the failures of Blockbuster, Nokia and Toys "R" Us highlight how delayed adaptation, rigid hierarchies and cultural inertia can seriously undermine transformation efforts.

A critical insight emerging from this research is that technology alone does not drive transformation. Without accompanying shifts in leadership mindset, organizational design and employee engagement, digital initiatives are likely to fail. Moreover, persistent challenges such as legacy system integration, talent scarcity and cultural resistance require strategic and people-centered solutions.

Digital transformation should therefore be seen as an ongoing, multidimensional process rather than a one-off technological upgrade. Organizations that have adaptability, innovation and human empowerment at their core are better positioned to thrive in a constantly evolving digital environment.

Future research should focus on developing diagnostic tools to measure organizational digital maturity, clarify ethical considerations in human-machine collaboration, and explore the socio-technical dynamics of transformation across different industries and cultures.

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