

Digital Transformation in Increasing Business Competitiveness in the Industrial Era 5.0

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ABSTRACT

Digital transformation has become an important strategy for the business world in facing the increasingly complex dynamics of global competition, especially in the industry 5.0 era, which emphasizes a human-centered approach on sustainability, and resilience. This study aims to analyze the role of digital transformation in enhancing business competitiveness in the industry 5.0 Era and to identify the factors that influence the success of its implementation. This research uses a qualitative approach with a literature review method (library research). Data was obtained from various scientific sources in the form of national and international journal articles, academic books, and relevant documents discussing digital transformation, business competitiveness and Industry 5.0. Data was analyzed using content analysis techniques to systematically synthesize concepts, findings, and expert views. The results of the study show that digital transformation plays a significant role in increasing business competitiveness through improved operational efficiency, product and service innovation, strengthened customer relationships, and data-driven decision making. The success of digital transformation is influenced by visionary leadership, human resource readiness, an adaptive organizational culture, and technological infrastructure support. From an Industry 5.0 perspective, digital transformation is not only oriented towards efficiency and economic profit, but also towards human values, sustainability, and long-term business resilience. Thus, holistic and human-oriented digital transformation is the key in creating a sustainable business in the Industry 5.0 era.

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1. INTRODUCTION

The rapid development of digital technology has brought significant changes in various aspects of life, especially in the business world (Danuri, 2019). The technological revolution, which was initially

marked by mechanization (Industry 1.0), then continued with mass production (Industry 2.0), information technology-based automation (Industry 3.0), to the integration of cyber-physical systems and artificial intelligence (Industry 4.0), is now entering a new phase known as Industry 5.0 (Tamba, 2024). The Industry 5.0 era not only emphasizes technological advancement, but also prioritizes human-centered, sustainability, and resilience approaches (Ulya et al., 2025). In this context, technology is no longer positioned as the ultimate goal, but rather as a means to improve the quality of human life and add value to business organizations (Fitriono & Saputra, 2024, pp. 50–55).

Amidst these dynamics, the business world is faced with increasingly complex and competitive levels of competition. Globalization, changes in consumer behavior, and technological disruption require businesses to continuously adapt in order to survive and thrive. Business competitiveness is a key factor in determining the sustainability of a business, both on a large scale and for micro, small, and medium enterprises (MSMEs) (Maesaroh, 2020). Companies that are unable to adapt to technological developments tend to experience a decline in performance, lose market share, and even risk being eliminated from competition (Napitupulu & Supriadi, 2025).

One of the main strategies widely adopted by companies to increase competitiveness is digital transformation. Digital transformation is not merely defined as the use of digital technology in operational activities, but is a comprehensive change that encompasses business strategy, work processes, organizational models, and corporate culture (Rusli et al., 2025, pp. 1–10). The implementation of technologies such as big data, cloud computing, artificial intelligence, the Internet of Things (IoT), and digital platforms has opened up new opportunities for companies to improve efficiency, innovation, and service quality for customers. Thus, digital transformation has become an important foundation for companies in creating sustainable competitive advantages.

However, the implementation of digital transformation in the business world is not without challenges. Many companies, especially MSMEs, still face limitations in terms of technological infrastructure, human resource readiness, and managerial capabilities in managing change. In addition, resistance to change and a lack of understanding of the right digital transformation strategy are often major obstacles in the implementation process. These conditions show that digital transformation is not a simple process, but requires careful planning, management commitment, and the support of an adaptive organizational culture.

In the context of Industry 5.0, the challenges of digital transformation are becoming increasingly complex. Unlike Industry 4.0, which focuses on automation and efficiency, Industry 5.0 emphasizes a balance between technology and human values (Wahib, 2025, p. 199). This means that the digital transformation undertaken by companies must be able to empower people, enhance creativity, and pay attention to social and environmental sustainability aspects. Therefore, companies are not only required to adopt advanced technology, but also ensure that this technology has a positive impact on employees, customers, and society at large.

Previous studies have shown that digital transformation has a positive impact on business performance and competitiveness (Zurnali & Wahjono, 2024). Companies that successfully integrate digital technology into their business strategies tend to have higher innovation capabilities, respond more quickly to market changes, and have better relationships with customers. However, the results of the study also indicate that the success of digital transformation is greatly influenced by various factors, such as leadership, organizational readiness, digital competence of human resources, and internal policy support (Rahmadi & Rusmiati, 2025). Thus, a more comprehensive study is needed to understand how digital transformation can effectively improve business competitiveness, particularly within the framework of Industry 5.0.

Based on the above description, it can be understood that digital transformation is a relevant and important strategic issue that warrants further study. The paradigmshift in business in the Industry 5.0

era requires companies to focus not only on technology, but also on people and sustainability. Therefore, a deep understanding of the role of digital transformation in improving business competitiveness is crucial for both academics and practitioners. This study is expected to contribute theoretically to the development of business technology science and practically to business actors in formulating effective and sustainable digital transformation strategies.

Thus, this study focuses on analyzing digital transformation in improving business competitiveness in the Industry 5.0 era. This study aims to examine the role of digital transformation, identify the factors that influence its success, and explain the implications of digital transformation on improving business competitiveness. The results of this study are expected to serve as a reference for companies in facing the challenges of business competition in an increasingly dynamic and human-oriented digital era.

2. METHODS

This study uses a qualitative approach with a literature review method (library research). This approach was chosen because the study aims to gain a deep and comprehensive understanding of digital transformation and its role in enhancing business competitiveness in the Industry 5.0 era. Literature study allows researchers to examine various relevant concepts, theories, and findings from previous studies so that they can develop a systematic and structured analytical framework (Hanifah et al., 2025, pp. 393–400).

The data used in this study is secondary data obtained from various scientific sources. Data sources include reputable national and international journal articles, academic textbooks, seminar proceedings, and official documents related to digital transformation, business competitiveness, and Industry 5.0. The literature was obtained through searches on scientific databases such as Google Scholar, DOAJ, and credible national journal portals. The selection of sources was based on the relevance of the topic, the credibility of the publisher, and the recency of the publication.

Data collection was conducted through systematic literature search and selection using relevant keywords, including digital transformation, business competitiveness, and Industry 5.0. The collected literature was then selected based on its relevance to the research focus and classified into main themes that supported the research analysis. This process aimed to ensure that the data used was truly relevant and supported the research objectives.

Data analysis was conducted using content analysis techniques. This analysis was carried out by reviewing, comparing, and synthesizing information obtained from various literature sources (Pratama et al., 2021, pp. 1–14). The stages of analysis included data reduction to select relevant information, presentation of data in the form of descriptive narratives, and drawing conclusions based on patterns and relationships found in the literature. Through this analysis, the researchers identified the role of digital transformation, supporting and inhibiting factors, and its implications for increasing business competitiveness in the Industry 5.0 era.

To maintain data validity, this study applied source triangulation by comparing various perspectives and findings from different literature. In addition, consistency in the use of concepts and theories is also taken into account so that the results of the analysis have academic validity and credibility. All stages of the research are carried out systematically, from problem formulation, data collection, analysis, to drawing conclusions, so that it is expected to produce a comprehensive and scientifically accountable study.

3. FINDINGS AND DISCUSSION

1. Digital Transformation in Business Dynamics in the Industry 5.0 Era

A review of the literature shows that digital transformation has become a key element in the dynamics of contemporary business development (Syafi'i et al., 2023). Digital transformation is no longer understood as merely the adoption of information technology in operational processes, but rather as a fundamental change that touches on strategic, structural, cultural, and human resource aspects in business organizations. Various studies confirm that digital transformation is a strategic response to changes in the business environment characterized by uncertainty, complexity, and accelerated technological innovation (Stafreza, 2025, pp. 190–192).

In the context of Industry 5.0, digital transformation is undergoing a significant paradigm shift. While in the Industrial Era 4.0 the main focus of digital transformation was automation, efficiency, and optimization of processes based on advanced technology, in the Industrial Era 5.0 digital transformation is directed at the integration of technology and human values (Nugroho & Tambunan, 2025, pp. 1964–1972). Industry 5.0 places humans at the center of production and service systems. So that technology acts as a supporting tool that strengthens creativity, intuition, and human capacity in creating business value.

The literature analyzed shows that digital transformation in the Industry 5.0 era requires companies to balance economic performance and social responsibility. Digital transformation aims not only to increase profitability, but also to ensure business sustainability, employee welfare, customer satisfaction, and contributions to the environment and society. Thus, digital transformation becomes a multidimensional strategic instrument, simultaneously covering technological, organizational, and social aspects.

The implementation of digital transformation in the business world also shows a wide variety, depending on the scale of the business, industry sector, and level of organizational readiness. Large companies tend to be more prepared to adopt integrated digital technology, while MSMEs often begin their digital transformation with simpler aspects, such as digital marketing and the use of e-commerce platforms (Utami et al., 2024). However, the literature emphasizes that business scale is not the main determinant of digital transformation success, but rather the alignment of digital strategies with business vision and organizational context (Adiatma et al., 2025).

2. The Role of Digital Transformation in Enhancing Business Competitiveness

The results of the literature synthesis show that digital transformation has a significant contribution to improving business competitiveness (Dharta et al., 2025, pp. 184–186). Business competitiveness is understood as a company's ability to survive, grow, and excel in market competition through the creation of sustainable competitive advantages. Digital transformation acts as a key lever in building these advantages through increased efficiency, innovation, and the quality of value offered to customers.

Digital transformation enables companies to optimize their business processes comprehensively (S et al., 2024, pp. 11–15). The use of digital technologies, such as integrated information systems and data analytics, helps companies manage their resources more efficiently and responsively (Firdaus & Kuswinarno, 2024, pp. 10–17). The decision-making process becomes faster and more accurate because it is supported by real-time data, enabling companies to respond to market changes more adaptively (Ifadhila et al., 2024). The operational efficiency resulting from digital transformation has a direct impact on cost reduction and productivity improvement, which are important factors in strengthening competitiveness (Novitasari et al., 2025, pp. 57–58).

In addition to efficiency, digital transformation also encourages business innovation (Astuti & Rosita, 2024, pp. 127–132). Good digital literacy enables companies to develop products and services that are more relevant to customer needs (Saragih et al., 2024, pp. 1791–1793). Digital technology opens up space for new business models that are more flexible and value-based, such as platform-based services and digital ecosystems. These innovations not only increase the appeal of companies in the eyes of customers, but also create differentiation that is difficult for competitors to imitate.

In the Industry 5.0 era, business competitiveness is no longer determined solely by production speed and scale, but also by a company's ability to create meaningful customer experiences that are oriented towards human values. Digital transformation enables companies to build more personal and sustainable relationships with customers through the use of digital technology (Syaifudin et al., 2025, pp. 1076–1082). Thus, digital transformation contributes to strengthening customer loyalty, brand reputation, and long-term competitiveness.

3. Determining Factors and Challenges of Digital Transformation from an Industry Perspective 5.0

The result of the study show that the success of digital transformation is greatly influenced by a number of internal and external organizational factors. The most dominant internal factors are leadership and organizational culture (Pahlan et al., 2025, pp. 1158–1159). Visionary and adaptive leadership is key to steering digital transformation in line with business objectives and organizational values. Leaders play an important role in building commitment to change, managing resistance, and creating an environment that supports learning and innovation

In addition to leadership, human resource readiness is a determining factor in the success of digital transformation (Herlissha et al., 2024, pp. 2397–2398). Digital transformation requires human resources who not only have technical competencies, but also critical thinking skills, creativity, and the ability to adapt to change. Digital literacy and a culture of continuous learning are important prerequisites in the Industry 5.0 era, where collaboration between humans and technology is at the core of business processes.

On the other hand, the literature also reveals various challenges faced in the digital transformation process. Resistance to change remains a major obstacle, especially in organizations with a conventional work culture (Sinambela & Depari, 2025, p. 1252). In addition, limitations in technological infrastructure and digital competency gaps are significant challenges, especially for MSMEs (Hamzah et al., 2023, pp. 112–116). These challenges are even more complex in the Industry 5.0 era because digital transformation is required to be inclusive and sustainable, not just efficient.

Data security and ethical use of technology are also important concerns in digital transformation. Increased use of digital technology raises the risk of data leaks and privacy violations, requiring companies to develop adequate security policies and systems (Aksenta et al., 2023). From an Industry 5.0 perspective, ethical and social responsibility aspects are an integral part of human-centered digital transformation.

4. Implications of Digital Transformation on Sustainability and Long-Term Competitiveness

The results of the discussion show that digital transformation in line with Industry 5.0 principles has significant implications for business sustainability and long-term competitiveness. Human-centered digital transformation enables companies to create a more inclusive, flexible, and collaborative work environment (Metris et al., 2025, pp. 1–5). This has a positive impact on employee well-being and performance, which ultimately strengthens the organization's capacity to face competition.

In addition, digital transformation also contributes to the creation of sustainable business value through the integration of economic, social, and environmental aspects (Puspita et al., 2025, pp. 647–

650). Companies that are able to utilize digital technology responsibly and ethically have a greater opportunity to build stakeholder trust and maintain competitiveness in the long term. In the Industry 5.0 era, sustainability is no longer an option, but a strategic necessity for business continuity.

Theoretically, these findings reinforce the view that digital transformation is a multidimensional construct that must be understood holistically. Digital transformation cannot be separated from the social context and human values that characterize Industry 5.0. In practical terms, the results of this study emphasize the importance of a planned, inclusive, and value-oriented digital transformation strategy in order to improve business competitiveness in a sustainable manner.

5. Digital Transformation, Organizational Culture Change, and Work Behavior

A review of the literature shows that digital transformation not only impacts the technical and structural aspects of business, but also brings significant changes to organizational culture and work behavior (Aisha et al., 2025, pp. 6201–6203). Digital transformation requires a shift in mindset from conventional ways of working to more adaptive, collaborative, and knowledge-based approaches. In this context, organizational culture is a key factor that determines the success or failure of digital transformation in improving business competitiveness.

Various studies confirm that companies that successfully undergo digital transformation generally have an organizational culture that is open to innovation and change. This culture is characterized by a willingness to experiment, tolerance for failure, and support for continuous learning (Harto et al., 2023). Digital transformation encourages a shift from hierarchical work structures to more flexible and collaborative structures, where decision-making is no longer entirely centralized but involves various levels of the organization.

In the Industry 5.0 era, organizational culture change is becoming increasingly important because technology is not intended to replace human roles, but rather to strengthen them. Digital transformation requires employees to play an active role as decision makers, problem solvers, and innovators. Therefore, a work culture that supports creativity, trust, and collaboration is an important prerequisite for creating synergy between humans and technology.

However, literature also shows that organizational cultural change often faces resistance, especially in organizations that have long operated with conventional work patterns. This resistance can take the form of rejection of new technology, fear of job loss, or inability to adapt to digital work systems (Rismanto et al., 2025, pp. 7–15). In this context, digital transformation requires effective change management strategies, including transparent communication, ongoing training, and active employee involvement in the transformation process.

Thus, digital transformation and organizational culture have a mutually influential relationship. Digital transformation can drive organizational cultural change, while an adaptive organizational culture can accelerate the success of digital transformation. From a business competitiveness perspective, companies that are able to effectively manage cultural change have an advantage in creating resilient, innovative, and human-oriented organizations as emphasized in the Industry 5.0 Era (Nasution et al., 2025).

6. The Role of Digital Transformation in Building Resilience and Sustainability Business

The results of the literature analysis show that digital transformation plays a strategic role in building business resilience and sustainability, especially in facing the increasingly complex uncertainties of the business environment (Nufuz et al., 2025, pp. 542–546). Business resilience refers to a company's ability to survive, adapt, and recover from disruptions, whether economic, technological, or social. In the Industry 5.0 era, resilience and sustainability are important indicators of long-term competitiveness.

Digital transformation enables companies to improve business resilience through operational flexibility and business model diversification. Digital technology provides companies with the ability to quickly adapt business processes, respond to changes in market demand, and manage risk more effectively (Dewi & Srisusilawati, 2025, pp. 1022–1024). The use of digital systems also allows companies to monitor performance in real time, so that potential disruptions can be identified and addressed earlier.

In addition to resilience, digital transformation also contributes to business sustainability through the optimization of resource use and reduction of environmental impact. Digital technology enables companies to improve energy efficiency, reduce waste, and develop more environmentally friendly business practices (Yunita, 2025, pp. 1723–1729). In the context of Industry 5.0, sustainability is not only understood as environmental responsibility, but also as a commitment to social and economic well-being.

The literature also shows that sustainability-oriented digital transformation can increase stakeholder trust and loyalty, including customers, employees, and business partners (Siswati et al., 2025). Companies that utilize digital technology to create social and environmental value tend to have a more positive image and stronger appeal in the market. This shows that sustainability and business competitiveness are not two conflicting goals, but can be achieved simultaneously through the right digital transformation strategy.

In the Industry 5.0 era, digital transformation has become an important tool in building businesses that are not only competitive, but also responsible and sustainable. Companies that are able to integrate digital technology with the principles of resilience and sustainability have a greater chance of surviving and growing in the long term. Thus, digital transformation not only serves as a short-term performance improvement strategy, but also as a foundation for sustainable business competitiveness.

4. CONCLUSION

Digital transformation has become an integral strategic necessity in the dynamic development of business in the Industry 5.0 era. Based on the results of studies and discussions that have been conducted, it can be concluded that digital transformation is not merely a process of adopting digital technology, but rather a comprehensive change that encompasses business strategy, organizational structure, work processes, organizational culture, and human resource management. In the context of Industry 5.0, digital transformation has different characteristics compared to previous eras. Because it places humans as the center of the utilization of technology, while still paying attention to aspects of sustainability and business resilience.

The results of the study show that digital transformation plays a significant role in improving business competitiveness. Digital transformation enables companies to improve operational efficiency, accelerate decision-making processes, and encourage the creation of products and services that are more relevant to market needs. The use of digital technology also enables companies to build closer and more personal relationships with customers, thereby strengthening loyalty and long-term competitive advantage. In the Industry 5.0 era, business competitiveness is no longer determined solely by efficiency and speed, but also by a company's ability to create meaningful value for customers and society.

In addition, digital transformation contributes to improved business performance, both financially and non-financially. Companies that are able to effectively integrate digital technology with their business strategies tend to have a higher ability to adapt to changes in the business environment. This ability is becoming increasingly important in complex and uncertain competitive conditions.

Sustainable digital transformation enables companies to build dynamic competitive advantages that are difficult for competitors to replicate, thereby strengthening the company's position in the long term.

Another conclusion that can be drawn is that the success of digital transformation is greatly influenced by internal organizational factors, particularly leadership, organizational culture, and human resource readiness. Visionary and adaptive leadership is a key factor in directing digital transformation to align with business objectives and organizational values. On the other hand, an organizational culture that is open to change and innovation is an important foundation in supporting the digital transformation process. Human resource readiness, as demonstrated through digital competence, learning ability, and adaptive attitude, is a major prerequisite for digital transformation to have a positive impact on business competitiveness.

In the context of Industry 5.0, digital transformation also has broad implications for changes in work culture and organizational behavior. Digital transformation encourages a shift from conventional work patterns to more flexible, collaborative, and knowledge-based work patterns. Digital technology serves as a tool that strengthens the role of humans in business processes, not as a replacement. Therefore, digital transformation must be designed with a human-centered approach so that it can improve employee welfare, creativity, and overall work quality.

In addition to increasing competitiveness, digital transformation also plays an important role in building business resilience and sustainability. Digital transformation enables companies to increase operational flexibility, manage risk more effectively, and respond to market changes more quickly. On the other hand, the responsible use of digital technology can support sustainable business practices, whether from an economic, social, or environmental perspective. In the Industry 5.0 era, sustainability and resilience are no longer just added values, but strategic elements in maintaining business continuity and reputation.

However, this study also shows that digital transformation faces various challenges, such as resistance to change, limitations in technological infrastructure, digital competency gaps, and issues of security and ethics in the use of technology. These challenges emphasize that digital transformation is not an easy and instant process, but rather requires careful planning, long-term commitment, and the involvement of all elements of the organization. Without proper management, digital transformation has the potential to not provide optimal benefits or even create new problems for the organization.

Based on these findings, it can be concluded that digital transformation is a key strategy in improving business competitiveness in the Industry 5.0 era, provided that it is carried out holistically, in a planned manner, and oriented towards human values and sustainability. Effective digital transformation focuses not only on technology, but also on people, organizational culture, and social responsibility. Therefore, businesses need to view digital transformation as a long-term process that requires integration between technological, managerial, and social aspects in order to achieve sustainable competitiveness.

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