

Digital transformation in business: challenges and opportunities for management in the modern era

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ABSTRACT

Digital transformation has become a crucial element in the modern business world, bringing significant changes to company operations, management strategies, and business models. While digitalization offers various opportunities, such as increased efficiency, product innovation, and new technology-based business models, challenges in its implementation remain obstacles for many organizations. One of the main challenges is the digital skills gap among employees, which can hinder technology adoption and reduce productivity. Additionally, organizations often struggle to measure the return on investment (ROI), making strategic planning and data-driven analysis essential to ensuring the success of digital transformation. On the other hand, the development of digital business models, such as the sharing economy, subscription-based services, and AI-driven automation, presents significant opportunities for companies to enhance competitiveness and expand their market reach. Therefore, businesses must adopt a comprehensive approach to digital transformation, including workforce capacity building, well-planned technology investments, and innovation in business strategies. This study aims to analyze the challenges and opportunities of digital transformation in business and provide recommendations for management in navigating the digital era. With the right strategies, organizations can maximize the benefits of digitalization and create sustainable competitive advantages in an increasingly dynamic market.

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1. INTRODUCTION

Digital transformation has become a key factor in the changing landscape of global business. The rapid development of technologies such as artificial intelligence (AI), the Internet of Things (IoT), big data, and cloud computing has led to fundamental changes in business operations and how companies interact with customers (Westerman, Bonnet, & McAfee, 2014). These technologies not only enhance operational efficiency but also enable the emergence of new, more adaptive, and data-driven business models (Bharadwaj et al., 2013). In this digital era, organizations that can successfully implement digital transformation strategies will gain a competitive advantage over their rivals (Sebastian et al., 2017). However, the adoption of digital technologies also presents various challenges, such as resistance to change, digital skills gaps, and cybersecurity risks (Vial, 2019). Therefore, understanding the challenges and opportunities in the digital transformation process is crucial for modern business management.

Digital transformation is a fundamental shift in business driven by digital technologies, affecting how companies create value and interact with customers (Hess et al., 2016). Digitalization not only accelerates business processes but also transforms the entire industrial ecosystem. For example, subscription-based services and the sharing economy have become major trends across various industries (Fitzgerald et al., 2013). However, many organizations still struggle to adopt digital technologies effectively. Factors such as the lack of a clear digital strategy, limited resources, and organizational culture shifts are key barriers to implementing digital transformation (Kane et al., 2015). Therefore, further research is needed to explore the challenges and opportunities of digital transformation so that organizations can navigate these changes more effectively.

Based on this background, several key issues in digital transformation require further analysis. First, how can organizations overcome resistance to change in the digital transformation process? Second, what are the main challenges in managing data security and privacy in a digital environment? Third, how can management address digital skills gaps within organizations? Fourth, to what extent can investments in digital technology provide long-term benefits for businesses? Addressing these issues will help companies design more effective and sustainable digital transformation strategies.

2. RESEARCH METHOD

The research method used in this study is descriptive qualitative research. This approach was chosen to gain an in-depth understanding of how digital transformation affects businesses, as well as the challenges and opportunities faced by management in the modern era. The study was conducted by collecting non-numerical data, such as interviews, observations, and document analysis, to comprehensively analyze the phenomenon of digital transformation (Waruwu, 2023). The research subjects are business organizations that are in the process of or have already adopted digital transformation strategies in their operations. Data was collected through interviews with managers and company leaders to understand their experiences in dealing with the challenges of digitalization. Additionally, document analysis and relevant literature reviews were conducted to identify trends, policies, and factors that contribute to the success or failure of digital transformation processes. Through this method, the study aims to provide a clearer picture of how management can optimize digitalization opportunities while addressing challenges in the modern business era. (Waruwu, 2023).

3. RESULTS AND DISCUSSIONS

Resistance to Change: Inhibiting Factors and Managerial Solutions

Digital transformation has become a key factor in reshaping the global business landscape, presenting both challenges and opportunities for organizations across various sectors. The success of digital transformation implementation does not solely depend on the technology used but also on the organization's readiness to face structural, cultural, and operational changes (Vial, 2019). The main challenges in the digital transformation process include resistance to change, data security and privacy, and the readiness of human resources to adopt new technology.

One of the biggest challenges in digital transformation is resistance to change. Many employees and managers are reluctant to accept new technology due to uncertainty, lack of digital literacy, and rigid organizational culture. Uncertainty often arises from concerns about job losses due to business process automation (Kane et al., 2015). Additionally, a lack of digital literacy among the workforce creates barriers to implementing digital systems, necessitating the allocation of resources for training and skill development. A rigid organizational culture can also slow down innovation and hinder digitalization initiatives. To address this challenge, organizations need to implement managerial strategies that include open communication about the benefits of digital transformation, providing digital training programs, and adopting a gradual approach to technology implementation so that employees can adapt progressively.

Beyond resistance to change, data security and privacy issues have become major concerns in digital transformation. With the increasing use of digital technology, the risk of cyber threats such as hacking, malware, and phishing has escalated (Tisdale, 2020). Organizations that fail to protect customer data and business information may suffer financial and reputational losses. Compliance

with data protection regulations, such as the General Data Protection Regulation (GDPR) in Europe and the Personal Data Protection Act (UU PDP) in Indonesia, is essential to avoid legal sanctions (Bennett & Raab, 2020). One solution to enhance digital security is the implementation of strict security policies, investment in encryption and firewall technologies, and cybersecurity awareness training for employees to minimize human errors in data management.

Management plays a key role in the success of digital transformation. Managers are not only responsible for technology implementation but also for bridging the digital skills gap among employees and fostering a culture of innovation within the organization. Adaptive leadership and a clear digital strategy are required for companies to overcome challenges and capitalize on the opportunities of digital transformation (Westerman et al., 2014). Furthermore, companies need to develop a digital roadmap that includes short-term and long-term goals to ensure continuous innovation and competitiveness.

Table 1: Findings on Challenges and Solutions in Digital Transformation

Aspect	Challenges	Solutions	Source
Resistance to Change	<ul style="list-style-type: none"> - Fear of uncertainty and job loss due to automation. - Lack of digital literacy among employees. - Rigid and inflexible organizational culture. 	<ul style="list-style-type: none"> - Open communication about the benefits of digital transformation. - Provision of digital training programs for employees. - Gradual approach to technology implementation. 	<ul style="list-style-type: none"> Kane et al., 2015 Vial, 2019
Data Security and Privacy	<ul style="list-style-type: none"> - Threats of cyberattacks such as hacking, malware, and phishing. - Compliance with data protection regulations (GDPR, PDP Law). - Access management and data encryption. 	<ul style="list-style-type: none"> - Implementation of strict cybersecurity policies. - Investment in encryption technology, firewalls, and AI for threat detection. - Cybersecurity awareness training for employees. 	<ul style="list-style-type: none"> Tisdale, 2020 Bennett & Raab, 2020
Role of Management in Digital Transformation	<ul style="list-style-type: none"> - Workforce digital skills gap. - Lack of a clear digital strategy. - Minimal innovation culture within the organization. 	<ul style="list-style-type: none"> - Providing training programs to enhance workforce digital skills. - Developing a digital roadmap covering short- and long-term goals. - Encouraging a culture of innovation and experimentation. 	<ul style="list-style-type: none"> Westerman et al., 2014

Overall, digital transformation in business presents various challenges that organizations must strategically manage. Resistance to change, data security risks, and digital skills gaps are among the main obstacles that can slow down the digitalization process. However, with the right management strategies, organizations can overcome these challenges and leverage the opportunities presented by the digital era. The success of digital transformation depends on human resource readiness, visionary leadership, and the implementation of strong security policies to ensure business sustainability and competitiveness in the future.

Digital Skills Gap and the Impact of Digital Investment on Business Sustainability

Digital transformation demands a workforce with adequate digital skills to operate and leverage technology optimally. However, many organizations still experience a digital skills gap among their employees, which becomes a major obstacle in implementing new technologies (Westerman et al., 2014). Employees with insufficient digital literacy tend to struggle in adapting to digital systems, ultimately hindering the company's productivity. To address this issue, organizations need to develop continuous training and capacity-building programs. Industry-specific training, direct mentoring, and adaptive digital learning approaches can help the workforce improve their skills and reduce resistance to change (Kane et al., 2015). Additionally, managerial support in fostering a digital learning environment will enhance an organization's readiness to embrace technological transformation.

Beyond the challenges in digital skills, organizations also face difficulties in measuring the impact of technology investments on their business sustainability. Although digitalization is often associated with increased operational efficiency and innovation, not all technology investments yield immediate tangible benefits (Vial, 2019). Many companies struggle to assess the return on investment (ROI) from digital transformation, particularly when the costs of technology

implementation are high while the benefits are only realized in the long term. Therefore, a data-driven approach to strategic planning is crucial to ensure that investments in digitalization generate significant business impact (Bharadwaj et al., 2013). The use of data analytics and financial modeling can help organizations identify the areas most in need of technology investment and evaluate the effectiveness of digital implementation more accurately.

On the other hand, digital transformation also opens up numerous new business opportunities. The emergence of digital-based business models, such as subscription-based systems, the sharing economy, and AI-driven automation, has reshaped how companies operate and interact with customers (Tisdale, 2020). Digital-based business models offer greater flexibility and efficiency compared to traditional models, allowing companies to be more responsive to market changes. For example, companies like Netflix and Spotify have successfully implemented subscription-based models to enhance customer retention and generate long-term revenue. Additionally, the sharing economy, as adopted by platforms such as Airbnb and Gojek, enables more efficient resource utilization by leveraging existing assets (Bennett & Raab, 2020). Organizations that can adapt to these digital trends have a higher chance of increasing their competitiveness in an increasingly dynamic business environment.

Table 2 : Findings and Discussion Based on the Provided Text

No	Findings	Discussion
1	Digital Skills Gap	Digital transformation requires a workforce with adequate digital skills. However, many organizations still experience gaps in digital literacy, which pose significant barriers to implementing new technologies (Westerman et al., 2014). To address this, organizations need to develop sustainable training programs using industry-specific methods and adaptive approaches (Kane et al., 2015). Managerial support also plays a crucial role in creating an environment that fosters digital learning.
2	Impact of Digital Investment on Business Sustainability	Digitalization is often associated with increased efficiency and innovation, but not all technology investments provide immediate benefits (Vial, 2019). Measuring return on investment (ROI) remains a major challenge, especially due to high implementation costs and long-term benefits that are not immediately visible. Therefore, a data-driven approach to strategic planning is necessary to ensure that digital investments yield a positive impact on business (Bharadwaj et al., 2013).
3	Opportunities in Digital Business Models	Digital transformation creates various new opportunities, such as subscription-based models, the sharing economy, and AI-driven automation (Tisdale, 2020). Companies adopting these models can enhance operational efficiency and flexibility. Successful examples like Netflix and Spotify demonstrate that subscription-based models improve customer retention and long-term revenue, while platforms like Airbnb and Gojek leverage the sharing economy to optimize resource utilization (Bennett & Raab, 2020).
4	Strategies for Sustainable Digital Transformation	Despite challenges such as digital skills gaps and difficulties in measuring ROI, organizations can overcome these obstacles with the right strategies. A data-driven approach, workforce digital literacy enhancement, and the adoption of innovative digital business models can create sustainable competitive advantages. Careful planning and effective execution are key to the successful implementation of digital transformation in business.

Overall, while digital transformation presents challenges such as the digital skills gap and difficulties in measuring ROI, the right strategies can help organizations overcome these obstacles. By adopting a data-driven approach, improving workforce digital literacy, and adapting to digital business models, organizations can leverage digital transformation to create sustainable competitive advantages. Therefore, careful planning and precise execution are key to ensuring the successful implementation of digital initiatives in business.

4. CONCLUSION

Digital transformation has become a key factor in enhancing organizational efficiency and competitiveness across various sectors. However, its implementation still faces several challenges, including the digital skills gap among employees and difficulties in measuring the impact of technology investments on business sustainability. Low digital literacy can hinder productivity and the adoption of new technologies, making targeted training programs and managerial support crucial steps in ensuring an organization's readiness for digital change. Moreover, while digitalization is often associated with increased efficiency, not all technology investments provide immediate benefits. Therefore, data-driven strategic planning and ROI analysis are necessary to enable organizations to allocate resources effectively and gain long-term benefits from their digital investments.

On the other hand, digital transformation also opens up various new business opportunities through subscription-based models, the sharing economy, and AI-driven automation. Organizations that can adapt to these trends have a greater chance of enhancing their competitiveness and expanding their market reach. Overall, the success of digital transformation largely depends on workforce readiness, the right investment strategies, and an organization's ability to adopt innovative business models. With careful planning and a data-driven approach, organizations can leverage digitalization to create sustainable competitive advantages.

REFERENCES

- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, 37(2), 471-482. <https://doi.org/10.25300/MISQ/2013/37:2.3>
- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2013). Embracing digital technology: A new strategic imperative. *MIT Sloan Management Review*, 55(2), 1-12.
- Hess, T., Matt, C., Benlian, A., & Wiesböck, F. (2016). Options for formulating a digital transformation strategy. *MIS Quarterly Executive*, 15(2), 123-139.
- Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. *MIT Sloan Management Review*, 14(1), 1-25.
- Sebastian, I. M., Ross, J. W., Beath, C. M., Mocker, M., Moloney, K. G., & Fonstad, N. O. (2017). How big old companies navigate digital transformation. *MIS Quarterly Executive*, 16(3), 197-213.
- Yusup, M. (2023, December). The Importance of Using Logo Design as a Brand Image in Marketing MSME Products Using Digital Technology in Kelambir V Village. In *International Conference on Sciences Development and Technology* (Vol. 3, No. 1, pp. 79-84).
- Yusup, M., & Kurniawan, R. (2024). Understanding the Impact of Chatbot Technology in Learning: Analysis of Utilization at SMA Negeri 5 Binjai. *Journal of Information Technology, computer science and Electrical Engineering*, 1(1), 49-55.
- Yusup, M., & Ahmad, A. (2024). Building a Strong Image Logo Design: Human Centered Design Approach in Logo Design for SMEs in Pematang Serai Village. *Formosa Journal of Computer and Information Science*, 3(1), 69-82.
- Yusup, M., & Ahmad, A. (2024). Pelatihan Pemanfaatan Teknologi (IoT) Internet Of Thing Untuk Sekolah Pintar dan Pembelajaran Yang Lebih Baik di SMA Negeri II Binjai. *Jurnal Hasil Pengabdian Masyarakat (JURIBMAS)*, 3(1), 324-330.
- Yusup, M., & Ahmad, A. (2024). Implementation of a Smart School Learning system with Internet of Things Technology at SMA Negeri II Binjai. *Instal: Jurnal Komputer*, 16(01), 1-9.
- Yusup, M., & Ahmad, A. (2024). Chatbot Optimization in Education: Improving Learning Experience and Competency Development. In *Proceeding of International Conference on Artificial Intelligence, Navigation, Engineering, and Aviation Technology (ICANEAT)* (Vol. 1, No. 1, pp. 501-504).
- Waruwu, M. (2023). Pendekatan Penelitian Pendidikan: Metode Penelitian Kualitatif, Metode Penelitian Kuantitatif dan Metode Penelitian Kombinasi (Mixed Method). *Jurnal Pendidikan Tambusai*, 7(1), 2896-2910.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118-144. <https://doi.org/10.1016/j.jsis.2019.01.003>
- Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Press.