Advances in Digital Technology and Data-Driven Business Practices

Digital Transformation of Business World

A Managerial Perspective

Edited by

Madhu Jasola
Nripendra Singh

Digital Transformation of Business World

ADVANCES IN DIGITAL TECHNOLOGY AND DATA-DRIVEN BUSINESS PRACTICES

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Digital Transformation of Business World: A Managerial Perspective

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INVESTOR IN PEOPLE

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Chapter 1

Understanding Digital Transformation in the Changing Business Environment

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Abtract

Digital transformation (DT) deals with the power of digital technologies and how it can be used by organisations towards sustainable growth, innovation and resilience in the digital era. This paradigm shift is beyond mere technological adoption, encompassing the reimagining of processes, organisational culture and customer interactions to maximise the potential of digital tools and platforms. The application of DT spans over diverse domains, from the reinvention of business models and the enhancement of operational efficiency to the empowerment of the workforce through upskilling and the cultivation of collaborative ecosystems. By embracing DT, organisations can unlock new avenues for growth, agility and competitive advantage in an increasingly digitised landscape. There are also challenges and risks associated with DT journey from cybersecurity threats and talent shortages to DT in supply chain management. Successful DT requires strong leadership commitment, clear vision, strategic planning, investment in technology and talent, ongoing monitoring and adaptation to ensure alignment with business goals and customer needs.

Keywords: Digital transformation; artificial intelligence (AI) and machine learning (ML); augmented reality (AR) and virtual reality (VR); sustainable development goals; organisational culture; supply chain management

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Introduction

Digitalisation refers to 'the pace of change in a society driven by digital technological development, involving multiple technologies at different stages of maturity that will converge and create new technologies' (McAfee, 2009). 'A sociotechnical process of applying digitizing techniques to broader social and institutional contexts that render digital technologies infrastructural' (Tilson et al., 2010). Digitisation is the process of changing from analogue to digital form, whereas digitalisation is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities (Gartner's IT Glossary). Digitisation, digitalisation and DT are interconnected. These three terms are associated with the use of digital technologies. The consensus today seems to be that DT encompasses more than digitisation (Haffke et al., 2016; Iansiti & Lakhani, 2014; Yoo et al., 2012).

DT is the integration of digital technologies across all facets of an organisation, reshaping its operations, business models and customer interactions. In today's rapidly evolving business environment, DT has emerged as a driving force for organisational success and competitiveness. DT is defined as 'The use of new digital technologies to enable major business improvement' (Fitzgerald et al., 2014) with modified examples of what kind of digital technologies to use and business improvements to achieve. 'Adopting business processes and practices to help the organisation compete effectively in an increasingly digital world' (Kane, 2017). 'The changes digital technologies can bring about in a company's business model, which result in changed products or organisational structures or in the automation of processes' (Hess et al., 2016).

Artificial intelligence (AI) and machine learning (ML) are integral components of DT, offering innovative solutions to streamline operations and drive growth. Predictive analytics enables businesses to forecast market trends, customer behaviour and demand patterns. It empowers organisations to optimise inventory management, pricing and sales forecast, thus enhancing operational efficiency and maximise profitability. AI in marketing helps in analysing vast data to personalise customer interactions, improve service quality, deliver superior customer experiences and strengthen customer loyalty. Chatbots automate routine inquiries, augment customer support teams and ensure round-the-clock availability. AI facilitates human resources management by automating recruitment processes, assessing job fit and optimising workforce planning.

Through Internet of Things (IoT) technologies, businesses can collect real-time data from interconnected devices, sensors and systems, providing unprecedented visibility into operations and workflows. In retail, IoT devices track inventory levels, analyse customer traffic patterns and personalise shopping experiences through targeted promotions and recommendations. IoT-enabled supply chain management enhances end-to-end visibility, enabling businesses to track shipments, monitor environmental conditions and ensure product quality throughout the distribution process.

In today's digitally interconnected world, the paramount importance of cybersecurity and privacy cannot be overstated. Cybersecurity measures are essential

not only for protecting sensitive information but also for safeguarding individuals, organisations and nations against malicious activities. As individuals share a lot of personal information online, concerns about data privacy and protection have intensified. Instances of data breaches, unauthorised surveillance, and data mining by companies underscore the importance of robust privacy measures. Ultimately, addressing the challenges of cybersecurity and privacy in a digitally connected world requires a multifaceted approach. Collaboration between governments, businesses, cybersecurity experts and individuals is essential to develop and implement effective strategies for protecting privacy rights.

Augmented reality (AR) and virtual reality (VR) experiences have become very important in the lives of consumers. Retailers are leveraging AR to allow customers to visualise furniture in their homes before making a purchase, try on virtual clothing or even test out cosmetics without physically applying them. Similarly, VR experiences are transporting customers to virtual showrooms, where they can explore products in detail, interact with them and make informed decisions from the comfort of their homes. Beyond retail, virtual tours are provided to potential buyers. These technologies not only enhance the customer experience but also provide consumers with more information in their purchase decisions.

Companies are working significantly to achieve Sustainable Development Goals (SDGs) through various initiatives across different sectors. They are doing it by integrating sustainability into business operations. Many companies are focusing on sustainable supply chain management by reducing environmental impacts and introducing green products. Companies are demonstrating their commitment to sustainability and contributing to the collective effort to achieve the SDGs and create a more sustainable future for all. Digital leadership and organisational culture are profound and synergistic in nature. Digital leadership enhances an organisation's agility and adaptability, enabling it to quickly respond to market changes and technological advancements. Leaders proficient in digital tools can make data-driven decisions, improve communication, foster innovation and enhance customer engagement. Simultaneously, a strong organisational culture promotes employee engagement, collaboration and retention by aligning employees with the company's values and mission. When combined together, digital leadership and robust organisational culture create a powerful dynamic. They align technological advancements with core values, foster an environment conducive to innovation, enhance organisational agility and build trust and collaboration. This synergy not only supports sustainable growth but also empowers leadership at all levels, leading to a motivated workforce capable of navigating the complexities of the digital era effectively.

DT in supply chain management represents a fundamental shift in the way businesses operate and interact within their supply networks. DT optimises supply chain processes of companies from end to end, enhancing efficiency, agility and responsiveness. The tools enable real-time visibility of supply chain operations, facilitate predictive analysis for demand forecasting and inventory optimisation and automate manual tasks to improve overall efficiency. DT also fosters collaboration among supply chain partners enabling seamless communication, information sharing and decision making. Ultimately, the goal of DT in supply chain management

is to create a more resilient, agile and customer-centric supply chain that can adapt to changing market conditions and deliver value across the entire ecosystem.

Chapter 2 talks about evolution and development of AR and VR. These emerging technologies create new opportunities in digital world. AR and VR have revolutionised the business world across different sectors. Both technologies have developed different applications in various industries. The chapter explores the factors influencing the immersive experiences which results in application of AR and VR in different sectors like entertainment and games, tourism, education and learning, healthcare, retail buying and selling and the military.

Chapter 3 explores the influence of DT on sustainable economic development by focusing on information and communication technology, e-commerce with special reference to micro, small and medium enterprises, financial inclusion and FINTECH with thrust on existence of FINTECH companies in India. This chapter also attempts to focus on existing digital infrastructure provided by the Government and challenges in DT.

Chapter 4 is on synergising SDGs and DT: Opportunities, Challenges and Strategies. DT comprises of AI, big data analytics, blockchain and IoT, and how each component impacts and is helpful in the achievement of SDGs. AI uses predictive analytics and personalised medicine in healthcare and contributes in SDG 3. Similarly in agriculture, AI technology is used in crop yields and resource management supporting SDG 2.

Chapter 5 on the role of technology in shaping modern organisational dynamics discusses impact of DT on organisational behaviour. The chapter critically examines the role of automation and AI in reducing human biases, ethical implications associated with privacy, surveillance and fairness. Insights into future trends and strategic approaches for preparing organisations to navigate continuous technological disruptions are also discussed.

Chapter 6 is on the swift progression of digital technologies that has revolutionised how organisations operate, prompting businesses to implement DT strategies to stay competitive and ensure long-term viability. Cultivating a resilient organisational culture is crucial for managing these changes, necessitating leadership dedication and workforce upskilling. By embracing advanced technologies and promoting a culture of adaptability and continuous learning, organisations can enhance their resilience, maintaining agility in an increasingly digital landscape. Finally, exploring emerging trends such as AI, the metaverse and VR, which are influencing the future of resilient, digitally enabled organisations.

Chapter 7 presents the role of digital leaders and their competencies such as vision, agility and commitment in shaping an organisation's culture towards sustainability. It examines how digital leadership can foster an SDG-oriented organisational culture by embedding sustainable business practices, adopting green technologies and promoting collaborative stakeholder efforts. Examples of successful companies demonstrate that integrating digital leadership into sustainability initiatives not only enhances organisational performance but also contributes to societal well-being.

Chapter 8 describes the advancements and applications of AI and ML, starting the journey from foundational computational theories to present-day influence

across various industries. It provides a historical perspective on technological resistance and societal transformation, drawing comparisons between previous industrial revolutions and the current AI-driven shift. The chapter delineates the differences between AI and ML, reviews significant milestones in AI's evolution and underscores the pivotal roles of deep learning and reinforcement learning in contemporary AI systems.

Chapter 9 discusses how DT is fundamentally altering supply chain operations by enhancing efficiency, visibility and responsiveness. The current use of digital technologies includes the IoT, AI, blockchain and cloud computing in supply chain management. These technologies facilitate real-time tracking, predictive analytics and secure transactions, promoting increased collaboration and transparency throughout the value chain. However, emerging challenges such as cybersecurity risks, data privacy issues, complexities in technology integration and the need for workforce upskilling require careful attention.

Chapter 10 explores the critical role of big data in this transformation, focusing on its influence on business intelligence, operational efficiency and strategic planning. It begins by defining big data and its core characteristics. Subsequently, it discusses the technologies and tools that enable the collection, storage and analysis of extensive datasets. In today's digital age, big data serves as a key driver of change across multiple sectors, revolutionising how organisations function, make decisions and generate value. By leveraging vast amount of structured and unstructured data, organisations can uncover hidden patterns, gain deeper insights and predict future trends with accuracy.

Chapter 11 begins by examining traditional supply chain models, highlighting challenges such as limited visibility, inefficiencies and stakeholder mistrust. These systems often suffer from fragmented processes hindering seamless coordination and delaying real-time decision making. The emergence of advanced technology marks a pivotal shift, addressing these issues by reshaping supply chains into more robust, transparent and efficient systems, thereby providing businesses with a competitive advantage in the global market. Furthermore, the chapter discusses the opportunities and challenges presented by the DT in supply chain management.

Chapter 12 investigates the managerial facets of implementing AI governance and digital twins within the Industrial Internet of Things (IIoT). It emphasises the creation of ethical and secure cybersecurity frameworks to boost operational efficiency and safeguard critical infrastructure. Beginning with an overview of AI governance principles and the function of digital twins in IIoT, there is a literature review to identify challenges and best practices for integrating these technologies. It underscores the necessity of ethical considerations and robust cybersecurity measures. It stresses the importance of cultivating a culture of cybersecurity awareness and ethical responsibility, which are vital for protecting digital twins and IIoT systems from cyber threats.

Chapter 13 examines how digital advancements can be leveraged to establish sustainable and resilient supply networks aligned with overarching sustainability goals. It provides the overview of the roles of AI, IoT, blockchain, big data analytics and other technologies in digitalisation. The transition from traditional

supply chain practices to sustainable and resilient models is emphasised. Additionally, the chapter explores various aspects of sustainability, resilience and circular economy practices. It highlights the potential applications of digital technologies, their roles in supply chain transitions and the challenges encountered during these transformations.

Chapter 14 discusses recent technological developments, widespread internet access and affordable mobile devices that have created ideal conditions for innovators and emerging businesses. The advent of cloud computing and the IoT has further accelerated the adoption of digital technologies. Interconnectivity among various devices has eliminated reliance on specific types of devices or networks. These innovations enable businesses to streamline operations, improve customer experiences and develop new business models. However, increased digitisation also broadens the potential for cyber threats. As businesses become more interconnected and data-driven, they become more susceptible to cyberattacks.

References

Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2014). Embracing digital technology: A new strategic imperative. *MIT Sloan Management Review*, *55*(2), 1.

Haffke, I., Kalgovas, B. J., & Benlian, A. (2016). *The role of the CIO and the CDO in an organization's digital transformation* [Paper presentation]. Thirty Seventh International Conference on Information Systems.

Hess, T., Benlian, A., Matt, C., & Wiesbock, F. (2016). Options for formulating a digital transformation strategy. *MIS Quarterly Executive*, *15*(2), 123–139.

Iansiti, M., & Lakhani, K. R. (2014). Digital ubiquity: How connections, sensors, and data are revolutionizing business. *Harvard Business Review*, *92*(11), 19.

Kane, G. C. (2017). *Digital maturity, not digital transformation*. MIT Sloan Management Review.

McAfee, A. (2009). *Enterprise 2.0: New collaborative tools for your organization's toughest challenges*. Harvard Business Press.

Tilson, D., Lyytinen, K., & Sorensen, C. (2010). Research commentary – digital infrastructures: The missing IS research agenda. *Information Systems Research*, *21*(4), 748–759.

Yoo, Y., Boland, R. J., Jr., Lyytinen, K., & Majchrzak, A. (2012). Organizing for innovation in the digitized world. *Organization Science*, *23*(5), 1398–1408.

Chapter 2

Exploring the Determinants Influencing the Immersive Experience of Augmented Reality and Virtual Reality Applications: A Cross-Sector Study

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Abstract

In today's modern and technology-driven world, augmented reality (AR) and virtual reality (VR) have positioned themselves as technological game changers which have impacted not only business processes but also customer engagement. By offering experiences where people can be fully immersed and engaged, these technologies have transformed the landscape of multiple sectors.

VR recreates real-life retail experience thereby encouraging consumer interaction, whereas AR bridges the gap between online and offline shopping. Several factors that have emboldened the adoption of AR and VR across all industries include perceived ease of use (PEOU), perceived usefulness (PU), and behavioural intention (BI).

In the healthcare sector, adoption is influenced by PU, ease of use, attitude (ATT), BI, and compatibility (COP). Additionally, user experience plays a crucial part in delivering immersive user interactions. In the education sector, factors like perceived enjoyment (PE), e-social influence, and facilitating conditions (FC) allow AR/VR to fulfil interactive learning roles.

Retail application adoption hinges on usefulness, ease of use, ATTs, PE, and perceived informativeness (PI), which provide engaging shopping experiences like virtual try-ons and interactive store displays. In sports and

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gaming, social influence (SINF) and entertainment value drive adoption while improving training, gaming and overall user engagement. Tourism can take advantage of AR/VR through perceived value (PV), ease of use, and PE which in turn results in having competitive advantages through immersive experiences.

This combined study provides valuable insights for stakeholders to understand the factors that impact AR/VR usage across diverse sectors.

Keywords: Augmented reality; virtual reality; immersive experience; interactive learning; customer engagement; experiential marketing

Introduction

AR and VR may be considered emerging technologies that attract great interest as the tools that define new opportunities for using digital content. AR enhances the user's ability to communicate and interact with the real world by placing computer-generated images onto it. On the other hand, VR immerses the user in a virtual environment, thereby giving a feeling of being there that makes interactive experiences possible. AR and VR have undergone tremendous development in hardware, software, and user experience design in the past few years. AR and VR have revolutionised our world with ground-breaking new inventions across different sectors. Both technologies have developed a lot in the past years and have applications in numerous industries viz. entertainment and games, tourism, education and learning, healthcare, retail buying and selling, and the military.

This revolutionary technology will evolve into an indispensable element in all areas of human activity. Today, AR/VR is changing the way we use technology and interact in the virtual playfield, providing experiences that were previously impossible. Imagine becoming a vital tool that changes the way businesses and processes are implemented and operated, playing an influential role in social life, changing the entertainment world through rapid changes in the gaming and movie ecosystem, and leading the way in advertising media, tourism, travel industry, education, healthcare, etc. (Hassan & Jung, 2018; Marques & Pombo, 2019).

Some interesting review articles and conceptual papers were published in a particular sector of this research field (Radianti et al., 2020); however, the empirical studies are very limited (Yung & Khoo-Lattimore, 2019). It is undeniably intriguing to understand 'What are the determinants influencing the immersive experience of AR and VR applications: that affect the acceptance and usage of AR and VR in the various sectors?' Addressing this question the study explores the factors influencing the immersive experiences resulting in the usage of AR and VR applications in different sectors, including healthcare, tourism, education, retail, shopping, and sports and games.