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*Corresponding author

Dr Shereen Nassar, Associate professor in Logistics and Supply Chain Management, Edinburgh Business School, Heriot-Watt University, UK

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Mini-Review

Supply Chain Maturity Drives Successful Digital Transformation

Dr Shereen Nassar*

Associate professor in Logistics and Supply Chain Management, Edinburgh Business School, Heriot-Watt University, UK

Abstract

Understanding supply chain digital transformation and the related concepts are core to its success. Global surveys showed that most businesses struggle to achieve the potential benefits of the implemented digital solutions. Focusing only on potential new technologies without understanding the level of business maturity at which digital technologies can be beneficial is the key cause of failure. This article reviews and differentiates various digital transformation terminologies and how they should be used. The article has a main focus on supply chain digital maturity and its impact on the success of digital transformation initiatives.

Introduction

In any industry, supply chains and logistics are crucial for business operations, particularly during an economic downturn. Business operations across all sectors are significantly impacted by the logistics industry, particularly during tough economic times. Business models in the supply chain and logistics industry have undergone several changes in the last few years [1]. The logistics industry has been able to function despite many challenges by introducing innovative solutions in the past few years. Adaptation and implementation of updated technologies are necessary for many organizations to become more sustainable, flexible, and efficient. Organizations are increasingly having trouble comprehending what works for them and making changes as different technologies emerge. Organizations have been able to adapt to the new imperatives of continuous innovation, customer-centricity, and agility through the use of advanced supply chain technologies [2]. They comprehend that digitization, digitalization, and digital transformation are crucial for guiding implementation and achieving goals. Understanding the technological maturity of a supply chain and logistics is a starting point for digital transformation to differentiate hype from reality.

Digital Terminologies

The term 'digital' is defined as how companies run their businesses, not necessarily about any one process [3]. This definition allows for the identification of three key areas: creating business value, improving processes that impact customer experience, and developing key capabilities that support integrated business initiatives. Although digital transformation is commonly perceived as the technology used to significantly improve enterprise performance, it is important to understand the prerequisites that lead to a true digital transformation. Digital transformation of a business requires more than just adopting technology. The implementation of technology does not guarantee that the company, its customers, or other key stakeholders will generate additional value. The success of leading companies in digital transformation depends on focusing on two key dimensions. By using digital technologies, the company is transforming customer value propositions and operations. Understanding the terminology of transformation, digitization, and digitalization is necessary. Despite their interchangeability, it is crucial to comprehend the distinction between digitization, digitalization, and digital transformation [4].

Digitization is the conversion of information, photos, and records from analogue to digital - such as turning a physical photograph into a digital image. The integration of people, processes, data, and things is what Cisco calls digitization to provide insight and actionable insights that enable business outcomes. Cisco emphasized the significance of data, processes, and newly acquired knowledge in creating new value for the business and stakeholders [5]. The conversion of digitized information in logistics can be utilized to enhance, restructure, and simplify processes. The amount of paperwork, in-person meetings/interactions, and the possibility of missing actions are reduced by this. Furthermore, it enhances the speed of transactions, decreases transaction turnaround time, and reduces operational expenses. In addition to reducing decision-making time and improving management efficiencies, digitized information will also enable sales and delivery processes to be streamlined, and it will improve the efficiency of supplier and manufacturer networks [6]. Overhauling outdated systems and manual processes was necessary because of the COVID-19 pandemic. Supply chain operators and customers strive for end-to-end transparency, and digitizing processes is the first step to achieving that goal. Furthermore, digitizing processes enables real-time insights and visibility, granting complete control to those involved in the process.

Digitalization is related to digital technologies including big data, cloud computing, the Internet of Things, virtual reality, and artificial intelligence, which are used and applied in processes and systems. This should be supported by change management and a digital business culture resulting in revenue generation, improved business processes, and the creation of a digital business environment. Digitalization is a process in logistics that uses digital data to enhance business processes and efficiency, as well as create new value. By developing a new digital organizational culture, this can be achieved. In order to become more competitive in the market, manufacturers, distributors, and logistics operators are rapidly adopting appropriate technologies. Continuous innovation and customer centricity are encouraged in an ever-changing supply chain environment. When big data is mastered in logistics, inefficiencies can be reduced in last-mile delivery, transparency can be provided to the supply chain, delivery timings can be enhanced, perishable goods can be protected, and the entire supply chain can be automated [2]. Utilizing digitization to improve processes and service deliverables is crucial to improving data gathering and management in the industry. This will lead to enhanced results and benefits for the organization. Using GPS sensors to track location and parking applications to display vacant parking spots in delivery areas, digitalization can significantly reduce stress during last-mile delivery. After understanding the definitions of digitization and digitalization terminologies, it becomes evident that digitalization represents a more comprehensive approach to optimizing business operations using existing data sources. Technology transformation can be achieved more easily in this way. The development of digital capabilities that are supported by digital leadership and

organizational change management are essential. Digital transformation is ultimately a result of digitization and digitalization. By leveraging data and technology, digital transformation is rethinking business methodologies from a customer-focused perspective. An organization's digital transformation begins with determining what value it can provide its customers under an updated or revised business model [2]. Until 2025, the digital transformation of the logistics industry will generate USD 1.5 trillion in value for logistics players, as well as USD 2.4 trillion in societal benefits [7].

Making Sense of Digital Transformation Hype

Digital transformation efforts are focused on business optimization rather than business transformation. In a digital environment, companies do not intend to reinvent how they will run their businesses; instead, they intend to optimize existing processes and structures through the use of digital technologies. It is for this reason that many organizations find digital transformation challenging. This situation is primarily caused by a lack of understanding of what an accurate digital transformation process entails [2]. Focusing only on potential new technologies without understanding the level of business maturity at which digital technologies can be beneficial is a recipe for failure. There is a report that 85% of executives believe that digital maturity is critical to the success of an organization. In order for digital transformation initiatives to be successful, it has become essential to conduct a Digital Maturity Assessment.

The concept of digital transformation maturity in logistics refers to the process of analyzing all digital processes of the supply chain at various intervals throughout the organization to determine its impact [2]. From a holistic perspective, it is important to understand whether the number of technological changes made and adopted makes sense. It is important to note that, while digitization and digitalization strive to enhance transparency, optimize revenue and simplify processes, digital transformation maturity keeps track of the methods that work and those that do not and need to be discarded. While digital transformation is usually associated with the development of several operational capabilities, it may be detrimental to the growth of an organization if it lacks a clear framework for achieving maximum benefits throughout the supply chain [8].

Models of Supply Chain Digital Readiness and Maturity

The evaluation of baseline supply chain management structures can be supported by a number of analytical tools. As part of its supply chain digital maturity assessment tool, PWC introduced an online self-assessment tool in 2016. There are four stages and seven dimensions to the process. There are 33 questions in this tool focusing on related dimensions, with a few questions regarding industry, region, country, and annual revenue [9]. It is important to note that these dimensions include digital business models and customer access, the digitalization of product and service offerings, the digitization and integration of vertical and horizontal value chains, the use of data and analytics as a core capability, the implementation of an agile IT architecture, the compliance, security, legal and tax strategies, and the development of an organizational culture that is digital [8]. A high-impact visual is provided by the post-assessment Radar graphic. It is important to focus on the capability of the supply chain maturity level to cope with complexity or to create complexity in an orderly manner. Schumacher et al. [10] introduced another model for assessing digital readiness and maturity. The model added to the existing models through the focus on organisational elements. To assess companies' digital maturity, the model utilized nine dimensions and sixty-two maturity items. The nine dimensions include Strategy, leadership, customers, products, operations, culture, people, governance and technology. Businesses must think big when implementing digital transformation since this is a strategic decision that has a strategic impact on their industry. Moreover, supply chain digitalization is a continuous process rather than a one-time endeavour [8]. A realistic implementation roadmap and waves are therefore necessary to plan a comprehensive transformation journey [6].

Conclusion

In conclusion, the well-being of logistics organizations and supply chains depends on their readiness for change and maturity level for successful implementation. It is important to adopt advanced digital technologies to build a robust and connected system. However, the way it is done, the business readiness level, and the type of technologies used are crucial factors. With economies on the rise, logistics remains the backbone of modern society and a lean freight sector is necessary. Governments recognize that emerging technologies are critical to ensuring a sustainable economy.

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