Investigating the Dimensions, Components and Key Indicators of Supply Chain Management Based on Digital Technologies

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Purpose: Over the past decade, the advent of digital technologies has led to dramatic changes in the nature of business processes, and the introduction of the concept of digital developments has greatly affected various aspects of business. New digital technologies are being prepared to transform all areas of what we call "traditional business processes." With the help of digital technologies, the speed, accuracy and precision of processes in various businesses have been dramatically optimized, which has saved time, energy and resources in organizations and businesses.

Methodology: Supply Chain Management (SCM), as the core business priority of any manufacturing company, has placed itself in the focus of business owners. Suppliers, organizations, and supply chain agencies use the information and share it with others while generating information.

Findings: In this regard, considering the importance and fundamental role of the supply chain in the organization and business, as well as the important effects that digital technologies can have on it, this paper reviews library dimensions, components, and key indicators of a chain by reviewing the library resources. Supply based on digital technologies.

Originality/Value: This study provides a conceptual framework for the digital supply chain that demonstrates the importance of this chain.

Keywords: Supply Chain, Digital Developments, Digital Supply Chain, Digital Commerce.

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1. Introduction
Digitization means very advanced ways of producing data, computing power and communication. Artificial intelligence and the Internet of Things are examples of digitalization that not only create new opportunities but also pose serious threats to cybersecurity [1].

The advent of new technologies has made value creation in the supply chain one of the priorities of companies operating in various industries, and these technologies have provided us with tremendous opportunities to enter a new era. These technologies, in parallel with each other, have paved the way for the occurrence of a phenomenon called digital transformation, which in turn has provided a favorable environment for the creation of digital supply chain [2]. The term digital supply chain refers to the subject of technology; a factor that plays a key role in modern supply chains. The key to success in integrating a supply chain with digital capabilities is total value optimization (TVO). TVO is a method that enables the effective use of technology to anticipate and meet variable demand by synchronizing the five links in the supply chain, i.e. planning, purchasing, performing, transferring and completing, thus creating value in the supply chain for all stakeholders. Minimum cost to be achieved [3].

Business owners are not the only ones who benefit from the output of these better decisions, but the benefits of these better decisions reach customers, suppliers, and generally all stakeholders in the supply chain [4]. The ability to see and monitor end-to-end supply chains made possible by digital transformation enables companies to provide better products and services to their customers while achieving better returns and sustainable success for shareholders. To achieve a leading position or maintain their current position, supply chain managers must shift their focus to reducing costs in order to make new processes impossible, and to make companies more connected and agile to take advantage of new technology capabilities. Since in response to the main concerns of the supply chain in the past few years, the digitalization of supply chain processes has been proposed, so in this paper, an attempt has been made to explore the key dimensions and components of this attractive and fledgling field [5].

The structure of the article is as follows: In the second part, the literature review in the field of digital supply chain is discussed. In the third section, the dimensions of the digital supply chain are presented and a conceptual model for the digital supply chain is presented, and finally in the fourth section, the results are stated.

2. Literature Review
For nearly two decades, supply chain management has been at the top of the management agenda of many industrial companies as a holistic approach to achieving competitive advantage by improving value chain performance. Supply chain management also includes the management of a series of related activities related to the planning, coordination, and control of the movement of materials, parts, and final goods from supplier to customer. To this end, material, financial and intelligence flows are managed by decision-making at the strategic, tactical and operational levels throughout the supply chain [6]. The development of supply chain management as a new field of management is a direct result of the emerging e-commerce era and new information technology capabilities. Over the years, huge changes and technologies have been made that have changed many business matters. Such as the change in many aspects of day-to-day transactions as consumers, customers, suppliers and producers, which
indicates the existence of supply chain management in the advanced digital economy. Of course, digital supply chain management will also fundamentally affect chain design and processes [7].

The digital transformation, which can be considered a combination of technology, new business models and organizational culture based on awareness and cooperation, has now become a top priority for companies operating in various industries due to the various benefits it offers. In fact, the concept of digital supply chain and value creation in the supply chain is based on digital transformation. Successful implementation of digital transformation in different industries can [8]:

- Create a competitive advantage by improving operations and operating models so that companies can achieve better long-term results backed by this advantage, while accelerating the sales process and increasing profit margins.
- Provide a platform for better decision-making by providing deeper insights into business processes. Digital transformation is based on data and information, and this data-driven approach enables companies to identify hidden opportunities to improve outputs and reduce costs without human intervention.
- Improve the customer experience. This is done through various methods such as increasing the responsiveness of call centers, but the effect of this improvement may be more pronounced in the headquarters.

Using Porter's value chain idea, each supply chain includes a number of activities that are performed to prepare (raw) materials, produce products from these materials, then store products and finally deliver them to customers. Thus, supply chain management as a discipline can be divided into four main parts: customer, logistics and inventory, production and supplier, and two secondary dimensions, technology and performance measurement. Figure (1) shows the basic dimensions of a digital supply chain.

![Diagram](image-url)

**Fig. 1. Dimensions of the digital supply chain [9]**

Focusing on how to integrate the supply chain with digital transformation requires setting appropriate standards. Of course, in addition to these criteria, other criteria are needed to ensure that the message
of this change is clearly conveyed to all business stakeholders and that all of them are actively involved in digital transformation.

Unchanging innovations such as digitalization and industry 4.0 affect the development of new paradigms, principles and models in digital supply chain management. The Internet of Things (IoT) facilitates the development of digital supply chains and intelligent operations. Digital technology applications in the digital supply chain include big data analytics, block chain, cloud computing, advanced sensor manufacturing technologies, advanced robotics, augmented reality, advanced tracking technology, and additive manufacturing, as shown in Figure (2).

Fig. 2. Digital supply chain capability [10]

Many companies have invested heavily in various sectors to digitize their business operations and supply chains. Thus, digitalization allows the next generation of supply chains to evolve, offering both flexibility and efficiency.

3. A Framework for the Digital Supply Chain

A digital supply network can be broadly defined as an integrated set of supply chain capabilities that are digitally activated and fed through an interconnected flow of information. The digital supply chain created by new and evolving technologies produces the following results that distinguish it from the traditional linear supply chain [11]:

- Overall transparency that allows viewing throughout the supply chain.
- High level of agility that results in a flexible and active response.
- A connected environment that enhances functional interaction between all partners and functions.
- Resource optimization that develops a cohesive environment for humans and machinery.
- Comprehensive decision making that improves network productivity, reduces costs and increases revenue.
In accordance with the research conducted and the review of extensive studies, a framework in accordance with Figure (3) can be considered for the development of the digital supply chain. This framework includes three important processes of digitalization, supply chain management and technology application.

These features enable companies to take full advantage of their supply networks and overcome traditional barriers to resources, time and space. These features lead to new levels of performance, improved productivity and operational effectiveness, and new revenue opportunities.

4. Conclusion

Value creation in the supply chain has now become one of the major concerns in various industries, and managers and business owners feel the need to make changes in the supply chain more than ever. A chain that can be optimized in a variety of ways while reducing costs while improving efficiency and effectiveness. Digitalization has changed the procedures of production, procurement, activity management and digital supply chain of businesses. Of course, sometimes this issue has a very destructive effect, but it cannot be considered a destructive phenomenon. Digitization is just one tool that can be used to achieve various goals. Before making any investment, it is necessary to develop a strategy to ensure that the goals are achieved. Foreign shareholders such as software suppliers must be present. In addition, the future is difficult to predict, and digital innovations are emerging in many forms, so companies need to be agile. What sets the stage for value creation in the supply chain is digital transformation. A development in which the concept of digital supply chain is formed. In order to witness the digital transformation in the true sense of the word, managers must reconsider business relationships with all stakeholders and change transportation and business models, as well as provide the necessary technical infrastructure, to create a culture that welcomes such a transformation.
References


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