

Chapter 1

Supply Chain 6.0 and Moving Towards Hyper- Intelligent Processes

Hamed Nozari

 <https://orcid.org/0000-0002-6500-6708>

Azad University of the Emirates, Dubai, UAE

ABSTRACT

Today's world is full of technology. Humans and therefore businesses without the presence of technology are doomed to fail. In order to analyze people and organizations, it is no longer possible to rely only on the information that flows through language. In today's world, decision-making should be based on behavior and performance data. So, technologies will consider all aspects of life and the behavior of people, organizations, and all related processes and will monitor them step by step so that the results are as accurate as possible. In recent years, the concepts of Industry 4.0, which included the emergence of transformative technologies, and Industry 5.0, which emphasized sustainability, resilience, and human-centeredness, have grown. But the next generation of industry, the 6.0 industrial generation, is also on the way. It means the mixing of all processes, people, and things in technology and decision-making based on intelligent mode. Therefore, in this research, a concept called Supply Chain 6.0 has been described including its dimensions and components.

INTRODUCTION

Rapid changes and advances in information technology have made supply chain management undergo fundamental changes. New technologies and their applications

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in various industries and services have given various capabilities to companies. Establishing various and many communications, the combination of capabilities and competencies are of this category. In today's world, endeavors to computerize and intelligentize forms have a special place, so all businesses are included in this issue. One of these areas is supply chain management frameworks that form the most techniques in all types of businesses (Fallah and Nozari, 2021).

Supply chains are the beating heart of businesses today because they include all operational processes, from supply and communication with suppliers to sales and distribution. Therefore, the correct understanding and proper planning of the processes in this chain are very important. Accuracy in calculations and schedules, waste management, and financial flow in these chains make businesses win against competitors (Nahr et al., 2021).

Therefore, it can be concluded that any tool that can help in the facilitation and accuracy of these processes, if it does not disturb the optimization of other processes, can be used in this chain. The transformative technologies in the serious era are these tools. As we know, data has always existed in all business processes. However, due to the lack of suitable tools, the possibility of obtaining a lot of data, or the possibility of analyzing the obtained data, these two problems have been solved with transformative technologies. In addition to the possibility of refining and storing large amounts of data that exist in all processes, it is also possible to extract semi-structured and unstructured data in the new era. Communication and interactive systems have multiplied the amount of production data in all supply chain processes.

For this reason, big data analysis and data science technology have been growing rapidly in recent years. The Internet of Things connects all devices in the supply chain to the Internet, and artificial intelligence provides analytical capabilities to the supply chain. The combination of artificial intelligence and the Internet of Things is an advanced technology that integrates the capabilities of artificial intelligence and the Internet of Things. This technology is called artificial intelligence of things and gives high analytical power to decision-making processes. Blockchain technology ensures transparency and honesty in the data and improves the financial processes of the supply chain. Online platforms and social networks enable an interactive space between people and processes throughout the chain and a large volume of structured data. They produce structured and unstructured. Most of these technologies together created supply chain 4.0 in the context of industry 5.0. The alignment of all these technologies together with an emphasis on creating sustainable and resilient supply chains that are also human-centered, made Supply Chains 5.0. But the 6.0 generation of industry is beyond all these things. In addition to covering all items in Industry 5.0 and Industry 4.0, it manages all processes, objects, and people in such a way as to be agile, stable, and resilient, which, like natural intelligence, minimizes the

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