

Chapter 15

The Impact of 5G Technology on the Digital Supply Chain and Operations Management Landscape

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ABSTRACT

The chapter discusses 5G's supply chain and operations management transformation possibilities. With its high bandwidth, low latency, and extensive connectivity, 5G changes supply chains. Statistical evidence shows 5G's rapid integration, growing market value, and worldwide economic impacts. This technology brings real-time visibility, predictive maintenance, efficient logistics, optimised inventory management, and data-driven demand forecasting to traditional practises. Organisations use 5G to improve efficiency, responsiveness, and competitiveness in case studies. 5G is depicted as a driving force in the digitalization revolution, necessary for organisations managing rapid change and unrelenting innovation. This chapter emphasises 5G's centrality to the digitalization revolution. It is more than a technological upgrade for organisations in a time of constant change and innovation. The authors aim to help businesses adapt, optimise, and thrive in the ever-changing supply chain and operations management landscape by revealing how 5G technology is changing supply chains.

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1. INTRODUCTION

The supply chain and operations management environment on a worldwide scale is in the midst of a deep shift, and at the heart of this transformation lies the revolutionary potential of 5G technology. 5G is a significant technological innovation poised to transform how businesses manage their supply chains, optimise their operations, and respond to the ever-evolving needs of the modern marketplace (Biswas et al., 2023). With its promise of high bandwidth, low latency, and huge connectivity, 5G has all these desirable characteristics. The Figure 1 shows the overview of traditional supply chain management framework.

Figure 1. Overview of traditional supply chain management network



1.1 Comprehending 5G Technology

It is imperative to have a fundamental understanding of this cutting-edge technology before going into the profound ramifications that 5G will have on managing supply chains and operations. The fifth generation of wireless technology, often known as 5G, significantly improved over earlier generations of wireless technology, such as 4G and 3G. At its heart, 5G can be broken down into three primary characteristics that make it a game-changer for various industries, including supply chain and operations management. The bandwidth that 5G networks can support has been dramatically increased (Verma, 2023). This translates to data transfer speeds that are substantially higher, making it possible to send massive amounts of data in a smooth manner in a matter of seconds. This increase in bandwidth alone has far-reaching ramifications for professionals working in supply chain management and operations in this day and age when data is the lifeblood of decision-making. Figure 2 shows an overview of 5G technology.

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