

Chapter 6

Does Technology Drive Supply Chain Visibility?

Evidence From the FMCG Sector in India

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ABSTRACT

Success and efficiency of today's business depends on many factors across various industries. Among the many factors, supply chain plays a crucial role. The well-functioning of distribution system may lead to customer satisfaction, cost reduction, risk management, competitive advantage, collaboration and integration, innovation and adoptability and sustainability. Adopting technology in supply chain systems is another way of increasing business growth in the present era. The technologies used in today's business organizations are blockchain, internet of things (IoT), cloud technology, etc. To what extent technology is used to improve supply chain visibility in business is a matter of concern. With this background, the study aims to explore the relationship and impact of different technology on supply chain visibility in fast moving consumer goods sector. To meet the objective of the study, the study chose the top 20 FMCG companies based on highest market share and collected the data from 20 supply chain managers. The variables considered for the study were internet of things (IoT), blockchain, artificial intelligence (AI), radio frequency identification (RFID), cloud technology and information technology. relevant statistical analysis was used to prove the results and it is evident that technology positively correlates with the supply chain visibility. Artificial Intelligence has the most significant impact on the supply chain visibility of a firm. Hence, there is a significant impact of technology on supply chain visibility and the extent impact is high.

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INTRODUCTION

Supply chain visibility refers to the ability to track and monitor products, inventory, and information as they move through the various stages of the supply chain, from suppliers to manufacturers, distributors, retailers, and ultimately to customers. It involves real-time access to accurate and timely data on the status, location, and movement of goods, as well as the availability of relevant information related to orders, shipments, and demand (Mollenkopf et al., 2017). It allows organizations to gain insights into their supply chain operations, identify potential bottlenecks or disruptions, and make informed decisions to optimize performance, improve customer satisfaction, and enhance overall supply chain efficiency (Papathanasiou et al., 2017). Improved supply chain visibility leads to better inventory management (Chen et al., 2017). Supply chain visibility leads to higher customer satisfaction levels ((Lee & Tang, 2020). Real time supply chain visibility helps in early detection of potential disruptions (Wang et al., 2018). Increased supply chain visibility enhances collaboration, trust and information sharing (Zhang & Zhang, 2019). Enhanced visibility encourages transparency, traceability and environmental responsibility (Li et al., 2021) The technologies used in supply chain visibility are Internet of Things (IoT) (Chen & Paulraj, 2018), blockchain technology (Zhang et al., 2019), Artificial intelligence (AI) (Lee et al., 2020), Radio Frequency Identification (RFID) technology ((Wang et al., 2021), and cloud computing (Tseng et al., 2022). The fast-moving consumer goods (FMCG) sector is characterized by high product turnover, intense competition, and evolving customer preferences. Efficient Supply chain operations enable customer demands promptly (Verma et al., 2018). Agile supply chain practices enable FMCG companies adapt to market changes, reduce lead times, and improve responsiveness to customer needs (Agarwal et al., 2020). Effective integration of supply chain result in enhanced supply chain efficiency, reduced stockouts, and improved customer service levels (Saravanan & Ravi, 2019). Growing complexity of the FMCG supply chain: The FMCG supply chain is becoming increasingly complex, with multiple stakeholders and partners involved in the process. This complexity makes it more difficult to achieve visibility, and technology may be an important tool to help manage this complexity. Potential for cost savings: Technology has the potential to improve supply chain visibility, reduce inventory costs, and streamline the supply chain process. This can result in significant cost savings for FMCG companies. Improved customer service: Improved supply chain visibility can also result in better customer service, as companies can respond more quickly to customer demand and reduce delivery times. With these insights, the study aims to find the influence of each technology (such as Internet of Things (IoT), Blockchain, Artificial Intelligence (AI), Radio Frequency Identification (RFID), Cloud Technology and Information Technology) on Supply Chain Visibility (SCV) in Fast Moving Consumer Goods (FMCG) sector. In addition to this, the study provides opportunities to improve supply chain visibility in the FMCG sector.

LITERATURE REVIEW

By providing visibility across supply networks, supply chain visibility (SCV), a subset of supply chain management (SCM), aims to enhance business decision-making and operational effectiveness. Due to a number of issues with managing existing company supply chains as they change to meet the demands of the market, global megatrends towards globalisation have forced the study of supply chain visibility into the scientific spotlight. The ability to obtain precise and up-to-date information about a company's supply networks in relation to both internal and external activity is the basis of supply chain visibility.

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