Chapter 11
Supply and Demand Management During Industrial Evolutions: Present and Future Outlook

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ABSTRACT

The aim of this chapter is to understand the status quo of academic research on demand and supply management in terms of cause and mitigation strategies during the third industrial revolution and estimate the scope in the fourth industrial revolution. The chapter uses a systematic literature review approach to classify the past studies published in the International Journal of Production Research during the third industrial revolution based on cause and mitigation strategic framework. Similarly, the study estimates the scope in future by brainstorming academicians and practitioners using Q-methodology. This analysis reveals that dependence on technology will simplify tracking of transit inventory and real-time sharing transparency and continuous updating will simplify demand forecasting.

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INTRODUCTION

In a company, demand forecasting is one of the initial and important activities. Because in this initial stage, if it is forecasted properly, then it is based on capacity planning, raw material procurement, manufacturing, distribution, retailer and finally sell the product to the customers. If the demand is not forecasted properly then the organization cannot sell whatever it has produced. So this demand forecasting is the survival process of any industry.

The next foremost process in any industry is the inventory management. Inventory is how the stock is maintained at various levels of the organization. Of course, company could maintain the high level stock at various levels of the SC so that we could satisfy the customers because it is easily available in the market. But the inventory involves the cost. So how the industry’s financial position is? Based on financial position only the organization will survive and grow further. At the same time, company cannot maintain the stock level very low in all the levels of SC because when the customer wants to buy the product, it should be available; otherwise, the product will not be there in the market.

Of course, demand forecasting and inventory management may look like different activities in an industry; but it is very close activity. Because based on the demand forecasting only the procurement process, manufacturing process, finished products, distribution process and retailer sales process will be activated. In each and every process, the inventory level is maintained like inbound inventory, in-process inventory, finished goods inventory and outbound inventory. Based on the inventory level only the transshipment and replenishment in the entire supply chain.

So, the two critical and important activities are well handled in the industrial era and it will be handled in future. Matching supply and demand were found to be critical until now and the major disruption for the mismatch is caused by vital supply chain drivers such as Inventory and forecasting information. At times, these drivers helped companies to mitigate the cause and micro matched supply with demand. Demand forecasting is one of the critical activities and the errors occurred during forecasting may build up issues starting from the procurement till it reaches the customer end (Dellino et al., 2017). To deal with customer requirements, focal company’s supply chain operations need to forecast demand accurately (Zhang et al. 2018). The other driver on the supply side, namely inventory, is quite often used as a mitigation strategy to match supply and demand is also with other supply chain drivers such as transportation and customer service level (Taleizadeh et al., 2015).

It is vital to understand how supply and demand management have been done in the past along sides of evolution of technologies. That too industry 4.0 can widely support to micro match supply and demand. Hence it is essential to revisit and learn supply demand management over the evolution of industry 1.0 to 4.0.
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