

TO STUDY THE EVOLVING TRANSFORMATION TRENDS IN SUPPLY CHAIN MANAGEMENT.

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ABSTRACT

There are several global supply chains that are not ready to deal with the environment we are joining. For that reason, supply chain managers need to change their emphasis from reducing costs to allowing new processes to make companies more connected and agile in order to generate value within the organisation. New digital innovations are on their way to changing almost all aspects of conventional business processes that are evolving every day. Almost every industry's main business concern will be at the forefront of this upcoming digital age. In today's companies, the digitization process affects almost all, including supply chain management, which places huge pressure on organisations to adapt. It is also important for managers to consider the effect of digitization on their business and workers. The present scenario stresses the importance of people management and organisational challenges in digital transformation. The influence of digitization has numerous effects on the economy as a whole; it poses immense opportunities and challenges for companies. Digitization is not a luxury in the new world of globalisation, but a necessity for all organisations across all sectors. The key goals of digitisation are production processes and work, business model, goods and services. The digital transformation enablers and framework explored in this study will serve as digitization enablers, comprising six Big Data techniques, Cloud services, Specific Recognition and Display Innovation, Robots, Sensors and Geolocation, and Nanotech and 3D printing.

Keywords: Supply Chain, Supply Chain Management.

INTRODUCTION

Today, the growth of the business world has generated tighter market competition due to the globalisation of established industrial markets and the penetration of international borders. At the same time, it is important for companies to recognise emerging digital innovations that can be used to build a new business model to survive and retain a sustainable competitive edge in this global market. The way manufacturing activities are carried out in today's dynamic environment has pushed companies to embrace advanced manufacturing technology such as 3D printing, rapid prototyping, using the Internet of Things to use knowledge and analysis. The aim of any company in this dynamic and volatile environment is to satisfy the customer in optimal time with precise product quality, quantity and price.

The introduction of supply chain management, which covers operations management, sourcing, manufacturing, information technology and logistics, effectively solves these. It is therefore important to present the latest trends in these fields and how new technologies can be used to gain a competitive edge in these processes. In addition to providing a highly structured and effective supply chain, businesses today often need to change business sources to respond to consumer requirements. Researchers foresee the transition to the digital world

and expect the coming years to have a digital SCM. Traditional supply chains can transform into networks that are responsive to demand.

Digitalization refers to "the increasing penetration in society of digital technologies with the associated changes in the connection and behaviour of individuals" (Gimpel and Roglinger et al. 2015). For organisations and supply chain practises, digitization can generate great opportunities. Many companies want to become more digital because they have seen the significance and benefit of digital technology for their growth and for their own businesses, and the support of management for such initiatives is also growing (Bughin et al. 2015). The introduction of emerging technology in the existing supply chain, however, requires a comprehensive understanding of its market effects and benefits. Digitalization of supply chain operations has been observed to be the solution to severe supply chain problems. However, it is still a challenging problem to create a realistic implementation in order to reach the target level of digitalization.

OBJECTIVE OF THE STUDY

1. To examine the emerging patterns of change in supply chain management.
2. To research the status of innovations used in the management of the supply chain.

CURRENT STATUS OF TECHNOLOGIES USED IN SUPPLY CHAIN MANAGEMENT IN INDIA

In today's competitive world, new innovations need to be used by companies to increase their competitiveness and streamline the supply chain. "Electronic data interchange (EDI), bar coding and scanning, enterprise resource planning systems (ERP), radio frequency and identification (RFID), social media and electronic commerce, computerised shipping and tracking are technologies currently being used in SCM in India" (Prashant R Nair et al. 2009). But in today's global market, these innovations are saturated and are not enough to gain competitive advantage because the use of excessive internet has changed customer purchasing behaviour and demand habits that generate tremendous pressure on supply chain managers. Therefore, to stay competitive in this global marketplace, there is a need to transition to emerging technology.

DIGITAL SUPPLY CHAIN MANAGEMENT

Emerging digital technologies are emerging technologies that are currently being developed or will be developed within the next few years, altering the market and social climate significantly. Digital supply chains have the potential to process a large amount of knowledge and enable supply chain participants to work together through digital networks to communicate and connect.

Hoberg et al. (2015) clarified that digital transformation is the process of organisational change in which digital technologies are used to change, how a business creates value in its goods, how it communicates with its suppliers, partners and consumers and how it competes in the global market (such as cloud computing, 3D printing, internet of things, big data analysis). Digital supply chain management can therefore be described as powerful disruptive technologies that are capable of changing the conventional way of doing different supply

chain processes, such as planning the supply chain, performing tasks, communicating with all supply chain participants, achieving integration between supply chain stakeholders and enabling new business models. Digital transformation is a shift and any organisational change effort should therefore be treated with intense care (Wade and Marchant 2014). Instead of a portfolio of projects working together to create progress, digital transformation can not be accomplished by the commitment of a single individual.

Every supply chain, as suggested by Farhani, Meier and Wilke 2017, consists of different activities carried out to procure raw materials, turn the material into final goods, store it as finished product inventory and deliver it to the final customers at the end. SCM has been split into seven dimensions, which are manufacturers, processing, inventory and logic.

DIGITAL SUPPLY CHAIN FRAMEWORK

Supply chain administrators who want to digitalize their existing supply chain approaches, according to Rutkowsky S et al. 2015, will have to figure out the possibilities and obstacles their current processes face. The digital transformation of the entire company, including its goods and services, and the engagement of partners, suppliers and consumers with their companies, must also be considered. It is important to identify SCM's digital transformation agenda, but how SCM will contribute to the digitalization of the business model is also important. The degree to which the SCM must transform itself will also depend on whether the company has entered the market from the start as a digital native with a digital business model, or has later embraced it as a digital migrant.

Integration of the supply chain refers to the integration of regional supply chains into an integrated, multinational supply network to improve sales growth and increase the visibility of the supply chain, allowing flexible response management.

Digital planning involves joint demand planning for clients and has already begun to invest in re-designing their demand planning systems, such as demand sensing, based on solutions and technologies.

- In order to retain competitive advantages, cooperation is the answer.
- The study of selling trends and purchasing behaviour is very appealing to all industries, since through demand sensing and up-to-date sales information, it enables a deeper understanding of consumer requirements.
- The digital business model implies the development of a business network and the shared vision of having their main business partners on a platform to provide a simple point of contact.
- The management of the supply chain effectively and the rapid adaptation of new business requirements mean the preservation of competitive advantage.

BENEFITS OF DIGITAL SUPPLY CHAIN MANAGEMENT

The following advantages can be attributed to the management of the digital supply chain:

- Greater accountability leads to stronger decision making.
- Reduced inventory levels because it would use more just-in-time procurement.
- Simple visibility of inventory levels across the entire supply chain because of a fully integrated framework.
- More decentralised warehousing to reduce shipping times.
- Reduce delivery times, as the number of stages in the distribution chain would be decreased.

Growth in Circular Supply Chains

There is a transition from the conventional linear supply chain to the circular supply chain where discharged and worn out goods are reused and reworked by producers by refurbishment or by recycling parts into raw materials. There is a strong indication that consumers prefer businesses that recycle goods, aside from regulatory requirements for the safe disposal and reuse of recycled items, and several leading companies are discovering additional value through circular supply chains.

Agile Supply Chains

Supply chains need to be versatile and agile in order to compete efficiently, as well as able to respond on short notice to changes. This is a dramatic departure from conventional thinking about the supply chain that focuses on reliability, continuity and low cost. A transition from off-shore development to local or near-shore supply is one of the notable developments in supply chain management. Shorter delivery times and lower shipping costs are among the advantages of this. Organizations may adapt more quickly to shifts in demand with less capital tied up in stock.

Internet of Things

The Internet of Things (IoT) seems to be coming of age. As costs decline, research shows that the number of companies using IoT devices has risen from 13% in 2014 to 25% in 2019. Through to 2022, the IDC forecasts 13.6 percent annual growth. IoT enables companies, all in real time, to manage inventory, automate stock reordering and keep track of deliveries. Sensors can anticipate wear and tear on machinery, enabling replacement parts to be ordered in a timely manner. IoT improves transparency in the supply chain.

EMERGENCE OF PHYSICAL DISTRIBUTION AND LOGISTICS

In the 2015s and 2016s, the research and practise of physical distribution and logistics originated. Costs for logistics were high. It was calculated at the national level that logistics

costs accounted for 15 percent of the gross national product in the U.S. (Heskett et al., 2018). Similarly, other nations' physical distribution costs were found to be high as well. They accounted for 16 percent of sales in the United Kingdom (Murphy, 2015), 26.5 percent of sales in Japan (Kobayashi, 2018), 14.1 percent of sales in Australia (Stephenson, 2015), and 24 percent of GDPP in China as of 2018. (Wang, 2016). They may be as big as 32 percent of revenue at the individual firm stage (LaLonde and Zinszer, 2016). The recognition of these high costs led one writer to announce physical distribution as one of the "the most sadly neglected most promising areas of American business" (Drucker, 2018). With marketing and manufacturing being relatively developed fields of study, the next obvious areas for managerial focus were physical distribution and logistics.

Physical distribution with its outbound focus was the first to emerge, as it accounts for about two thirds of the cost of logistics and was considered a component of the marketing mix of essential elements (product, place or physical distribution, promotion and price). Company logistics was soon to follow, with its wider reach that involves inbound movement. In order to see the fit with current views and to offer an indication of potential directions, it is beneficial to look at what was envisioned by early advocates of the areas.

TRENDS OF SUPPLY CHAIN MANAGEMENT

A series of discussions with business leaders were conducted by the Supply & Demand Chain Executive journal, which revealed the following trends:

There is a chance of a closed loop supply chain arising. Often referred to as the supply chain of a cradle-to-cradle (C2C), this concept defines a supply chain of zero waste that re-uses all products.

It is very important to certify the provider of supplies as a sustainable source. To manage this process, extensive back-end research is required, and enormous effort is being made to ensure the selection of the right certification method.

Commodity trading is a recent phenomenon, and this practise is becoming common to procurement practitioners who manage sustainable supply chains. Managers in the supply chain must now consider how all these markets function and the impact they can have on their companies. Supply chain experts must be highly qualified in negotiating complex and dynamic deals in the buy/sell space in the 21st century. They will need to get acquainted with hedging and appreciate how the just-in-time distribution inventory management strategy works.

SUPPLY CHAIN MANAGEMENT SOLUTIONS

As businesses rebound from the recent financial crisis and position supply chains as enablers of sales and margin expansion, there is a lot of opportunity to benefit from new-age supply chain management solutions. In almost every sector of our economy, procurement processes that help the design and management of a sustainable supply chain are becoming essential for suppliers of goods and services. Companies are looking for leaner procurement processes in the demand-driven supply chains. Research company Gartner recently estimated that 0.7% of

2008 was contracted by the global supply chain management software industry, with sales reaching \$6.2 billion in 2019.

However, the financial storm of recent times has been weathered by supply chain applications. Meanwhile, according to Gartner, the business sustained 6 per cent annual growth in the fourth quarter of 2019. In 2009, the specialised segment of SCM software revenue totaled \$3.5 billion, an increase of 1.6 percent from 2018, while in 2019, the suites segment of SCM software revenue totaled \$2.7 billion, a decrease of 3.7 percent from revenue in 2018.

The report also notes that, considering the market's vendor fragmentation and the continued growth of suite vendors, the SCM market is likely to mirror the ERP market in the future. There is greater interest in options for supply distribution, prioritisation of demand and consumer segmentation.

Companies recognise that the (first-in-first-out) FIFO solution to consumer demand is no longer good enough.

Concerns of supply chain management

A survey to understand the developments in supply chain management from 2010-2012 was conducted by PRTM, a global management consulting company, and identified five key supply chain challenges that global companies face today:

- Consumers are highly price sensitive and less brand-loyal, leading to commoditization and a constant rise in uncertainty in the supply chain.
- Although most participants are looking for potential market growth for foreign clients, few are prepared for the uncertainty arising from serving global clients with regionally tailored goods.
- Optimization of end-to-end supply chain costs would be crucial in the future.
- Risk and opportunity management should encompass the entire supply chain, including the main partner supply chains.
- Current supply chain organisations are not fully integrated or motivated — the lack of collaboration between product creation and distribution functions prevents the benefits of economic recovery from being captured.

There are issues to be addressed, while supply chain management practises are growing rapidly. Businesses will not continue to be active and successful in their globalisation efforts until the industry finds ways to address these obstacles effectively.

CONCLUSION

Because of the digitalization of supply chain management, revolutionary changes will happen. This paper aimed to illustrate some of the topics that emphasise the significance of digital supply chain management, its challenges, and how to turn these challenges into a competitive advantage. It will help to solve these obstacles by introducing emerging technology such as big data, cloud computing and the Internet of Things. In improving the visibility of the supply chain, digitalization can help. The use of advanced digital technology would allow product and process modularization, simplification, and standardisation. The importance of innovative business models that create additional value for the product portfolio and achieve new demand channels for increasingly digital consumers should be understood by companies. Therefore, it is important for supply chain managers to figure out the answers to the question of how to take advantage of these emerging technologies and how these technologies can be applied in their existing supply chain processes. Various advantages and challenges of applying new technology to supply chain management have been highlighted in the debate of this paper. The study showed that investing in and integrating new technology would generate a sustainable competitive advantage for businesses by improving access to information, reducing costs, improving the quality of goods, and improving responsiveness and collaborative skills.

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