International Journal of Innovations & Research Analysis (IJIRA)
ISSN : 2583-0295, Volume 01, No. 02, July - September, 2021, pp 43-50

PERIODICAL EVALUATION OF SUPPLY CHAIN MANAGEMENT IN INDIA AND CHALLENGES OF ITS FUTURE GROWTH

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ABSTRACT

Supply Chain is one of the greatest inventions and a highly valued tool in the commercial sector around the globe that helps individuals and organizations to achieve their business goals. It is the backbone of different operations like procurement, price analysis, distribution, transportation and feedback in organizations. It encompasses all activities of the various processes from raw material to finished goods and to the delivery to the end users of the company. This paper focuses on the factors that help in the implementation of supply chain management, its elements and process in organizations. The article is a periodical study about its inception to multiple stages of development in global as well as Indian business markets. Also, it talks about the challenges faced by supply chain management in Indian market and concludes with recommendations for its future growth.

Keywords: *Supply Chain Management, Era, Globalization, Elements, Integration, Transportation, Procurement, Distribution, Infrastructure & GST.*

Introduction

Supply Chain is one of the greatest inventions and a highly valued tool in the commercial sector around the globe that helps individuals and organizations to achieve their business goals. It is the backbone of different operations like procurement, price analysis, distribution, transportation and feedback in organizations. It encompasses all activities of the various processes from raw material to finished goods and to the delivery to the end users of the company.

Birth of Supply Chain Management and its Growth

- **Creation Era**

Keith Oliver who was a British logistician and consultant with Booz Allen Hamilton coined the term Supply Chain Management on 4th June 1982. Remarkably, in 2022 it will see its 40th birth anniversary. In 1983, Wirts chafts Woche,a publisher in Germany, used for the first time the name Supply Chain Management Project.

- **Integration Era**

After a decade, Supply Chain Management was related with currency because plenty of articles, papers, books and conferences stressed the name Supply Chain Management. The 1990s was a budding season for SCM as it grew prominently with endorsements from executives, managers, officers of companies in government and private sectors who used it as a designation with their names, e.g., “Manager – SCM, Executives – SCM” with diversified job roles and responsibilities in their company. The 1990s was generally known as integration Era which is based on enterprise resources planning (ERP)

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- **Globalization Era**

This period was about global business partners and development taking the help of systematic supply chain operations in distribution, transportation, dealing with exercise and duties concentration on international distribution for their global customers. During this period, multiple companies around the globe started to implement the concepts of supply chain management in their organization to increase global business and reaching the targeted revenue generations.

Also, in the 2000's based on the activities the period was identified as Specialization Era (Phase I) during which time firms mostly focused on "core competencies" and specialization. Firms gradually started to concentrate on core activities or key factors to develop their brand name with accelerated technologies and non-core activities were outsourced to outside agencies.

During the fifth stage from 1998 to 2005, outsourced software technologies like ASP, SaaS, WMS, and ZAP, etc. enhanced supply chain solutions.

Key Factors Impacting for Supply Chain Management

The implementation of supply chain is impacted various barriers, failure or some kind of continuous underdevelopment due to the lack of technical or non-technical installation. The significance of SCM has increased because of 1. Location - as consumers and produces live in various parts of the country or the globe. 2. Production – as firms focus on continuous targeted production as per the requirements of customers and taking into consideration design, consumers' taste and economical cost. 3. Inventory – to maintain minimum and maximum inventory for facilitating continuous supply with a perfect plan in place and as per periodical or seasonal requirements. 4. Transportations – customers live in different parts of the country or globe and so, an efficient transportation is required to satisfy the needs of customers in an economical way and also to ensure quicker and safer delivery. These factors have created a demand for SCM urging companies to take the role of SCM seriously.

- **Elements Included in Supply Chain**

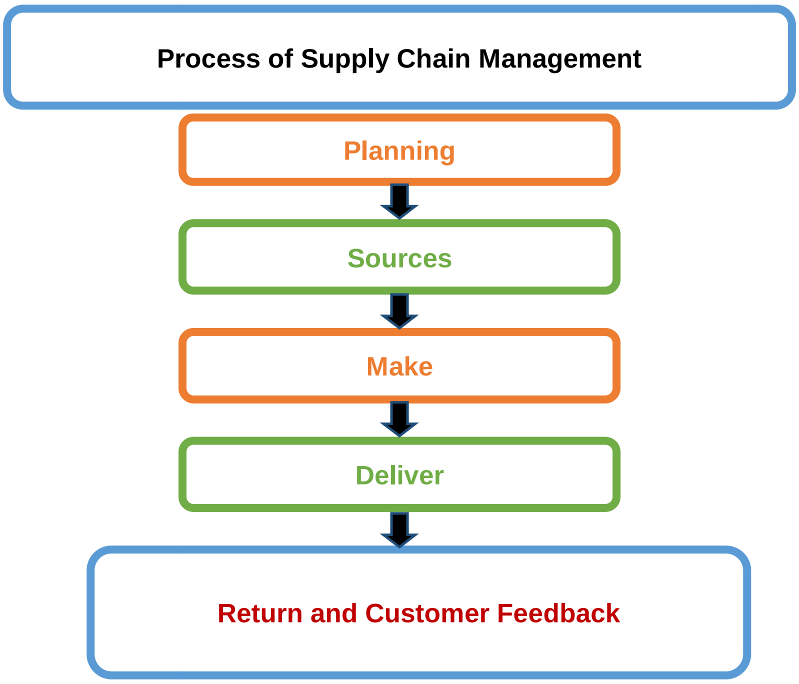
There are four elements to be considered in the operational functions of SCM which are:

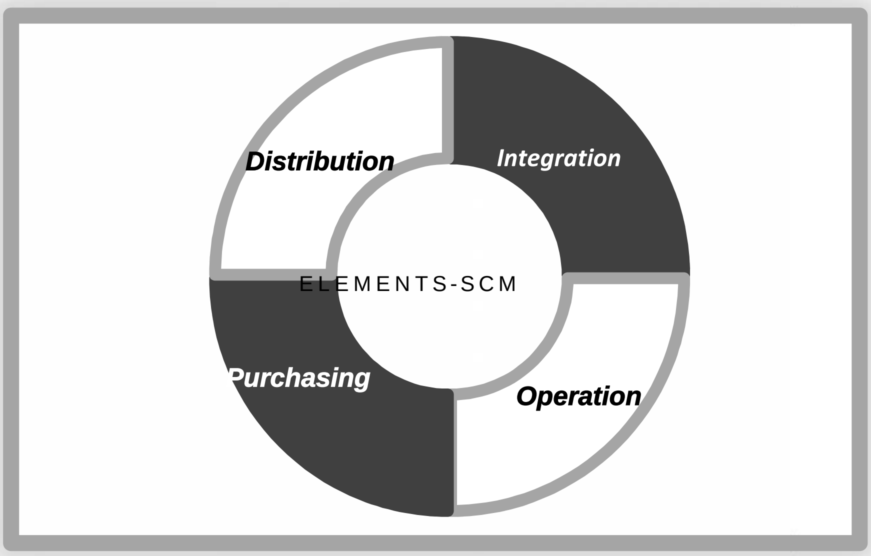
  - **Integration:** direct or outsourced integrations for supplying or performing non-core activities.
  - **Operations:** employing managers, operating software, periodically supervising the process output, choosing transportation and taking care of warehousing, clearance, delivery and customer care.
  - **Purchasing:** planning for procurement, inventory plan, customer requirement, goods in transit, stock in hand and seasonal and unseasonal production requirements.
  - **Distribution:** order management, inventory picking, billing and documentations, internal transfer and stock.

Process of Supply Chain Management

Each activity has its own protocol to follow and to fulfil all its related tasks in its area. Normally, SCM work force can be categorized into five defined processes which are:

- **Planning:** choosing the authentic and approving the functional layout to achieve the goals set up by the company for a particular period.
- **Sources:** finding proper and qualified vendors for providing the sources either on integration, contractual or regular basis without delay and within the specified format of the company and designing the form of agreement.
- **Making:** executing the task either in parts or in entirely and supplying the products according to the coding of the principal company and as finished products within the targeted period without any defects.
- **Delivery:** distribution planning, order management, transport system and model of vehicle, duration for delivery, billing and documentations are grouped under delivery. The products are graded and packed and promotional activities are undertaken to enhance marketing.
- **Return and Feedback:** returning wrong products or products with defects, over supply, transport arrangements and periodical product feedback on requirement, taste, expectations and satisfaction from end-user to principal company are covered under this process.



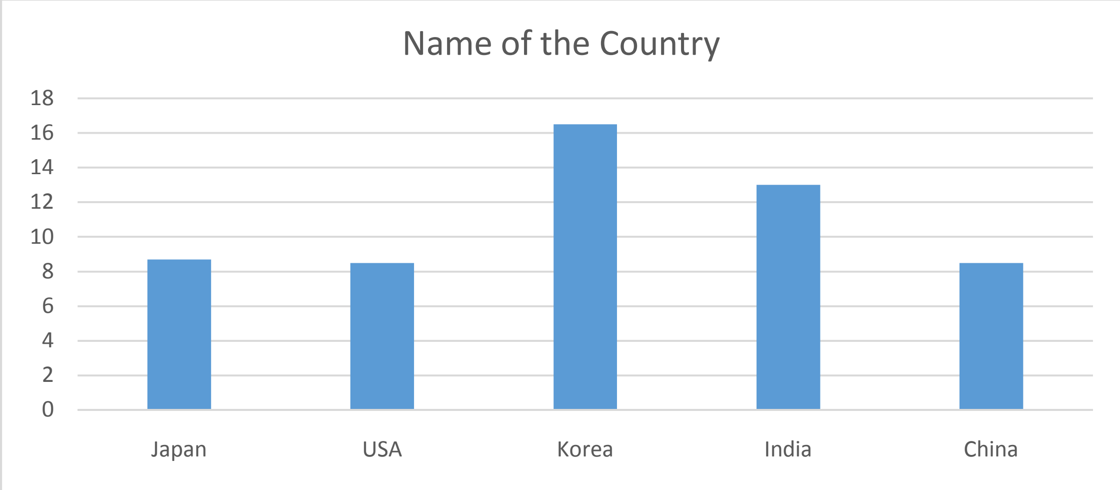


SCM- Impact of Cost

Cost is a primary factor that is carefully considered before investments are made in technical and non-technical supports to achieve quantity and quality in all the assignments of the business entity. The department of SCM takes care of the cost of administration and distribution overhead which in turn have a say in the overall selling cost. Salary and other perquisites of employees, transportation, warehousing and rent for warehouse, power and storage, packaging and distribution costs form the major part of SCM yearly budget.

Cost is a certain percentage of the expenses included in the selling price of all products and services. In a nut shell, the additional costs on the procured inventory and finished products are identified as SCM cost. Cost of SCM = Procurement+Integration+Operation+Distribution. Procurement includes inventory management and storage cost, integration includes outsourcing or contracts and its execution cost, distribution includes packing, transportation, documentation and delivery cost of the activities. However, the cost of capital expenditure related to supply chain set up does not reflect on the capital expenses of the firm.

Country	Japan	United States	Korea	India	China
Ratio of logistics cost with GDP (%)	8.7	8.5	16.5	13.0	8.5



India occupies the second highest SCM cost among the above countries mentioned which makes sales in India very competitive in the market. The investment in infrastructure, technology development and new projects affects the total cost of supply chain management in a firm. India has the second largest road holder in the world covering 4.2 million kilometers which covers 28 states and 7 Union territories. The capital invested in inventories, motors is very high and currently, expenses like fuel, toll charges, permits, manpower costs are higher than other countries which increase the SCM cost and this naturally reflects on the selling price of products.

Inception of Supply Chain in India and its Stages

Adoption in Classical Era

- **Initial Stage I**: While talking about the inception of supply chain management, it can be stated that it is a discovery rather than an invention because of its association with human life and with everyday life. In the Classical Era, barter system was in place where products were exchanged. The process of exchanging products also can also be treated as a part of supply chain. Gradually, the culture of manufacturing crafts, furniture, pots, cloths, mud items was started but there was no need for supply chain management because most of the producers and buyers lived in the same locality. The necessity of spending money on transportation was also not needed as domestic animals were used for transporting the materials from one place to another.
- **Transportation/Delivery Stage II:**The period of inventions and industrial development, agricultural business, industrial investments intensified the motive of earning profits through diversified business in multiple territories. Gradually, business network expanded to the national level with the help of transportations like animal carts, boats and earlier stage motor vehicles. Even spices, tea, jute, cotton, wood and wooden crafts were exported to nearby countries through ships. Harbours played an important role in supply chain management serving as inward and outward storages for transporting products. During this period, supply chain expanded with the help of empires, ruling authorities and local bodies who constructed internal roads between cities and developed infrastructure like chambers, markets and storages for the supply of food, etc. The role of supply chain was very limited as it is only dealt with the transportation of goods to their consumers.
- **Adoption in New Era (1947 to 1980):** Expansion and the gradual growth of culture and increase in technology led organizations to think and incorporate them to systemize the

processes and operations of industries. There was significant breakthrough in the transporting system of Indian businesses. Invention of cycle, canal transport, railways, shipping between national and international land marks led to a great hike in businesses resulting in the meeting between national and global consumers. Before the 1980s, SCM activities were managed by a firm's own manpower which looked after procurement, inventory management, integration and outsourcing activities, transportation and delivery. Companies had control over their relationships with their end customers, stockiest, distributors through Public Relations Officers or Managers. It was during this period that outsourcing non-core activities was gradually introduced

- **Adoption (1995 to 2010):** Supply chain flourished during these days with the help of technology and global investment to cater to the needs of consumers. The fashion trends and the tastes of the customers change often and periodically and bring in new aspects. Therefore, suppliers are forced to change their business strategies according to the requirements and demands of consumers.

Tagging of Supply Chain Managers and Executives

During this period, SCM was employed to globalize businesses through integration/mergers of activities either individually or on joint venture basis. Between 2000 and 2008, more than 1000 registered Indian companies accepted mergers or acquisitions with international companies which amounted to 72 billion US dollars.

Tata Consultancy & Citigroup Global Services, HCL & Britain's Axon are Remarkable Examples

Core activities like technologies, production, patterns, branding and new outputs were controlled by a company's management and the other non-core activities related to working capital were executed by SCM with the help of integrated software, ERP and IT & Communication. Internet connectivity is an advanced help that speeds up the services to the clients. Bulk industries with multinational operations expanded their business at global level with use of highest technologies and strategies to enlarge profitable business. Firms are focusing the core business and remaining all activities they entrusted the responsibilities on supply chain management for increasing the efficiency in business operation. Many global business companies like LG, Samsung, Apple and Nokia, etc. manufacture their spares in multiple countries, assemble and export to their consumer's different countries around the globe with the help of SCM teams.

Present Scenario till 2021

This decade has been a budding season for supply chain management in India. The investment in IT, infrastructure, internet and artificial automation has created great pathways to Indian firms. Firms like Amazon, Flipkart and many value chains are connecting customers to their brands who get their products of choice easily through marketing platform. Revolution in online business has led to a decrease in logistics and distribution costs significantly. Big Bazar, Reliance, Osia and D'Mart play vital roles in not only acting as middlemen between manufacturers and customers but also in analyzing the taste, feelings and the buying capacity of the consumer and simultaneously supply the feedback to the manufacturer to buildup future relationship strongly. Amazon generated revenue of 3388 crore in 2019-2020, Flipkart 3460 crore in 2019-2020, Big Bazaar (Future Retail ltd) 21324 crore earned. D'Mart (Avenue Supermarts) FMGC supply chain company earned revenue 7650 crore for 1stquarter in 2021 which is almost 46.6% hike due to impact on Covid 19. The company's expanding their hubs, distribution centers and sales malls every year throughout the country. It is disclosed by Indian investment grid only the Indian logistics sectors is valued 160 billion USD in 2019 and it is expected to 215 Billion US Dollars by next two years by 40 per cent hike. According to its logistics performance Index (LPI) India is keeping 44th rank on World Bank logistics performance.

Influence of GST on supply chain companies in India

Tax is an important revenue generating instrument of the central and state governments of India. India consists of states and Union territories and capitals follow different categories of taxes, methods, exemption and rebates and there are many types of goods entries which are in accordance with the guidelines provided by each government. Till the implementation of GST, it was challenging to operate business hubs or distribution centers as per the proprietors' selected place as it was subjected to different taxation policies. Hence, GST provided the choicest solution for logistics industries, distributors and warehouse owners as it put an end to the complicated system and formalities helping in the speed up of the commercial operations while stimulating the working efficiency. Not only it is a tool for increasing the revenue for the government, it creates trust in firms and helps them work without doubt or fear of incompetency or misuse of business ethics. Earlier logistics players had multiple warehouses, hubs and distribution centers in the country because of CST. However, now it is easy for them to operate from one location anywhere in the county because of uniform tax levied through GST. This is one of the major reasons that logistics companies can establish huge warehouses and storage houses in their selected areas with functional efficiency and without fear of capital investment.

SEZ enabled duty free imports and domestic market sales resulted in an acceleration in the development of supply chain with global partners and businesses leading to a development of infrastructures and business hubs that facilitate international trade. After covid19, US, EU and Japan prefer to reduce their business dependence on China and trade with India because of the expansion of Indian global businesses with the help of systematic supply chains. Former Secretary, Department for Promotion of Industry and Internal Trade says thatit is the time for achieving a breakthrough in getting global supply chains speedily as a major window of opportunity has opened up which will help in attracting investments to India that boasts of competitive infrastructure and development. Vitual Kwatra, 2021 opines that India is becoming a key pillar in the global supply chain market.

Challenges Facing the Establishment of Supply Chain in India

As an economically developing country, India faces a lot of barriers which interrupt the immediate growth of supply chain management engagement in India. The reasons can be categorized as monetary and non-monetary. The obstruction caused due to these barriers is significant when compared to the growth in a few other developing Asian countries.

Increase in MSME

India has 28 states and 8 union territories and has a geographical size of 1,269,219 square miles. There are approximately 6.3 crore (60.3 million) of MSMEs that contribute 30.5% to the GDP of the country. Most of the Indian MSMEs are in the form of family businesses. The business scale is limited to 10 crore per annum. Traditionally, the concept of SCM is difficult to be adopted in Indian small-scale industries. Their activities are directly handled and monitored by the firms' business administrators. Therefore, the adoption of SCM is difficult in companies where the business volume is very limited which is because, adopting the system will lead to an increase in its fixed and variable costs which in turn will cause additional overhead in the companies' current expenses. On the other hand, in some cases, the vision of the entrepreneur is limited. He is satisfied with his current business level and this is also a barrier in optimizing the scope of supply chain management in the Indian market.

Dependence on Agri Business

More than 60 per cent of Indian villagers are dependent on agriculture and its related businesses carried out in their own land. Most of the farmers have limited land holding of upto 2 acres where only the basic crops and agri products are produced. A very few corporate companies are involved in agriculture business though their business process does not depend on value chain techniques used in their business. It is an important factor that has been impeding for a long time the expansion of supply chain in India.

Increase in the Number of Family Businesses

Most of the business are family based and decisions in business are mostly subjected to mutual discussion in the family internally whereby the biases and prejudices of family members can have an adverse effect on decision making which in turn affects the efficiency of running the business.

Poor Infrastructure

Less number of facilities and integrated business hubs are barriers in keeping inventories and finished goods. A very few specialized business hubs catering to the specifications of finished products are available. The costs of cold storages are high. Most of the vegetable markets operate in mandis or informally and these are very old and are not supported by IT and other services that can promote functional activities using novel techniques. Many companies still practice age old systems in business transactions. Hubs are operated with manpower when it should be run with the support of new technologies. It is very difficult to convince the representatives of global businesses to invest in India because of the poor infrastructures. Government facilities, cooperative storages, cold storages and maintenance systems are very poor and their operations are not easy leading to loss in business which ultimately affects revenue earnings.

Increase in Capital Investment and Higher Rates of Interest on Business Credits

Investments in the establishment of new facilities and hubs are very expensive and this poses an economical challenge in terms of getting returns on investment within a stipulated period. The high cost of land and infrastructure, investment in inventory, man power and high-level operating expenses are the major impediments to generation of business revenue. Always SCM is a cost related to the companies. India has the second highest operating cost which is more than China discouraging firms to take decisions on investment in value chain.

Frequent changes in fuel price, toll expenses, warehouse lease charges and distribution overheads lead to increase in selling price which is highly not affordable to companies operating in small scale as it causes a dent in their profit ratio.

Internet Penetration and IT Development

According to statistics extracted from Satista.com, in 2007 the rate of internet users was 4% but it increased to 50% in 2020. Reaching 50% of usage took 13 years and this indicates a really very slow growth for developing countries like India. Even the 50 percent penetration is not a standard achievement for online businesses or digital mobilization in India as there is a lot of network fluctuation, poor connectivity and infrastructure. Particularly, villages, Northern and Eastern states do not have sufficient internet services, transport facilities and digital marketing. It is one of the major weak points posing a very big challenge for growth in systematic supply chain implementations, online order, execution of orders, transportation, etc.

Lack of Skilled Labourers and Social Barriers

Indian labour market has very less skilled or educated labourers in this field. According to HRD report 2020, Times of India, December 17, 2020, only 21.1% of Indian labourers are skilled in their respective fields though their educational qualifications are doubtful. Lack of skilled labourers is the cause of inefficiency in digitalism, codding, branding and grading and the distribution process of the value chain. Multi state administration, border crossings, cultures, religions, caste system and communal misunderstanding also delay bulk projects in Indian territories.

Recommendations

- Increasing and enhancing IT services.
- Proper planning of Inventory and Production.
- Proper Demand and Supply analyses for stabilizing selling price.
- RBI – Recommendation to reduce the capital credit interest rate or subsidy to encourage bulk investments in infrastructure, technology and transport inventories.
- Setting up integrated facilities, cold storages, hubs and distribution centers which can create competition among service providers whereby the cost of SCM can be reduced.
- Investment in innovations in solar energy which can result in the use of alternative power supply to warehouse, cold storages, hubs, facility centers and small goods vehicle to minimize logistics cost.
- Government help for bulk investment in shipping, rail transport, establishment of warehouses, collaborations, revisions in taxation, etc.

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