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## Supply Chain Challenges in India: An Empirical Insight

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### **Abstract:**

*Supply Chain Management (SCM) is introduced to be one of the significant areas of research for optimization of the flow of products, services and information from right source to right destination at right cost and at right time. Contribution of SCM towards augmentation of diverse segments (like trading, manufacturing, production, operation, real estate, agriculture, health care, tourism etc) of the economy is immense. SCM in India is considered as an emerging sector which shares an outlay of around 13% of gross domestic product in the country. Projection reveals that the overall logistics and supply chain market is likely to grow at a CAGR of 7% in years to come. However, despite intensive research undergone on supply chain practices all over the world, the Indian supply chain has not yet been able to climb an appropriate height. Considering this backdrop, the present study at the outset aims in having an overview of Supply Chain Management practices in India. The same brings to light diverse issues and subsequent challenges therein. An attempt is made as well to suggest pragmatic reforms in order to overcome the apparent challenges. The methodology adopted here is based on the secondary sources of information along with a semi-structured primary investigation carried out for the purpose. Special focus is bestowed upon to intensify the project through qualitative responses gathered on current logistics infrastructure and supply chain practices in the country. Findings infer that an intelligent Supply Chain Management is vital to industrial firms operating in modern competitive world. Focus must be on a collaborative approach and an adequate infrastructure with a sound logistics network backed up by uninterrupted communication technology. As such, the research is in a position to conclude that an objective endeavor in this regard is a burning need of the hour. The current study happens to be an attempt and provides with an empirical insight at micro level in said direction.*

**Key words :** Indian Supply Chain, Logistic Issues and Challenges, Road Map

### **1. Introduction**

Supply Chain Management (SCM) is a proactive act of improving efficiency and effectiveness in the flow of goods, services and knowledge across all stakeholders within a particular distribution channel with the goal of minimizing cost and obtaining a competitive edge in the long run. The Council of Logistic Management (CLM) defines it as “The systematic, strategic coordination of the traditional business functions and tactics across these business functions within particular organization and across business within the supply chain for the purpose of improving long-term performance of the individual organizations and the supply chain as a whole”. Modern SCM concept comprises of a variety of activities, namely sourcing, procurement, production, marketing, distribution, logistics and end customer supported by an IT enabled system. Fig-1 portrays a basic flow of the chain for a manufacturing firm.

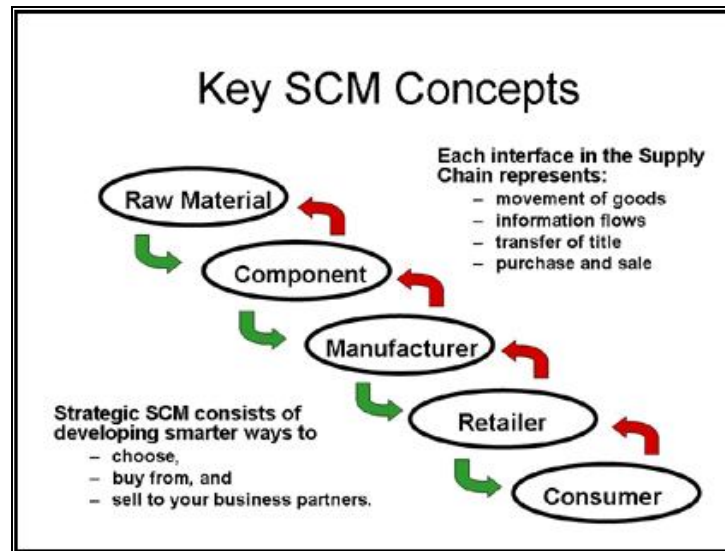


Figure 1: Supply Chain Management – A Basic Framework  
(Source : <http://ygraph.com/chart/2416>)

Currently Supply Chain Management happens to be a buzzword amongst practitioners and researchers around the world. It has an evolutionary trend that began with the material handling era which transformed itself into a modern Integrated Supply Chain. SCM assumes greater significance in recent scenario and invites a long term research agenda, for, changing consumer aspirations are the sturdy challenges of the present corporate world. To face these challenges, conglomerates must go beyond short term planning and re-define the development objectives and accordingly implement them in practice. Till recently, the makers have been the prime drivers in the entire distribution chain. Now the time has changed; customers become the king to whom manufacturers are to be submissive and need to respond to their fast changing demands. As such, right delivery of right product at the right place at the right cost and with right impression has, as if, emerged as an exceptional critical challenge for modern corporate establishments. Referring to the Indian scenario, SCM was observed previously as indispensable ill, which becomes a sole mean of survival today. Business houses are scrambling towards building an effective supply chain in terms of cost and functional delivery. But, many of them have failed to deliver results. The companies willing to revamp the entire flow have to undergo value engineering in each and every ingredient of the chain to gradually phase out non-performing elements from within. It will then bring about definite improvement in logistics and supply network along with up-gradation in human and technological resources. In turn, the industries in different segments shall avail of a sustained growth in the days to come.

## 2. Retrospection of Literature

Referring to literature on Supply Chain Management practices in India, quite a few studies allege to throw light on SCM issues and their onward challenges in different perspectives. Taking into account of Indian supply chain, the sector has immense significance in the country which could not be overlooked in any manner. Nevertheless, the studies carried out so far have been somewhat new and may represent themselves to be inadequate in having a conclusive inference. Considering this background, an attempt has been made here for a brief review of research-based findings available at the disposal with an emphasis on selective views and expert judgments. To begin with, Trkman & Groznik<sup>1</sup> primarily point out that an efficient Supply Chain Management is crucial for survival in a turbulent world. Deman & Tuyishime<sup>2</sup> consider India as an emerging economy with major challenges to managing an effective supply chain system. They argue that the concept of SCM is still nascent in the country and explore the opportunities and tools for effectively managing the same. Srivastava<sup>3</sup> provides with a snapshot of present logistics infrastructure and supply chain practices in India. In his study, he insists upon collaboration and strategic alliances for successfully managing the show. Reddy & Raju<sup>4</sup> perceive that an efficient supply chain makes business houses competitive and sustainable. However, they justify that regardless of extensive research carried out in the area of Supply Chain Management all over the world, SCM practices have not yet been well adopted in developing nations like India. Kearney<sup>5</sup> persists upon creating competitive advantage through effective supply chain system in the country. Mangal<sup>6</sup> in his paper suggest the ways to achieve Total Quality Management using SCM principles in process industries. Reddy<sup>7</sup> attempts at outlining the role of Information Technology towards making an optimal supply chain decision. He indicates that an up-to-date and state-of-the-art technology (namely auto ID technique, RFID) along with relevant management tools like ERP, CRM and SRM have to be utilized for an enhanced performance of logistics network in the country. Jain, Dangayach, Agarwal and Banerjee<sup>8</sup> make an extensive review of available literatures on Supply Chain Management with a unique classification scheme. Based on this review, they attempt to identify relevant issues on logistics and SCM framework in India highlighting probable area of research in near future. Olga<sup>9</sup> talks about sustainable supply chain and embodies in his paper an overview of relevant concepts and theories in that regard. He also contributes towards a framework development for future area of research. Agarwal<sup>10</sup> is very much attentive on recent challenges in logistics management in India and becomes concerned about how to meet up these challenges where there happens to be an informal economy for last few decades. Singh<sup>11</sup> reveals that SCM influences about 64% of all costs in a manufacturing company.

He tries to understand the present status of Supply Chain Management in Indian companies and recommends the attributes for implementation of a successful chain. Murthy<sup>12</sup> throws light upon global trend in SCM and indicates salient features of Indian supply chain. He also meaningfully highlights the initiatives taken by regulatory bodies for an improved SCM network in the country. Nagappa and Metri<sup>13</sup> put forward an opinion that managing supply chain efficiently has become a way of improving competitiveness by reducing uncertainty and enhancing customer service. Sood<sup>14</sup> carefully examines the apparent challenges in Indian retail industry. He feels that supply chain forms a major part of sustenance of any retail venture. On a long term basis, there would be a need to build up a flexible supply chain-he infers further. Mohanty and Prakash<sup>15</sup> substantiate the importance of Green Supply Chain Management (GSCM) practices in Micro, Small and Medium Enterprises (MSMEs) in India. They capture a fact that although the studies in said area has grown up in recent times, the literature is yet to furnish an accepted explanation for why green practices are to be manifested in supply chain framework. Gurumurthy, Soni, Prakash and Badhotiya<sup>16</sup> have done a pragmatic review on Supply Chain Management research and conclude by documenting the growing significance of SCM practices within Indian business domain.

### 3. Objectives of the Study

The study encompasses the following primary objectives

- To have an exploratory overview of supply chain sector in India
- To indicate challenges in SCM and undertake an objective evaluation of the gaps
- To suggest a pragmatic road map in order to overcome the apparent challenges
- To conclude the project with significant inferences

### 4. Methodology

Keeping in view the nature of study, the methodology framed out here is essentially based upon the secondary information. The sources of data comprise of books, journals, periodicals, web database, reports, regulatory publications and related plan documents. The primary information seems to be diminutive and hence the authors initiate the project with a review of selected empirical literatures obtained at disposal. The geographic extent of the study is confined to national boundary of the country. The research, as a whole is not being carried out on the basis of any pre-determined hypothesis. Rather, an open mind to the possibilities of secondary information and outlook of the subject is ensured for data accumulation and interpretation. Besides, field visit has been made to selected business establishments in order to gain a hands-on exposure on supply chain system in India. As close participants-in-practice, the researchers during their on-site observation interacted with concerned stakeholders engaged in different lines of business. The same provided them with a practical insight into prevailing logistics and SCM scenario in the country. Care has been taken to ensure that these businesses had heterogeneity in their functional domain so that a meaningful representation could be depicted. Table-1 reveals an indication of the same. Further, key indicators namely pictographic representation and tabulation do occupy a significant space in the process of data exhibition and subsequent interpretation. The entire approach adopted here is exploratory in nature.

### 5. Observation and Discussion

India is regarded as one of the emerging markets in the world and supply chain sector in the country has assumed a deeper significance in the contemporary research area. The launching of LPG policy in 1991 invited foreign players who had brought in competitive spirit amongst Indian business minds. Infrastructural hurdles, multi-nationalization of operation, rising complicacies of logistics framework, short life span of business, increasing varieties of consumer responses and preferences have forced Indian firms to realize that survival of the fittest is a key mantra in modern times. Globally speaking, eminent conglomerates have become highly attentive and concerned about up-gradation of supply chain infrastructure and optimum utilization of technical resources. However, the situation is far behind the pace so far as SCM in Indian environment is concerned. The logistics and infrastructural supports consisting of railways, aviation, seaways, road network and information and communication technology are relatively weaker as compared to developed nations of the world. As such, business establishments in India are exploring the possibilities of strategic alliance with chain partners to meet up these growing challenges. Nevertheless, the scenario is experiencing a changing trend at the moment. The latest acceleration in communication devices has made the Indian supply chain techno-savvy and equipped. Needless to say that it is the communication technology that keeps any supply chain system in motion. Accordingly, logistics and supply chain participants in the country are evolving fast in order to align and adapt to ever shifting needs of the business. This change in functional domain has picked up further from inventory handling of logistics to an integrated supply chain network in the past couple of years. Prominent IT majors like Dell, Wipro, Infosys, IBM and TCS have started providing consultancy services in addition to their core areas of hardware and software solution. Likewise, DHL penetrated the Indian market with an initial investment of 250 MN, US \$ and acquired a leading giant Blue Dart involved in air logistics and cargo business. Container Corporation of India (CCI) at the 380 US \$ MN, one of the renown logistics firms, have diversified into other areas. Similarly, cargo houses namely Gati, XPS and Safexpress are extending beyond national boundaries of the country to UAE, Sri Lanka, Singapore and Bangladesh. (*Srivastava, Logistics and Supply Chain Management Practices in India, 6<sup>th</sup> Global Conference on Business and Economics, ISBN : 0-9742114-6-X*). Yet again, if we consider size of the Indian logistics market which stood at US \$ 14.31 billion in 2004 and US \$19.54 billion in 2009, is absolutely going to have an upward trend in forthcoming years. (*Reddy and Raju, Issues and Challenges of Supply Chain Management in India, International Journal of Mechanical and Production Engineering, ISSN No.: 2315-4489, Vol-2, Iss-1, 2013*)

Nature of Industry	Nature of Business	Nature of Visited Firms
Manufacturing	Garment Production	Fabrication Plant
Tourism	Holidays Rental	Travel Organizer, Tour Operator
Automobile	Channel Partner with Workshop	Dealer, Showroom
Retailing	Readymade Garment Exhibition	Retail Plaza
Financial Service	Banking, Insurance	Commercial Bank, Insurance Corp
Dairy	Dairy Production	Milk Parlour
Health Care	Nursing, Pharmaceutical	Medicare Unit, Pharmacy
FMCG	Carrying & Forwarding Agency	Distributor
Information Technology	Marketing of Hardware & Software	Computer Dealer, Showroom
Hospitality	Accommodation Rental	Hotel & Guest House

Table 1: Field Visit and On-Site Observation  
(Source: Self Compilation)

5.1. Supply Chain Gaps and Challenges

To insist again, Supply Chain Management in India remains at a maturing stage. Carrying out a business here usually is to face prominent inherent challenges like multi-window clearance bureaucracy and infrastructural lags followed by stringent regulations. This is understandably not a unique phenomenon to our country but also true of global supply chain particularly in developing nations of the world. If we observe Fig-2 underneath, we may come across with a clue about the challenging framework of supply chain management for a business firm. But the debate on how soon and how well the development in supply chain system would actually fill in logistic needs of India gets wide open. There is no denying the fact that a well defined supply chain network has immense contribution towards stability in price level and consequent economic development. As such, it becomes essential to examine what the challenges are in this regard standing against a speedy augmentation of the state of affairs. Depicted below an elaboration of the same one by one.

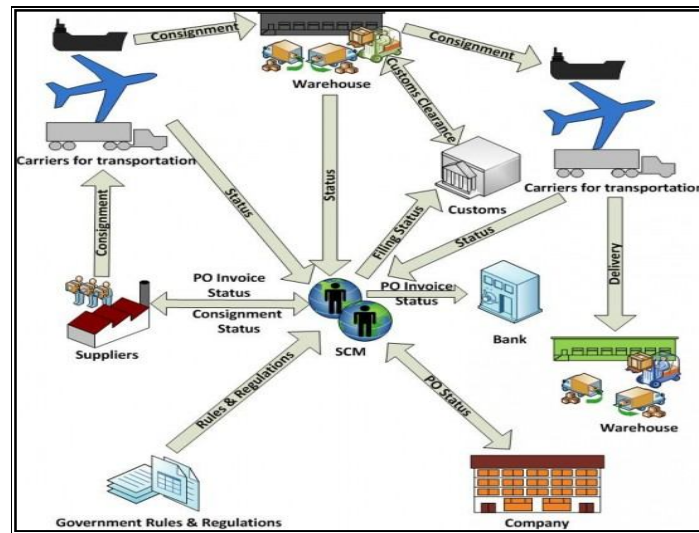


Figure 2: SCM Workflow Cycle – A Challenging Framework  
(Source : <http://dreamorbit.com/industries/logistics-and-supply-chain/logistics-and-supply-chain-isvs/supply-chain-management/>)

5.1.1. Gaps in Infrastructure

Supply chain in developed nations of the globe is fully backed by express highways, state-of-the-art ports, modern air cargo along with Global Positioning Tracking System (GPTS). India still has a long way to traverse in this regard. Although the country claims to have built up a largest road network, there seems to be serious gap if compared with advanced countries of the world. For example, the distance that could be covered in two days in France, may take at least a week in India. Likewise, the shipping is found to be a time consuming affair in Indian sea port with a longer waiting time compared to almost zero waiting in Australia. The cost of Indian fuel is relatively higher that leads towards escalation of cost in movement of materials. Pathetic conditions and low load-bearing capacity of the surface ways also contribute in slower movement and mechanical failure of the vehicles plying on road. Further, inter-state mobility restrictions along with tedious documentation help increasing lead-times to a maximum extent. Thus, these gaps prove themselves as critical and do invite serious attention.

#### 5.1.2. Supply Chain Constraints in On-Line Trading

There are growing challenges for on-line retailers as well. The issue here is to fill in orders from A-class cities to remote and semi-urban locations. Rising demand for on-line merchandise and lack of supply chain network in far off places is a huge challenge for e-retailers in India. Few of them have their own supply chain network functioning within a pre-defined area. Few others depend on third party service providers. Therefore, the challenge is to ensure right delivery at right point of time.

#### 5.1.3. Logistics Outlay

Research reflects that cost of logistics in India puts itself as amongst the highest in the world. Logistics outlay at present is 13% of India's GDP in comparison to 11% in Europe and 9% in U.S. Transportation represent 39%, while warehousing, packing and inventory account for 24% of the total outlay. It can definitely be inferred that higher logistics costs are primarily due to inadequate infrastructural facilities in the country. (Reddy and Raju, *Issues and Challenges of Supply Chain Management in India, International Journal of Mechanical and Production Engineering, ISSN No.: 2315-4489, Vol-2, Iss-1, 2013*)

#### 5.1.4. Laps in Third Party Logistics (3PL) Support

Laps are being noticed in terms of third party logistics (3PL) support too. Companies in India do not have an easy access to best services provided by a third party service provider, reason being the huge cost differentials between the 3PL service and existing network. So the suppliers, although they are about to receive value-added services from such provider, may not be in a position to bear with the enhanced cost involved with it.

#### 5.1.5. Restricted Use of IT Enabled System and Technology

With fast advancement in science and technology, India would have been able to leverage with it. But the situation gets reverse in our country where optimal use of technological resource is somehow limited. Eventually, it is limiting the scope of improved productivity and efficiency. The same is with the use of IT enabled system. In modern day times, a global supply chain is just a supply-to-order approach with the use of sophisticated information technology. Indian SCM in this case, is yet to fully align with this global trend.

#### 5.1.6. Globalized Operation

It is an observant fact that multinational firms today have a globalized presence. There are Indian firms too that have multinational manufacturing operations. It demands to have a global procurement network which could assist in fulfilling different supply chain requirements. Research indicate that sourcing a strategic partner which provides manufacturing plants with cross boundary support becomes a great challenge for Indian business.

#### 5.1.7. Concern for Safety and Quality

Another challenge in front of the Indian manufacturer cum supplier is to create and supply high-quality products/services that are perceived as safe and reliable by the consumers.

#### 5.1.8. Shorter Product Life Cycle

Today, business runs with a short span. The same is with product life as well. With a shorter life cycle and fluctuating demands, suppliers are compelled to design and supply products according to dynamic environment. It turns itself into a significant challenge for supply chain service providers in India.

#### 5.1.9. Natural Challenges

The nature has been non-cooperative of late. Reasons for this are many. Solutions are few. There seems to be challenges originating from the nature. Global warming, weather calamities, frequent flooding, intense pollution, declining rain fall, deforestation; all become common phenomena now a days and are on the verge of rising across the globe. It's no point to conclude that all of these constitute what is called as natural challenges towards smooth flow of logistics and supply chain network in country.

#### 5.1.10. Other Challenges

Lack of integrated planning, intra-state border issues, cumbersome documentation, bureaucratic laps along with rinsing multi-layer corruption keep standing as serious hurdles resulting in slow pace of supply chain system in India. (Agarwal, *How to meet Supply Chain Challenge, Business Lines, The Hindu*)

#### 5.2. Pragmatic Road Map and Reforms

It is rightly perceived that a vibrant, active and intelligent supply chain has a meaningful contribution towards sustainable growth of the Indian economy. The same would help suppliers to hedge their logistics risk and enhance their business horizon. Keeping in view the gaps and challenges cited above, it is at present vital to have a pragmatic road map in order to improve the state of affairs. The following reforms perhaps, may be of some sense in this regard -

##### 5.2.1. mSincere Diagnosis of Infrastructural Lapse

Infrastructural laps do not get eradicated to a noticeable extent even after 60 years of independence of the country. It is considered as a major factor hindering supply chain competitiveness and demands an urgent remedy. Other hurdles may be falling away; it's

only aviation, roadways and seaports that put entire logistics network in India on hold. Time has arrived now to have a serious thought and diagnose the issue with a top most priority.

### 5.2.2. Policy Reforms

Indian supply chain sector could be brought up to a global standard. It may be difficult; but not impossible. What required are relevant policy reforms. There would be few priorities to consider in this regard. Firstly, an integrated logistics policy which should be drafted and implemented in a shortest possible time. Secondly, undertaking feasible projects in logistics infrastructure like roads, aviation, marine and railways. Thirdly, investment in human resource. There is rising demand for skilled and trained professionals in order to tackle growing complexity of modern supply chain. It's a time for all concerned to proceed in these directions.

### 5.2.3. Technology Adoption

Another focus of attention is technology adoption. Experts argue that technology adoption along with policy simplification will have a crucial role to play in facilitating e-commerce to a considerable extent.

### 5.2.4. Capitalizing on Information Technology (IT)

At the moment there is no dearth of IT professionals in India. The economy has already been able to fill in the gap. What needed is further investment in IT savvy projects. This investment will establish strong linkage amongst different elements in supply chain. The same becomes a pre-requisite for an effective and strategic business alliance both at national and international level. The application of web-based tools, namely Electronic Funds Transfer (EFT), Electronic Data Interchange (EDI) and Net Auctions, is a significant strategy in order to make participants in the total supply chain linked optimally. Fig-3 represents an IT enabled perspective of a SCM framework.

### 5.2.5. Supply Chain Management - As a Distinct Functional Area

We need to consider SCM beyond our conventional areas of business like production, marketing, sales, distribution, accounting or finance. There is at present a burning need to have an individual focus on supply chain. Of late, Indian firms have realized this need. Supply chain happens to be a strategic area and may not be in same line with other functional areas of a firm. Thus, it should not be aligned with overall business objectives. Rather, must be perceived distinctively.

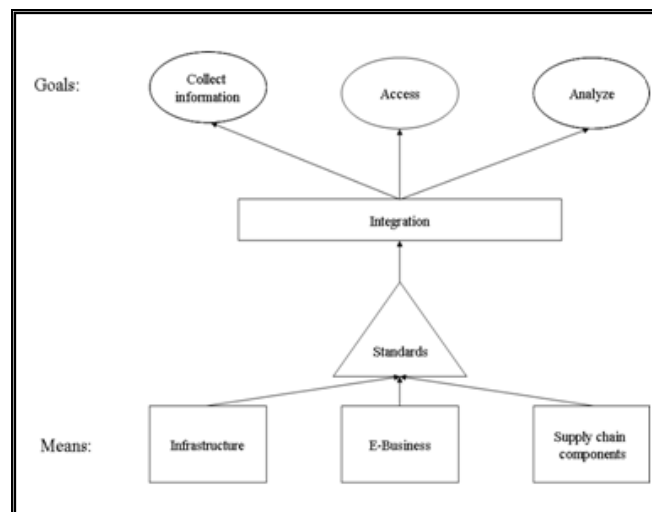


Figure 3: Goals and Means of SCM – An IT Perspective

(Source : Trkman and Groznik, *Current Issues and Challenges of Supply Chain Management, European and Mediterranean Conference on Information Systems, 2010, Abu Dhabi, UAE*)

## 6. Conclusion

The study undergone so far on Supply Chain Management in India renders a clear picture about the state of affairs in terms of its constraints as well as of its reforms for ensuring a competitive edge in due course of time. As indicated earlier, the logistics market in India is primarily constrained on different parameters, but reflecting a growth as well. The economists project that the overall logistics market is likely to grow at a CAGR of 7% in forthcoming years. The anticipated growth is a welcome indicator in this regard. However, there has been some sort of mixed reflection of outcomes emerging out of our observations and warrants the whole issue to be sensitized in a pertinent perspective. India is one of the world's budding economies with a diverse market. To have a revolutionary approach, there is a need for optimization of linkage amongst different components of the supply chain. A comprehensive logistic tactic makes sense for the purpose. Adopting these initiatives requires an absolute re-focus and thinking beyond. Thus, the issue of SCM in India to become internationally sustainable, is to leverage on advancement in technology which at one point of time happened to be a facilitator just for doing business, now becomes an enabler for aligning to global

world. As such, what have been outlined through preceding discussion of the study are few observations at micro level only. There are many more areas and issues that have not been able to be spaced out here and many, which that the respective stakeholders and reformers would be open to. All that require mentioning is that there is a governing body in place, which is, or if not, should be committed to deliver on its promise of mapping Indian Supply Chain in global platform. That's why, it's a time to think, plan, manage and re-act and together we could envisage in ushering in a new logistics era in the country.

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