Logistics and Supply Chain Dynamics in India
-A Case Study from a Practitioner Perspective

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Abstract
The speed and complexity of the global economy has opened up eyes for contemporary logistics and supply chain practitioners. Logistics and Supply Chain Management (LSCM) is introduced to be an integrated approach comprising of different functions and processes within a firm. It is extended to a network of various participants fulfilling increasing customer expectation in terms of cost minimization and benefit maximization. LSCM in India shares an outlay of around 13% of GDP and is considered as an evolving sector in the country. As being projected, the overall logistics market is likely to grow at a CAGR of 11 % in days to come. There are intensive case studies on LSCM practices all over the world. Yet, the status of Indian logistics and supply chain practices has noticeably been behind the global trend. As such, the study encompasses an objective of having an exploratory overview of logistics and supply chain dynamics in India. An attempt is made to point out different gaps and barriers to effective supply chain framework. The same brings to light a few pragmatic measures in order to bridge the apparent gaps. 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 and supply chain infrastructure in the country. Findings reveal that LSCM assumes greater significance in recent scenario. It invites a long term research agenda as changing consumer aspirations are the sturdy challenges for modern corporate world. To face these challenges, practitioners must go beyond short term planning and re-define the development objectives. Focus should be on an integrative tactic with a sound logistics network backed up by techno-savvy infrastructure. The significance of this paper lies in drawing attention of the practitioners towards diverse issues in Indian logistics and supply chain system. The study finally is in a position to conclude that a vibrant, active and intelligent LSCM has a meaningful contribution towards enhancing business horizon in the economy. The current research happens to be an attempt at micro level in order to augment the state of affairs.

Key Words: Supply Chain Management, Logistics Industry in India, Barriers and Measures
JEL Classification : C 19, G13, G 14
1. Introduction

Logistics and Supply Chain Management (LSCM) is a process of planning, implementing and controlling an effective flow and storage of goods, services and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. Modern LSCM concept comprises of a variety of activities, namely inbound and outbound transportation management, warehousing, materials handling, order fulfillment, network design, inventory management, supply/demand planning, customer service, sourcing and procurement, packaging, and management of IT support towards diverse functional areas. It is an integrated approach, actual work of which is supportive in nature. Fig-1 portrays a basic framework of logistics management for a manufacturing firm.

**Figure 1: Logistics Management – A Basic Framework**

![Logistics Management Framework](http://organizations.weber.edu/sascm/supply_chain.bmp)

Currently Logistics Management happens to be a buzzword amongst the practitioners and researchers around the world. It has an evolutionary trend that began with material handling era which transformed itself into a modern Integrated Logistics and Supply Chain. LSCM holds a greater significance in present day business and advocates undergoing an empirical research. Because, customer aspiration is evolving fast and the same proves out as a robust challenge for concerned stakeholders in the total supply chain. To stand against this challenge, LSCM practitioners should frame a long-term planning with a re-defined objective. Till recently, the makers have been the prime drivers in entire distribution chain. Now the time has changed; customers become the king to whom manufacturers are to be submissive and need to response to their fast changing demands. As such, right delivery of right product at right place at right cost at right time and with right impression has, as if, emerged as an exceptionally critical challenge for modern corporate establishments. Referring to Indian scenario, Logistics Management (LM) was observed previously as indispensable ill which becomes a sole mean of survival today. Business houses are scrambling towards building an effective logistics system 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 years to come.

2. Review of Literature

Referring to literature on logistics and supply chain dynamics in India, quite a few studies allege to through light on LM and Supply Chain Management (SCM) issues and their onward challenges in different perspectives. Taking into account of Indian logistics, 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\(^1\) primarily point out that an efficient Logistics and Supply Chain Management is crucial for survival in a turbulent world. Deman & Tuyishime\(^2\) 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 of effectively managing the same. Srivastava\(^3\) provides with a snapshot of present logistics infrastructure in India. In his study, he insists upon collaboration and strategic alliances for successfully managing the show. Reddy & Raju\(^4\) 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\(^5\) persists upon creating competitive advantage through effective supply chain and logistics system in the country. Mangal\(^6\) in his paper suggest the ways to achieve Total Quality Management using SCM principles in process industries. Reddy\(^7\) attempts at outlining the role of Information Technology towards making an optimal logistics 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\(^8\) 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\(^9\) 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\textsuperscript{10} 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\textsuperscript{11} 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\textsuperscript{12} throws light upon global trend in Logistics Management 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\textsuperscript{13} put forward an opinion that managing supply chain efficiently has become a way of improving competitiveness by reducing uncertainty and enhancing customer service. Sood\textsuperscript{14} carefully examines the apparent challenges in Indian retail industry. He feels that logistics and supply chain form 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\textsuperscript{15} 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 and logistics framework. Gurumurthy, Soni, Prakash and Badhotiya\textsuperscript{16} have done a pragmatic review on Supply Chain Management research and conclude by documenting the growing significance of logistics practices within Indian business domain. Bora and Adhikary\textsuperscript{17} provides with an empirical insight on various supply chain challenges in India. Their study infers that a smart supply chain management is vital to industrial firms operating in modern competitive world. Adhikary and Bhutia\textsuperscript{18} in their study make an attempt to examine a variety of export related services and logistics infrastructure with respect to trade from Northeast Region of India. They indicate a future agenda in upgrading logistical network for promotion of international trade in the region. Bora\textsuperscript{19} aims at having an overview on the current status of logistics industry and supply chain practices in India.

3. Aims of the Study

The study primarily aims –

- To have an exploratory overview of logistics and supply chain dynamics in India
- To indicate different gaps and barriers to an effective supply chain framework
- To bring to light a few pragmatic measures in order to bridge the apparent gaps
- To conclude the study with meaningful 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 logistics and 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 LSCM 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. A Practitioner Perception and Observation

India is regarded as one of the emerging markets in the world and LSCM sector in the country has assumed a deeper significance in contemporary research era. 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 supply chain 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 logistics infrastructure and optimum utilization of technical resources. However, the situation is far behind the pace so far as logistics management 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 has been experiencing a changing trend at the moment. The latest acceleration in communication devices has made Indian supply chain techno-savvy and equipped. Needless
to say that it is the communication technology that keeps any logistics system in motion. Accordingly, logistics and supply chain practitioners in the country are becoming alert 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 to logistics to an integrated LSCM network in 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 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 380 US $ MN, one of the renown logistics firms, have diversified to 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, 6th 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)

Table 1: Hands-On Exposure of Logistics System

<table>
<thead>
<tr>
<th>Type of Industry</th>
<th>Line of Business</th>
<th>Type of Firms Visited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitality</td>
<td>Accommodation Rental</td>
<td>Hotel &amp; Guest House</td>
</tr>
<tr>
<td>Production</td>
<td>Clothing Manufacturing</td>
<td>Fabrication Unit</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Marketing of Hardware &amp; Software</td>
<td>Computer Dealer, Showroom</td>
</tr>
<tr>
<td>Financial Service</td>
<td>Mutual Fund, Banking</td>
<td>Mutual Fund Corporation, Bank</td>
</tr>
<tr>
<td>Travel and Tourism</td>
<td>Vacation Rental</td>
<td>Travel Organizer, Tour Operator</td>
</tr>
<tr>
<td>Automobile</td>
<td>Channel Partner</td>
<td>Dealer, Showroom</td>
</tr>
<tr>
<td>Retailing</td>
<td>Garment Exhibition</td>
<td>Retail Plaza</td>
</tr>
<tr>
<td>Health Care</td>
<td>Nursing, Pharmaceutical</td>
<td>Medicare Unit, Pharmacy</td>
</tr>
<tr>
<td>FMCG</td>
<td>Carrying &amp; Forwarding Agency</td>
<td>Distributor</td>
</tr>
<tr>
<td>Dairy</td>
<td>Dairy Production</td>
<td>Milk Parlour</td>
</tr>
</tbody>
</table>

(Source: Self Compilation)

5.1. Barriers to Effective LSCM

To insist again, LSCM in the country remains at a growing stage. Carrying out a business here usually is to face prominent inherent barriers 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 logistics chain. If we observe Fig-2 underneath, we may come across with a clue about a challenging framework of logistics management where quality happens to be an ongoing priority. 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 logistics framework has immense contribution towards stability in price level and consequent economic development.
As such, it becomes essential to examine what the issues are in this regard standing against a speedy augmentation of the state of affairs. Depicted below an objective evaluation of the same one by one.

(i) **Infrastructural Barriers**

Logistics network in developed nations of the globe is fully backed up 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 gaps if compared with advanced countries of the world. For example, the distance that could be covered in two days in Germany, 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 issues prove themselves extremely critical and do invite serious attention.

(ii) **Gaps in On-Line Trading**

There are growing hurdles 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 predefined area. Few others depend on third party service providers. Therefore, the challenge is to ensure right delivery at right point of time.

(iii) Logistics Outlay

Research reflects that cost of logistics in India puts itself 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)

(iv) Hindrances in Third Party Logistics (3PL) Support

Lapses 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.

(v) Technological Barriers

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 somewhat 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 LSCM in this case, is yet to fully align with this global trend.

(vi) Cross Boundary Functions

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

(vii) Reliability and Quality Consciousness

Another barrier 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.

(viii) Short Span of Business 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 logistics service providers in India.

(ix) Natural Issues

The nature has been non-cooperative of late. Reasons for this are many. Solutions are few. There seems to be barriers originating from the nature. Global warming, weather calamities, frequent flooding, intense pollution, declining rain fall, de-forestation; 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 are called as natural hurdles towards smooth flow of logistics and supply chain network in country.

(x) Miscellaneous Hurdles

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

5.2. Measures to bridge the Gaps

It is rightly perceived that a vibrant, active and intelligent LSCM has a significant 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 barriers and hurdles indicated above, it is at present vital to have a few pragmatic measures in order to bridge the apparent gaps. The following measures perhaps, may be of some sense in this regard.

(i) Careful Diagnosis of Infrastructural Hurdles

Infrastructural lapses do not get eradicated to a noticeable extent even after 69 years of independence of the country. It is considered as a major factor hindering logistics and 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.

(ii) Policy Liberalization

Indian logistics and supply chain sector could be brought up to a global standard. It may be difficult; but not impossible. What required is relevant policy liberalization. There would be a few priorities to consider in this regard. Firstly, an integrated LSCM policy which should be drafted and implemented in a shortest possible time. Secondly, undertaking feasible projects in physical 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.
(iii) Technology Alignment

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

(iv) Leveraging on IT Strengths

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 the logistics 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 network linked optimally. Fig-3 represents an IT enabled perspective of a SCM framework in this regard.

(v) LSCM - As a Strategic Area

We need to consider LSCM 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 logistics and supply chain system. Of late, Indian firms have realized this need. LSCM happen 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 and separately.

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

6. Inferences and End Note

The study undergone so far on Logistics and Supply Chain Dynamics in India renders a clear picture about the state of affairs in terms of its barriers as well as of its measures 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 11% 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 observation 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 logistics tactic makes sense for the purpose. Adopting these initiatives requires an absolute re-focus and thinking beyond. Thus, the issue of LSCM in India to become internationally sustainable is to capitalize 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 logistics 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 and supply chain era in the country.

References


