

Overview Of Logistics And Supply Chain Management Practices: Indian Context

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ABSTRACT:

India is the fourth largest country in terms of Purchasing Power Parity (PPP) and constitutes one of the fastest growing markets in the world. Globalization of businesses, infrastructural bottlenecks, increasing uncertainty of supply chain networks, shortening of product life cycles and proliferation of product variety have forced Indian firms to look beyond their four walls. They face issues related to choosing and working with the right supply chain partners (suppliers, customers and logistics service providers), fostering trust between them and designing the right system of gauging performance.

In this paper, snapshot picture of logistics and Supply Chain Management (SCM) practices in India has been presented. It is borne out of the felt need by managers, expert professionals and academicians to address logistics and supply chain practices at the national level. The paper capture facts, figures as well as qualitative responses about the logistics infrastructure and supply chain practices. The focus is on supply chain collaboration and partnerships, supply chain structure, facilities network design, transportation and logistics and the role of Information and Communications Technologies (ICT). The emphases is to analyze and assess existing logistics and SCM practices and discern emerging trends as well as areas of concern. The paper gives insights into how far the firms and their supply chains in India have come in dealing with major logistics and supply chain issues, the practices they focus on or need to focus on. It also highlight and address a few issues related to supply chain managers and policy makers.

INTRODUCTION

Logistics and SCM practices may be defined as a set of activities undertaken to promote effective and efficient management of supply chains. These include supplier partnership, physical movement of goods, meeting customer demands and information sharing throughout the supply chain. Some of the key logistics and SCM practices that impact performance are related to estimation of customer needs, efficient and effective delivery, integration and collaboration throughout the supply chain, sharing of information and vision using ICT as well as informal methods and use of specialists for performing specific jobs across the supply chain. All of these practices impact logistics and supply chain performance.

The de-regulation of the Indian economy in the 1990s has attracted global players and has unleashed a new competitive spirit. However, a distinctive characteristic of the Indian economic environment is the inadequacy of basic inputs normally required to support organized economic activity. The UPS Asia Business Monitor Survey, 2004 finds that besides the lack of government support, poor logistics infrastructure and poor supply chain efficiency are the major obstacles to competitiveness in India. The Indian infrastructure comprising roads, railways, airports, seaports, ICT and energy production is poorer as compared to many other countries. However, things are changing for the better at a fast pace. The Growth Competitiveness Index survey conducted by the Geneva-based World Economic Forum (WEF) for 2013-14 puts India at 60th position among 148 countries in its Global Competitiveness Report, in the same manner in ear 2014-15 position at 71 amongs 144 countries , which is eleven places up from previous years ranking of 60. The Global Competitiveness Report 2015-2016 assesses the competitiveness landscape of 140

economies, providing insight into the drivers of their productivity and prosperity and again India has improved its position and gone up to 55 in year 2015-16. (Available at: <http://reports.weforum.org/>)

A few years ago, logistics and SCM were seen as necessary evils in India; today they are seen as a matter of survival and competitive advantage. As companies look at logistics and SCM strategically, they turn to specialized service providers to cut out non-core activities from within. A rising focus on outsourcing is leading to a surge in business performance for logistics service providers. One offshoot of the demand for logistics services is that many companies are changing their names to include 'logistics' somewhere as well, much like the dot-com boom times in the early 1990s.

Worldwide, best-in-class companies have invested in enabling infrastructure and technology to realize their supply chain vision into a reality. These include integrated supply chain cost models for decisive inventory management, technology for handling supply chain throughput and information systems capable of fostering visibility across organizational boundaries. Dell Computers and Wal-Mart were able to achieve leadership positions because of their efficient and effective supply chain management practices. Both of these have invested enormously in ICT to help them have continued focus on customer needs and supply chain efficiencies. Many instances of novel and innovative supply chain practices such as cross-docking, Collaborative Planning, Forecasting and Replenishment (CPFR), extensive use of bar-codes and now RFID, and direct-to-home delivery have been introduced by these firms. Wal-Mart had its own satellite communication system as early as 1983. Wal-Mart's PoS data is shared with its suppliers to reduce the dependence on forecasts.

Similarly, there are multi-billion companies which have shifted focus from courier and cargo to logistics and supply chain; from being freight forwarders to integrated shippers; and from customs clearances to consultants. Indian SCM service providers are also evolving rapidly. The shift in service providers from just movers of material to logistics to supply chain services has quickened in the past few years. Truckers are moving up into integrated haulers; large Indian companies with multi-million spends on logistics are hiving off entire divisions into service providers who handle not just the parent's logistics but also of others; others are forming joint ventures to leverage skills. IT companies now provide not just the hardware and software, but consultancy for solutions, examples being Satyam, Wipro, Infosys and TCS. Big players like DHL to invest US \$ 100 million in India and more is on the way. It has already acquired Blue Dart, the top firm in air logistics business. Container Corporation of India (Concor), at US\$ 380 millions, the largest listed firm in logistics in India is diversifying. Others, like Gati, XPS and Safexpress, are expanding to UAE, Sri Lanka, Singapore and Bangladesh as well as into new areas like modern warehousing.

Statement of Problem :

The logistic and supply Chain Management has emerged as very important field, which has been widely focused and has acquired central place. The foreign players have made heavy investment in India. It is not possible for the production line to supply the required material on time and in required quantity.

Objectives :

To study the role of different players in the logistic and supply chain management in the competitive era.

Research Methodology : The method used for this study is exploratory in nature and it covers twenty five industries primary data as well as the field observations.

Sampling :

For the purpose of this study wide spectrum of firms covering varied businesses so as to get a reasonable insight into logistics and SCM practices have been covered. Due Care has been taken to ensure that these firms and their supply chains provide diversity in terms of ownership and industry sectors such as global travel, financial and network services, retail, milk and milk products, health services, sales and distribution of electronic consumer products, power generation, electrical appliances and switchgears, hospitality, international logistics service, domestic transport service, automobiles and auto-ancillary, Fast Moving Consumer Goods (FMCG) and computers. The same is shown in the Table I.

Table I: Nature of Business and Number of Firms Covered in Present Study

Nature of Business	Number of Firms
Automobiles	5
Food and Apparel Retail Chains	4
FMCG	3
Auto-ancillary	2
Electrical Appliances and Switchgear	2
Computers	1
Domestic Transport Service Provider	1
Global travel, financial and network services provider	1
Hotel	1
International Logistics Service Provider	1
Milk and Milk Products	1
Power Generation	1
Sales and Distribution of Electronic Consumer Products	1
Tannery	1

LITERATURE REVIEW

Literature portrays logistics and SCM practices from a variety of different perspectives with a common goal of ultimately improving performance and competitiveness. Based on literature, we find that the important supply chain practices concerns are mainly related to:

Supply Chain Collaboration and Partnership with various stakeholders such as the product developers, suppliers, channel partners and end-users. Supply Chain Structure including facilities network design taking into account related transportation and logistics. Forecasting and Demand Management to cope with supply chain complexity in a cost-effective and delivery-efficient way. Use of Information and Communication Technologies (ICT) to facilitate the above.

While there is plenty of published literature that explains or espouses SCM, there is a dearth of empirical studies examining logistics and SCM practices. Galt and Dale (1991) study ten organizations in the UK and find that they are working to reduce their supplier base and to improve their communications with the suppliers. Fernie (1995) carries out an international comparison of SCM in the grocery retailing industry. He finds significant differences in inventory held in the supply chain by the US and European grocery retailers, which could be explained by difference in degrees

of their SCM adoption. Tan and Wisner (2000) compare SCM in the US and Europe. Tan (2002) relates SCM practices and concerns to firm's performance based on data from US companies. He lists nine important supply chain concerns such as lack of sophisticated ICT infra-structure, insufficient integration due to lack of trust and collaboration among the supply chain stakeholders and thereby lack of supply chain effectiveness and efficiencies. Basnet et al. (2003) report the current status of SCM in New Zealand, while Sahay et al. (2003) discuss supply chain strategies and structures in India. These surveys rank the perceived importance of some SCM activities, types of hindrances and management tools on the success of SCM using representative samples mostly from manufacturing. Quayle (2003) surveys supply chain management practice in UK industrial SMEs (Small Manufacturing Enterprises) while Kempainen and Vepsalainen (2003) probe current SCM practices in Finnish industrial supply chains through interviews of managers in six supply chains. They analyze the change of SCM both in terms of operational practices and organizational capabilities. Chin et al. (2004) conduct a survey that examines the success factors in developing and implementing supply chain management strategies for Hong Kong manufacturers. Moberg et al. (2002) state that there is little literature on information exchange. Feldmann and Muller (2003) examine the problem of how to establish an incentive scheme to furnish reliable and truthful information in supply chains.

There is little literature on logistics and SCM practices in India. Available literature focuses either on the best practices (Joshi and Chopra, 2004) or on re-engineering of internal operations of the firms (Deshmukh and Mohanty, 2004, Kankal and Pund, 2004). In context of ICT, Saxena and Sahay (2000) compare the manufacturing intent to be an agile manufacturer and their Information Technology (IT) infrastructure in terms of scope of use, extent of use and integration of IT-based systems. The more recent studies are mainly based on questionnaire surveys and secondary data sources (Sahay and Mohan, 2003, Sahay et al., 2006). Vrat (2004) discusses some issues and challenges as well as the potential of SCM in India. All these studies find Indian firms generally lagging behind their counterparts in the developed countries.

LOGISTICS AND SCM PRACTICES FROM SECONDARY SOURCES

Industry and academic estimates put logistics and SCM spend in India at approximately 13% of the Gross Domestic Product (GDP). Global estimates for this vary and are around 13% of GDP in China and about 9% of GDP in the US. The transportation cost in India accounts for nearly 40% of the cost of production, with more than half the goods being moved by road. Trucking accounts for nearly 70% of transportation and accounts for 60% of all logistics cost. 67% of truck ownership is in the hands of small unorganized players. Road is followed by rail and finally coastal shipping. Rail has been steadily losing ground due to myopic government strategies and inherent inefficiencies. The freight movement of Indian railways has risen to 411354 net tonne-kilometers (Available at: <http://www.indianrail.gov.in/>) and the total road length is 3315231 kilometers (Available at: <http://www.nhai.org>).

Though enormous maritime routes are available combination of poor government policies and lack of initiative from the private sector, water which is probably the cheapest mode of transport is barely used. Air as a mode is limited to a small percentage of courier shipments. Various SCM spend indicators such as in-bound transportation costs, inventory related costs and distribution expenses as percentage of net sales vary from industry to industry. However, as per Centre for Monitoring Indian Economy (CMIE), they are coming down over a period of years. The aggregate of the same for nine major manufacturing industries for four years are shown in Table II. These industries spent nearly 17-18% of their net sales on various logistics activities, including distribution, warehousing, and inventory. Global averages are around 9-12%. So, there is ample scope to reduce spends on logistics. This in turn allows companies to

protect operating margins during downturns and make above-normal profits during upturns.

Table II: SCM Spend in 9 Major Indian Manufacturing Industries

SCM Spend Indicator	2001-02	2002-03	2003-04	2004-05
In-bound Transportation Costs as percentage of Net Sales	1.5%	1.4%	1.3%	1.4%
Inventory-related Costs as percentage of Net Sales	13.3%	13.9%	13.1%	13.1%
Distribution Expenses as percentage of Net Sales	3.0%	2.8%	2.8%	2.7%
Total SCM Spend as percentage of Net Sales	17.8%	18.1%	17.2%	17.2%

Source: CMIE

For supply chain tracking, the most preferred method is the truck driver reporting his location. Another method gaining popularity is the use of SMS (Short Messaging Service). Time lags here can be pre-determined. Depending on the number of times the SMS signal is polled and sent by to the base station, the location of the vehicle can be accurately determined. With Global Positioning Systems (GPS), this is no longer the issue. However, the use of GPS for supply chain management in India is relatively low. Service providers like Transport Corporation of India (TCI) have poured in US\$ 0.34 million for GPS in their trucks. Firms like Bajaj, Maruti Udyog Limited, TVS Motors and Bharat Shell are already using TCI's GPS systems.

LOGISTICS AND SCM PRACTICES OBSERVATIONS

In our observations, we find that the primary focus is on quality, cost and service. Recently, responsiveness (delivery speed, volume flexibility and innovation) is also catching up management attention. Correspondingly, the major concerns in all these firms and their supply chains are related to costs, clarity of demand, reliability of partners, shortening delivery cycle, production and logistics flexibility and innovation in supply chain practices. Sharing of benefits within the supply chains has not yet gained much attention. Firms show relatively high awareness of modern supply chain planning and control tools, including software and mathematical models.

However, the utilization of such tools is still at a relatively low level. Relationships are messy and partnerships are short of true strategic alliances. Still, some benefits are being derived. Firms, especially in the automotive, retail, manufacturing and FMCG sectors, are increasingly opting to outsource their logistic requirements to specialized service providers. The positive business atmosphere and a burgeoning consumer market are making the shipper community push the logistic service providers hard for efficient supply chain value propositions. Many firms in our study have gone for spend management outsourcing instead of procurement management.

There is big focus on vendor development. Firms focus on developing vendors in geographical proximity. The focus of most of the service firms is on express deliveries and logistics solutions. They focus on efficient and effective service and better customer reach. Most of the firms have established highly responsive call centers with stringent performance metrics.

In FMCG and perishables sector, the primary focus is on product availability (refilling the shelves). The companies have few manufacturing facilities with complex distribution channels. Packaging is generally outsourced.

Mostly, the goods are packaged near the markets. There is a very high collaboration with suppliers and firms are going for global procurement.

DISCUSSIONS

To succeed today and to pave the way for a better future, firms in India need to create strong linkages with their logistics and supply chain partners. More and more of them today are realizing the importance of developing and implementing a comprehensive logistics and supply chain strategy – and then linking this strategy to the overall business goals. Adopting these initiatives first and foremost requires taking a long-term view and having an extensive focus on all the channels in the total transformation process to create a productive and reliable supply chain. Technology, which was earlier taken to be a driver for doing business in a particular fashion, has become a “necessary enabler” for aligning business to consumer demand. It can change the way we capture and analyze information, differentiate products and services, configure and sell existing products, crash order cycle times, introduce new products and so on. ICT can thus achieve breakthroughs in the area of supply chain design, configuration and planning, which otherwise can never be thought about. There’s a concerted move to use ICT for data collection and forecasting. Successful logistics and supply chain management depends heavily on the state of the infrastructure scenario in the country. Undoubtedly, the state of infrastructure in India has been hampering the industrial and economic performance for long. Infrastructure is the most quoted factor hindering supply chain competitiveness. This needs urgent remedy: most other bottlenecks of regulations and capital are falling away and it's only roads, ports and airports that hold Indian logistics back. Higher fuel cost in India lead to high inland movement cost. Poor conditions and low load-bearing capacity of roads lead to more wear and tear of vehicles, and slower movement. Imposition of load restrictions, permits for inter-state movement, lengthy and cumbersome documentation, large number of public holidays make lead-times larger with higher variability. Transportation costs too go up. It requires a concerted effort by the industry and government to dismantle bottlenecks in the completion of infrastructure-related projects and creation of demand-aligned capacities in sectors of logistics and information technology. The government is planning to set up 13 inland ports at a cost of US\$ 190 millions. The project is to be implemented through the public-private partnership model. To improve the productivity of wagons, railways are going to reduce terminal detention below the national average of 16 hours. At present, 25% rakes take more than 24 hours and 50% rakes take more than 16 hours in loading and unloading. Similarly, plans have been laid down to reduce the wagon turnaround time from 5.0 to 4.5 days through effective implementation of new terminal incentive cum-engine on load scheme. By increasing the manufacturing capacity of wagons, it is likely to load 2.2m tonne of freight on a daily basis and achieve the target of 800m tonne of freight during the year. In March 2006, the railway ministry has announced the start up of double stacked container trains running on ‘freight corridors’. This is a welcome step forward for Indian logistics. At least half-a dozen private companies have applied for various categories of licenses for rail containers.

CONCLUSIONS

The management and structures of supply chains in India have transformed since the early 1990s when they were perceived as linear chains of companies and managements focused on improving the efficiency of material flows. Indian firms are quite aware of the best logistics and SCM practices, but many of them are yet to practice them actively. They are generally adopting these practices piecemeal and supply chain integration is yet to take place in most of the chains. Increasing customer requirements and improved ICT have affected SCM efforts. Today the

extended multi-tier structure of supply chains as well as the need for better forecasting, collaborative planning, effective logistics and information sharing is better understood. In future, ongoing outsourcing and specialization are expected to result in demand-supply networks, with shared technology and systems, extended decision rights and non-territorial services. The awareness of planning and control techniques and communication means is high and work on increasing and improving supply chain integration and collaboration is likely to be intensified in the near future.

Logistics and supply chain practices in India show that visibility is still limited. The companies have a realistic view on the advantages and risks of information sharing and so information is shared only selectively. Our study reveals that most Indian firms have aligned their logistics and supply chain objectives with their business objectives. However, due to some aberrations and diseconomies of scale/ scope most of them are not able to reap full potential benefits. Action is required by the Indian government to improve the infrastructure for better functioning of various supply chains. Firms and their supply chains need to closely integrate themselves into a network, carefully manage the complexity that ensues, align their business strategy with logistics and supply chain operations, and leverage information and communication technology with process improvement and pioneer operational innovation for superior performance. They also need to rigorously measure and monitor critical operational performance metrics such as customer service, responsiveness, supply chain costs, asset utilization, product quality and operational flexibility in order to achieve overall business success. Our findings are in agreement with Kemppainen and Vepsalainen (2003) that the distinction between partners and standard suppliers or customers guides collaboration.

There are many avenues for improvements for logistics and supply chain management practices in India. We are in total agreement with Tan (2002) that a massive commitment by important stakeholders is required for evolving truly efficient and effective supply chains. There is ample scope for facilities network redesign. Infra-structural bottlenecks need to be overcome. The golden quadrilateral project and initiatives by railways and ports administration in the last few months are good indicators that the concerned authorities are waking up. The golden quadrilateral road project will address some of the connectivity issues, but the larger problem is not so much a six-lane road as good roads. Ventures like BOT (Build-Operate-Transfer) and tolled roads all exist - but the essence is that law enforcement about technical standards must be made stringent. ICT implementation and utilization is low and needs to be spruced up. Forecasting based on PoS data is likely to come into use once there is more collaboration and trust, economies of scale and scope for supply chain entities and enabling-ICT are in place. Benchmarking and learning good practices should be encouraged by government, industry associations and other stakeholders. Government should move from a regulator's role to a facilitator's role. A high degree of operational efficiency and cost efficiency will provide the much needed competitive edge to various supply chains in India.

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