



# PSG COLLEGE OF ARTS & SCIENCE



An Autonomous College - Affiliated to Bharathiar University  
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Coimbatore - 641014



## DEPARTMENT OF INTERNATIONAL BUSINESS

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# TRIOS 2025

*This is to certify that Dr. K. Suresh Babu, Associate Professor, Department of Commerce with Retail Marketing, PSG College of Arts & Science, Coimbatore has participated and presented a paper titled "Modernization of India's supply chain: Challenges and Opportunities" in the National Conference "Oceanic Obligation And Opportunity - Navigating The Future Together" on September 16<sup>th</sup> 2025, at PSG College of Arts & Science, Coimbatore.*

  
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NATIONAL LEVEL CONFERENCE ON

**“OCEANIC OBLIGATION AND OPPORTUNITY -  
NAVIGATING THE FUTURE TOGETHER”**

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**Dr. M. Saravanan**

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# **"Oceanic Obligation and Opportunity - Navigating the Future Together"**

**(National Level Conference Proceedings)**

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**Dr. M. Saravanan  
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## Modernization of India's Supply Chain: Challenges and Opportunities

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### *Abstract*

*Supply Chain Management and Logistics 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 SCML 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. India is becoming a global manufacturing hub. Increasing demand in domestic and international markets is opening a new world of opportunities for the Indian Industry. Increasing competition, due to globalization, is making it inevitable for the Indian industries to provide cost-effective quality output with stringent delivery schedules. Issues in the supply of inferior quality, delayed supply, unwarranted cost escalation, etc., would adversely impact the credibility and business potential of the Indian industry. Amongst many difficulties faced by Indian manufacturers, supply chain disruption management is a major issue, which can result in large tangible and non-tangible losses. In the current study, a lot of research has been done to understand what Supply Chain Management is and how it is affecting organizations, what the different challenges are, and it can be proven as a tool for improving overall performance in today's global competitive environment.*

*Keywords: Supply Chain Management and Logistics, Global manufacturing, Indian manufacturers, and supply chain disruption management.*

### **Introduction and Problem Definition**

The term „supply chain management“ has not only been used to explain the logistics activities and the planning and control of materials and information flows internally within a company or externally between companies (Christopher 1992, Cooper et al.,1997 and Fisher, 1997). Researchers have also used it to describe strategic, inter organizational issues (Cox, 1997, Harland et al., 1999), to discuss an alternative organizational form to vertical integration (Thorelli ,1986 Hakansson and Snehota, 1995), to identify and describe the relationship a company develops with its suppliers (Helper, 1991and Hines, 1994, Narus and Anderson, 1995), and to address the purchasing and supply perspective (Morgan and Monczka, 1996 and Farmer, 1997). In the current competitive scenario, supply chain management assumes significant importance and calls for serious research attention, as companies are challenged with finding ways to meet ever-rising customer expectations at a manageable cost.

The driver behind Supply Chain Management is to remove inefficiencies, excess costs, and excess inventories from the supply pipeline, which extends from the customer back through his suppliers and through his suppliers' suppliers and so on back. By having the program driven by the customer, it is hoped that inventories, caused by uncertainties and slow response, will be significantly eliminated. While there are sales incentives to major suppliers with the carrot of category management or similar programs, the success of supply chain management rests with logistics.

**Functional areas of Logistics:**

1. Network Design
2. Information Technology
3. Transportation
4. Inventory and Storage
5. Warehousing
6. Materials Handling, Loading and Unloading
7. Packaging and Re-packaging

Currently, Logistics Management happens to be a buzzword amongst the 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 Logistics and Supply Chain. LSCM holds a greater significance in the present-day business and advocates for undergoing empirical research. Because, customer aspiration is evolving fast and the same proves out as a robust challenge for concerned stake-holders in the total supply chain. To stand against this challenge, LSCM practitioners should frame a long-term plan 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 respond to their fast-changing demands. With this imperativeness, the present study will examine conceptually the dynamism in logistics and supply chain management in India in the present scenario.

**Samples of Earlier Studies**

Analytically, a typical supply chain is simply a network of materials, information and services processing links with the characteristics of supply, transformation and demand. It is the collection and interaction of these elements that impact system-level qualities, properties, characteristics, functions, behavior, and performance *Cloutier et al.*,

Enterprises create and deliver products and services through increasingly global and complex supply chains, *Binder and Clegg and Basole and Rouse*. The hyper competitive nature of today's business environment, however, requires enterprises to continuously seek ways to decrease operational costs, provide satisfactory customer service, and minimize existing and anticipated disruption risks by designing and managing efficient supply chains.

*Trkman & Groznik* primarily point out that an efficient Logistics and Supply Chain Management is crucial for survival in a turbulent world. *Deman & Tuyishime* considers 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* 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* 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.

**Objectives of The Study**

1. To identify the dynamism of supply chain management and logistics in India.
2. To identify the issues and challenges involved in supply chain management and logistics in India.

**TABLE-1 Era in the Evolution of Supply Chain Management**

S.NO.	ERA	DESCRIPTION
1	Creation Era	The term supply chain management was first coined by an American industry consultant in the early 1980s. However the concept of supply chain in management, was of great importance long before in the early 20 <sup>th</sup> century, especially by the creation of the assembly line.
2	Integration Era	This era of supply chain management studies was highlighted with the development of Electronic Data Interchange (EDI) systems in the 1960s and developed through the 1990s by the introduction of Enterprise Resource Planning (ERP) systems.
3	Globalization Era	This era is characterized by the globalization of supply chain management in organizations with the goal of increasing competitive advantage, creating more value added, and reducing costs through global sourcing
4	Specialization(Phase one)	In the 1990s industries began to focus on “core competencies” and adopted a specialization model. Companies abandoned vertical integration, sold off non-core operations, and outsourced those functions to other companies.
5	Specialization Era(Phase two)	Specialization within the supply chain began in the 1980s with the Phase Two – Supply inception of transportation brokerages, warehouse management, and non asset based carriers and has matured beyond transportation and logistics into aspects of supply planning, collaboration, execution and performance
6	Supply Chain (SCM 2. 0)	Web 2. 0 is defined as a trend in the use of the World Wide Web that is meant to increase creativity, information sharing, and collaboration among users.

**Perspective Dynamism of Supply Chain and Logistics**

India is regarded as one of the emerging markets in the world, and the LSCM sector in the country has assumed a deeper significance in the contemporary research era. The launching of the LPG policy in 1991 invited foreign players who had brought in a competitive spirit amongst Indian business minds. Infrastructural hurdles, multi-nationalization of operations, rising complexities of the 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 the upgradation of logistics infrastructure and the 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 alliances with chain partners to meet these growing challenges. Nevertheless, the scenario has been 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, 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 the ever-shifting needs of the business. This change in functional domain has progressed from inventory handling to logistics to an integrated LSCM 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 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.

**TABLE 2: Hands-On Exposure of Logistics System**

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

## **Issues and Challenges In Supply Chain**

### **In Supply Chain Integration**

Supply chain management (SCM) executives face unique challenges, with respect to integrating supply chain-specific strategies with the overall corporate business strategy. In recent years, given changing business realities related to globalization, the supply chain has moved up on the chief executive officer's (CEO's) list of priorities, but it's not always for the right reasons, in many cases, CEOs only pay attention to the supply chain when they want to cut costs or when something is wrong. Since the supply chain essentially moves the lifeblood of the organization, process efficiency on a global scale is essential to optimized business operations. The importance of global integration to the Multi-National Company (MNC) lies in the differential advantage to be gained from the ability to exploit differences in capital and product markets, to transfer learning and innovation throughout the firm, and manage uncertainty in the economic or political environment in different countries or regions.

However, the general understanding of the business environment in most industries is that competition has increased and the conditions under which business is made are more turbulent. Many researches have mentioned a classification of supply chain integration challenges. SC integration challenges can be classified through the challenge of system relationships; the SCM system has two kinds of relationships, which are the relation between sub-systems, and the relationship between SCM system and the business strategies, This classification emphasizes the technical challenges that came from the relation between SCM system and internal business strategy, unfortunately this classification bypass the challenges that the companies may face from external environment.

### **In Information Sharing**

Information sharing in a supply chain faces several hurdles. The first and foremost challenge is that of aligning incentives of different partners. It would be naïve of a partner to think that information sharing and cooperation will automatically increase his or her profit. In fact, each partner is wary of the possibility of other partners abusing information and reaping all the benefits from information sharing. For example, supply chain partners seldom share information that relates to sensitive cost data, e.g. production yield data or purchase price of parts. This is consistent with economists. Finding that a powerful monopolistic or monopsonistic partner can extract all economic profit from his or her partner, but one way of defending a positive profit for the weaker party is to keep the cost hidden and maintain informational superiority. The profit associated with superior information is often called *the informational rent*.

### **In Supply Chain Network Design**

Another aspect that requires more attention is the full integration of forward and reverse activities in SCM. As we can conclude from the surveyed literature, only a few papers attempt this integration and, again, significant simplifications are made (e.g., a single product or deterministic parameters are considered). One aspect that has been scarcely considered in (integrated) supply chain planning concerns postponement decisions, which refer to the possibility of not filling customer demands on time. As a result, backorders are generated that incur penalty costs. This issue was explicitly integrated with strategic decisions (Wilhelm et al., 2005). Clearly, more research is needed on this aspect, whose relevance has been raised by SCM. In particular, it is important to consider the impact that it may have on strategic decisions. In addition to these findings, we note that the large majority of location models within SCM is mostly cost-oriented. This somewhat contradicts the fact that SCND decisions involve large monetary sums and investments are usually evaluated based on their return rate. One of the few models addressing this issue was Sheu (2003), focusing on maximizing the potential return on facility investment. Moreover, substantial investments lead to a period of time without profit. Companies may wish to invest under the constraint that a minimum return will be gradually achieved (e.g., at least a pre-defined amount should be earned within a given time limit, (Shapiro, 2004). By considering profit-oriented objective functions, it also makes sense to understand, anticipate and react to customer behaviour in order to maximize profit or revenue. This means bringing revenue management ideas into strategic supply chain planning. The contribution by Mitra (2007) is the only example we found that considers revenue management for remanufactured products in reverse logistics.

### **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 go in this regard. Although the country claims to have built up the largest road network, there seem to be serious gaps when 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 the Indian seaport with a longer waiting time compared to almost zero waiting in Australia. The cost of Indian fuel is relatively higher, which leads to an escalation of costs in the movement of materials. Pathetic conditions and low load-bearing capacity of the surface ways also contribute to slower movement and mechanical failure of the vehicles plying on the road. Further, inter-state mobility restrictions, along with tedious documentation, help increase lead times to a maximum extent. Thus, these issues prove themselves extremely critical and do invite serious attention.

### **Technological Barriers**

With the fast advancement in science and technology, India would have been able to leverage it. But the situation is reversed in our country, where the optimal use of technological resources is somewhat limited. Eventually, it is limiting the scope of improved productivity and efficiency. The same is true for the use of an 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.

### **Cross-Boundary Functions**

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

### **Natural Issues**

Nature has been non-cooperative of late. Reasons for this are many. Solutions are few. There seems to be barriers originating from nature. Global warming, weather calamities, frequent flooding, intense pollution, declining rainfall, and deforestation all have become common phenomena nowadays and are on the verge of rising across the globe. There's no point in concluding that all of these constitute what are called natural hurdles towards the smooth flow of logistics and supply chain network in the country.

### **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 a slow pace of the logistics system in India.

### **CONCLUSION**

The study conducted 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 by different parameters, but it is also reflecting growth. A comprehensive logistics tactic makes sense for the purpose. Adopting these initiatives requires an absolute re-focus and thinking beyond. Thus, the issue of SCML in India to become internationally sustainable is to capitalize on advancements in technology, which at one point in time happened to be a facilitator just for doing business, and now becomes an enabler for aligning with the global world. As such, what has been outlined through the preceding discussion of the study are a few observations at the micro level only. There are many more areas and issues that have not been addressed here, and many that the respective stakeholders and reformers would be open to. All that requires mentioning is that there is a governing body in place, which is, or if not, should be committed to delivering on its promise of mapping Indian logistics on a global platform. That's why it's a time to think, plan, manage, and react, and together we could envisage ushering in a new logistics and supply chain era in the country.

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