

# PRESENT SCENARIO OF LOGISTICS, SUPPLY CHAIN AND TRANSPORTATION

**Dr. Shamina Ansari, Dr. Maulik Desai**

Assistant Professor, K. S. School of Business Management  
Gujarat University, Ahmedabad.  
Address: 31-N Fuzail Park, Labbaik Park, Sarkhej Road, Ahmedabad – 380055. Gujarat  
Email: shamina4@gmail.com  
Cell No: 09327907903

Assistant Professor, K. S. School of Business Management  
Gujarat University, Ahmedabad.  
Address: B – 401 Vrajivihar – 5, Opp. Tejdhara Bungalows, Near Rahul Towers, Off 100 Feet Road, Satellite,  
Ahmedabad – 380015. Gujarat  
Email: desaimaulik@hotmail.com  
Cell No: 9824501950

## Abstract

*The trend of Nationalization and Globalization in recent years has led to the growth and importance of logistics management in various areas. Logistics has advanced since 1950s; there were numerous researches focussed on this area in different applications. For industries, logistics helps to optimise the existing production and distribution processes based on the same resources through management techniques for promising and promoting the efficiency and competitiveness of enterprises. The key element of logistics in Supply chain is transportation system, which joints the separated activities. Transportation occupies one-third of the amount in the logistics costs and transportation systems influence the performance of logistics system in great manner. Transporting is required in the whole production procedures, from manufacturing to delivery to final consumers and returns. Only a good coordination between transportation and logistics system can lead to a general frame work analysis for further researchers. The study will further incorporate the inter-relationships of transportation and logistics. It may be projected that the increase of the efficiency of logistics would release traffic load in the urban areas. There are chances of future integration of transport, logistics and supply chain management in the urban areas. The operation of transportation determines the efficiency of moving products. The progress in techniques and management principles improves the moving load, delivery speed, service quality, operation costs, the usage of facilities and energy saving. Transportation takes a crucial part in the manipulation of logistic. The IT development and technological advancement has further added great support to the entire process of logistics, supply chain management and transportation.*

**Key words:** Logistics, Supply Chain, Management, Transportation.

## INTRODUCTION, HISTORY AND EVOLUTION OF LOGISTICS

Transport is undoubtedly an important factor that intensifies the development of both individual regions and entire economies. The relationship between the development of the national economy and transport systems operating within supply chains due to the fact that transport “handle” other economic sectors, especially industry, construction and agriculture.

Logistics was initially a military activity concerned with getting soldiers arms and ammunitions to the battlefield in time for flight, but it is now seen as an integral part of the modern production process. The main background of its development is that the recession of America in the 1950s caused the industries to place importance on goods circulations. The term, logistics, was initially developed in the context of military logistics of World War II. The probable origin of the definitions typically incorporates the supply, movement and quartering of troops in a set. And now, a number of researches were taken and made logistics applications from military activities to business activities. Business logistics was not an academic subject until the 1960s and gradually it has gathered momentum in the recent time.

## GLOBAL SCENARIO IN THE RECENT TIME

Globalization represents the cross-national functional integration and coordination of spatially dispersed economic activities. As globalization is becoming the norm in an increasing range of economic sectors, the resulting worldwide coordination of production and supply emerges as a complex harmonization process-across

differing cultures, various economic systems, shifting government regulations and a host of International rules and agreements. Increasing globalization, innovation in the market, new growing customer needs; emerging new competitors and changes in the legislative area are the elements which have an enormous impact on the road operators. (Qualitative transportation)

Globalization has intensified in the last few decades which is indicative that it cannot be ignored. Now the firms have to respond strategically in order to stay competitive in this arena. Decisions in logistics area seem to be crucial because of time, space, value and even social gaps between various parts of the world. There are many elements in efficient logistics, for example, the capture, storage and retrieval of information on goods, materials management, design of manufacturing strategies and a reliable, cost effective transportation system is fundamental to the integrated logistics system. There are innovative ways in which firms are combining transportation and supply chain to increase its efficiencies in the globally competitive environment. Though the transportation logistics systems vary with type of product and geographical scope of the market for raw materials, components and finished products, there is a common objective underlying the various strategies.

### MEANING OF LOGISTICS

“The commonality of the recent definitions is that logistics is a process of moving and handling goods and materials from the beginning to the end of the production, sale process and waste disposal, to satisfy customers and add business competitiveness”.

Council of Logistics Management, 1991 Defined - “Logistics is a part of the supply chain process that plans, implements and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers’ requirements’.

**Tilanus, 1997** – “Logistics describes the entire process of materials and products moving into, through and out of firm. Inbound logistics covers the movement of material received from suppliers. Materials management describes the movement of materials and components within a firm. Physical distribution refers to the movement of goods outward from the end of the assembly line to the customer. He has used ‘five important key terms’, which are: - logistics, inbound logistics, materials’ management, physical distribution and supply chain management to interpret.

**Ross, D.F. 1998** - “The process of anticipating customer needs and wants; acquiring the capital, materials, people, technologies and information, necessary to meet those needs and wants; optimising the goods-or service-producing network to fulfil customer requests; and utilizing the network to fulfil customer requests in a timely way”

**Romanov, 2008** - The search for ways to reduce costs, increase customer expectations regarding the improvement of the broader quality of transport services, as well as reducing time forming processes, ultimately total value for the customer’s favour, actually enforce the concentration of activities in the framework of modern solutions for use in supply chains.

Finally, supply-chain management is somewhat larger than logistics and it links logistics more directly with the user’s total communications network and with the firm’s engineering staff.

### MEANING OF SUPPLY CHAIN MANAGEMENT

Supply chain management (SCM) is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. Supply chain management involves coordinating and integrating these flows both within and among companies. It is said that the ultimate goal of any effective supply chain management system is to reduce inventory (with the assumption that products are available when needed).

### MEANING OF TRANSPORTATION

Transportation means the movement of people, animals and goods from one location to another. Modes of transport include air, rail, road, water, cable, pipeline and space. The field can be divided into infrastructure, vehicles and operations. Transport is important since it enables trade between people, which in turn establishes civilizations. I find it an interesting point that transportation is an enabler of civilization, but this makes sense, as it enables the ability to trade and communicate.

### RELEVANCE OF THE STUDY

The research has been undertaken to provide an insight on the present scenario of the logistics, supply chain management system and the role of transportation and the integration amongst them. It will further assist the managers, researchers and transportation planners to define and comprehend the basic views of logistics and various applications and the relationships between logistics and transportation.

## TRANSPORTATION AND LOGISTICS – THE LINKAGE

Without well-developed transportation systems, logistics could not bring its advantages into full play. Besides, a good transport system in logistics activities could provide better logistics efficiency, reduce operation cost, and promote service quality. The improvement of transportation system needs the effort from both public and private sectors. A well-operated logistics system could increase both the competitiveness of the government and enterprises.

- **The Effects of Transportation on Logistics Activities:**-Transportation plays a connective role amongst the several steps that result in the conversion of resources into useful goods in the name of the ultimate consumer. It is the planning of all these functions and sub-functions into a system of goods movement in order to minimize cost, maximize service to the customers that constitutes the concept of business logistics. The system, once put in place, must be effectively managed. (Fair et al., 1981)
- **Transport Cost:**-Transport system is the most important economic activity among the components of business logistics systems. Around one third to two thirds of the expenses of enterprises' logistics costs are spent on transportation.
- **The Role of Transportation in Service Quality:**-The role that transportation plays in logistics system is more complex than carrying goods for the proprietors. By means of well-handled transport system, goods could be sent to the right place at right time in order to satisfy customers' demands. It brings efficacy, and also it builds a bridge between producers and consumers.

## TYPES OF LOGISTICS

1. **Reverse Logistics:**-The concept of reverse logistics has been applied in promoting customer service and resources recycling. Concerning quality control, the defective components and finished products will be returned to their producers through reverse logistics systems. Now-a-days, reverse logistics has been developed rapidly for increasing industries' competitiveness, promoting customer service level, and recycling the reusable material. Meanwhile, the demand of reverse logistics brings out a new market for the third-party logistics industries.
2. **Supply Chain Management:**-Supply Chain Management (SCM) is the concept for handling the production procedures in broad sense. An effective SCM application could promote the industry to satisfy the demand of new business environment. SCM can be divided into three main activities – purchase, manufacture and transport (Thomas et al., 1996). Cooper et al. (1997) analyzed the three elements of SCM – supply chain business processes, supply chain management components, and supply chain network structure.
3. **Express Delivery:**-As the increasing demand of time accuracy and decentralization of production, the need to reduce stock costs has led to the Just-In-Time (JIT) delivery principle, which involves more frequent delivery of materials at the right time and at the right place in the production process. The characteristics of express delivery are: (1) door-to-door service; (2) efficiency; (3) traceability; (4) Just-In-Time (JIT); (5) growing various delivery demands.
4. **E-commerce:**-E-commerce is the future trend of business style. It brings many benefits for both companies and consumers: (1) E-commerce expands the market area from regional to global; (2) E-commerce uses electronic techniques instead of traditional paper works, which promotes the industries' efficiency and competitiveness; (3) The number of trips is increased. On the other hand the average load of single trip is reduced, which means it needs higher carriage if using the same means of transportation; (4) E-commerce will impact on transport system due to the increased trips; (5) E-commerce might reduce the number of warehouses and the stock cost. Therefore the prices could be lowered.
5. **Land Logistics:** - Land logistics is a very important link in logistics activities. It extends the delivery services for air and maritime transport from airports and seaports. The most positive characteristic of land logistics is the high accessibility level in land areas. The main transport modes of land logistics are railway transport, road freight transport and pipeline transport.
6. **Maritime industry:** -it plays an important role in international freight. It can provide a cheap and high carrying capacity conveyance for consumers. Therefore, it has a vital position in the transportation of particular goods, such as crude oil and grains. Its disadvantage is that It needs longer transport time and its schedule is strongly affected by the weather factors. To save costs and enhance competitiveness, current maritime logistics firms tend to use large-scaled ships and cooperative operation techniques. Moreover, current maritime customers care about service quality more than the delivery price.
7. **Air Freight Logistics:** -Air freight logistics is necessary for many industries and services to complete their supply chain and functions. It provides the delivery with speed, lower risk of damage, security, flexibility, accessibility and good frequency for regular destinations, yet the disadvantage is high delivery fee.

## TRANSPORT MARKET IN SUPPLY CHAIN

The economy is becoming more technologically advanced and thus increasing the exchange of goods processed. Transport needs will be reported to the transport of flexible, quickly reaching customers and offering additional services. Supply Chain Management with viable road transport is becoming more and more complicated challenge. Growing pressure to reduce costs and increasingly common trend among companies to focus on their core competencies make the transport functions or more broadly logistical services are entrusted to specialized companies, leading to increased demand for their services with an indication of transportation in the lead role. Over the last two decades of cooperation between enterprises in supply chain, be it National or International are both undergoing intensive evolution of structural and organizational issues.

## RECENT TREND IN LOGISTICS AND SUPPLY CHAIN

The very nature of trade is changing owing to three distinct shifts in global supply chains: the “fast economy” is on the rise, new technologies are proliferating and e-commerce is expanding. Many sectors now prioritize speed to meet customer demand. Brands have adapted to a market for faster products. For example, any branded clothes manufacturing Firm can design, manufacture and transport clothes to its stores in just two weeks. This model allows brands to avoid high inventory and costly bets, instead only producing more of what sells best. Since fast products require shorter and more regional supply chains, they involve less intercontinental trade. Technology is making logistics and supply chains more dynamic. Information technology, the internet of things, big data and the cloud enable new management processes that allow for longer and more complex supply chains. This global visibility helps companies to decentralize production and open up new factories and distribution centers across the world, which results in a mixture of short, medium and long distance shipments. Other technological innovations localize and shorten supply chains. 3D printing can move production from factories to shops and homes, and some companies are re-shoring and near-shoring to relocate manufacturing to where technology is most advanced and productivity highest. Both trends reduce cross border trade. Finally, e-commerce and the rise of digital supply chains may boost international trade. Amazon, eBay and Alibaba, among other e-commerce platforms, enable companies and consumers to buy things globally. They connect millions of manufacturers and billions of consumers, giving even the smallest seller and most distant buyer access to the global market. These connections require logistics and transportation networks that can support the growing number of cross-border transactions as well as regulation suitable to enable transnational e-commerce without jeopardizing sales.

## OUTSOURCING AND THIRD PART LOGISTICS

According to Harry Haney, Fleet Manager for Kraft Foods, Inc., a supply chain efficiency strategy can involve combining private and dedicated fleets. For example, the strategy can identify which activities are best handled by fleet and which are more efficiently to be outsourced. With the emphasis on cost control, outsourcing is a growing trend, particularly among retailers. Outsourcing trucking operations to a third-party provider can reduce transportation costs by 15% and with the growth of logistics information systems and the Internet, shippers have access to the most current information.

## BENEFITS DERIVED FROM OUTSOURCING INCLUDE

1) ability to focus on core competencies, 2) increased capital, 3) improved customer service, 4) reduced labor problems, 5) reduced costs, 6) transferred responsibility to a third party, 7) decreased risk for the company, and 8) ability to avoid inflexible union rules. Also with current rising fuel prices, shortages, and difficulty finding a reliable trained labor pool, outsourcing also makes more sense to companies without time or expertise to vertically integrate into transportation. Many companies are searching for one firm to manage all their logistics needs. These shippers are moving to a third-party logistics (3PL) provider who can satisfy a wide range of logistics needs on a global basis supported by integrated information technology. The ability to link all the logistics partners and provide real time status updates anywhere in the world is the greatest strength of a good third-party provider because shippers demand seamless worldwide shipping. There is an increasing trend toward third party providers. In order to provide a complete line of services, even the biggest providers often enter into alliances with other shippers, particularly for overseas situations.

## IMPORTANT ELEMENTS OF LOGISTICS

Logistics services, information systems and infrastructure or resources are the important elements of this system and all of them are inter-related with each other. Logistics services support the movement of materials and products from inputs through production to consumers, as well as associated waste disposal and reverse flows.



They include activities undertaken in-house by the users of the services like storage or inventory control at a manufacturer's plant and the operations of external service providers.

### **MODEL ON PROPOSITION FOR LOGISTICS AND SUPPLY CHAIN MANAGEMENT THROUGH TECHNOLOGICAL CHANGE AND CHANGE IN IT**

- **ELECTRONIC TRACKING DEVICE [ETD]**



- **TECHNOLOGICAL CHANGE**
- **CHANGE IN LOGISTICS PATTERNS**
- **INPUT**
- **PRODUCTION**
- **DISTRIBUTION**
- **CONSUMER**
- **CHANGE IN IT (INFORMATION TECHNOLOGY)**
- **DISPOSAL**

➤ The model talks about the change in the technology; there has been drastic change in the logistics pattern that is followed since many years. The introduction of information technology has further facilitated the entire process of Logistics and supply chain to be managed and dealt with, in a much better way. The Electronic Tracking Device (ETD) has made it more systematic to learn about the good's progression in the transit. Starting from the Input of the goods, to the Production unit, to the Distribution channel and finally to the end users i.e. the Consumers. The last but not the least the logistics becomes useful even in terms of last stage of Disposal of the goods.

### **BARRIERS TO THE DEVELOPMENT OF TRANSPORTATION**

- The most important barrier is the parameter that affects the profitability of carriers involved in handling entities in the supply chain is the high freight rates and the amount of costs incurred by the company.
- The financial situation is also complicated by long payment periods which go up to 90 days.
- Problems of efficient collection of debts for the services of dishonestly operating shipping companies and these situations are frequent direct cause of bankruptcy, specifically in micro enterprises in transport industry.
- With the gradually decreasing number of domestic freight, the experienced companies are withdrawing themselves from Cargo Market. There is strong competition in the market, plus low margins, which for most businesses is a serious barrier for their development.
- There are further problems associated with fiscal policy, burdensome administrative and organizational barriers, including inefficient, bureaucratic and inflexible customs system.
- Not everyone in the business has an access to the Electronic Tracking Device and so the smoothness in the entire process could not be functionalized.
- The IT industry is though too much advanced but the total advantage of the same could not be taken optimally in the Logistics, supply chain management and transportation Industry.

### **CONCLUSION**

The study has covered widely all the logistics activity that starts from transportation systems and it attempts further to determine the role of transportation in logistics systems. The study has incorporated the logistics development, the characters of various transport operations in logistics activities, the applications of logistics in various fields, future direction in logistics development, and its cooperation with transport systems. In a nutshell, logistics and transportation and supply chain management have some relevance.

- Logistics system has a more and more important position in our society activities.
- Transportation and logistics systems have interdependent relationships that logistics and supply chain management, engrosses the transportation to perform its activities and meanwhile, a successful logistics system could help to improve traffic environment and transportation development.
- Since transportation contributes the highest cost among the related elements in logistics systems, the improvement of transport efficiency could change the overall performance of a logistics system and supply chain management system.

- Transportation plays an important role in logistics system and its activities appear in various sections of logistics processes. Without the linking of transportation, a powerful logistics strategy cannot bring its capacity into full play.

The logistics system, supply chain management system and Transportation in practical sense might help to integrate the advantages from different application cases to overcome the presently existing disadvantages. On the other hand, the study on transport systems provides a clearer notion on transport applications in logistics activities. The development of logistics will be still vigorous in the coming decades and the logistics concepts might be applied in more variant arenas.

## SUGGESTIONS

- In the longer term the market may gain an advantage if the carriers offer comprehensive service package including connected and integrated transport logistics services and warehouse, online delivery system, investing in management systems. There will be more economies of scale.
- Larger companies can cope better with the rationalization of costs and necessary modifications.
- The polish market should try to align supply and demand for transport services. This will enable the long awaited consolidation of the market through savings, which will give the effect of larger scale of operations.
- The operators should look for stable and more profitable niches in the network of cooperative relations between the supply chain, transportation and Logistics.
- Need to incorporate advanced form of IT so that there can be smooth functioning of the logistics operations, supply chain and transportation.
- Electronic tracking device need to be more modernized for quicker traceability of the carriers and shipments etc.

## REFERENCE

- [1] Aichlmayr M.: Design your distribution center inside out Byline., Transportation and Distribution, Volume: 43 Number: 11, 2002
- [2] Balke I., Dorosiewicz S., (2014), Prognozowaniekoniunktury w ciężarowymtransporcie samochodowym [Forecasting the economic situation in the road freighttransport in Poland], Logistyka, No 3, p. 231-237
- [3] BTRE (2001) Logistics in Australia: A Preliminary Analysis. Bureau of Transport and
- [4] Regional Economics, Canberra, <[http://www.btre.gov.au/docs/wp49\\_contents.htm](http://www.btre.gov.au/docs/wp49_contents.htm)>.
- [5] CALDWELL, H.: Sectoral and Industrial Characteristics of Logistics –Government Support Requirements, Public Policy Issues in Global Freight Logistics. FHWA, USDOT 1998.
- [6] Carroll, J. (2004) The magical reserve tracing system-RFID. Taiwan CNET,
- [7] <[http://taiwan.cnet.com/enterprise/technology/0,2000062852,2008707\\_1,00.htm](http://taiwan.cnet.com/enterprise/technology/0,2000062852,2008707_1,00.htm)>
- [8] Cooper, M.C., Lambert, D.M. and Pagh, J.D. (1997) Supply chain management: more than a new name for logistics, International Journal of Logistics Management, Vol. 8, No. 1, 1-13.
- [9] Council of Logistics Management (1991) Definition of Logistics. <<http://www.cscmp.org/>>.
- [10] Drucker, P.F. (2001) Management Challenges for the 21st Century. Harper Business.
- [11] Fair, M.L. and Williams, E.W. (1981) Transportation and Logistics. Business Publication Inc., USA.
- [12] FRANKEL, J.: Globalization of the Economy. NBER Working Paper No. W7858.2000
- [13] FRIEDMAN T. L.: Longitudes and Attitudes. Exploring the World After September11, Farrar, Straus and Giroux. New York 2002
- [14] HARRINGTON L.H.: No Sacred Cows, Private Carrier, February 1996
- [15] HANNON D.: GM hatches plan to cut 70 days from order cycle time. Purchasing,
- [16] July 2001.
- [17] Ho, J.K. (1997). What can contemporary systems thinking offer to logistics management as a management discipline, European Journal of Purchasing and Supply Management, Vol. 3, No. 2, 77-81.
- [18] Krumwiede, D.W. and Sheu, C. (2002) A model for reverse logistics entry by third-party providers, Science Direct, Vol. 30, 325-333.
- [19] KUMMER S.: How to cope with rising transportation costs., MIT Forum for Supply Chain Innovation, Third Meeting of the European Section, 20 April 2007
- [20] Potrol (2003) Inner freight transport and city logistics. Potrol transport teaching material.
- [21] PARTHASARATI D.: Transportation issues for supply chain management. Business Forum. Winter 2005
- [22] Reynolds-Feighan, A.J. (2001) Air freight logistics. In A.M. Brewer, K.J. Button and D.A. Hensher (eds.), Handbook of Logistics and Supply-Chain Management. Elsevier Science Ltd., UK, 431-439.
- [23] Rogers, D.S. and Tibben – Lembke, R.S. (1998) Going backwards: reverse logistics trends and practices. The University of Nevada, Reno.

- [24] Ross, D.F. (1998) Competing through Supply Chain Management: Creating Market-winning Strategies through Supply Chain Partnerships. Chapman and Hall, New York.
- [25] SCHNEIDER, D.,: The Trucking Industry: Performance the Global Market Place in Public Policy Issues in Global Freight Logistics. FHWA, USDOT 1998.
- [26] Taniguchi, E., Thompson, R.G. and Yamada, T. (2003) Visions for city logistics. Proceedings 3rd International Conference on City Logistics, Institute for City Logistics, 3-17.
- [27] Thomas, D.J. and Griffin, P.M. (1996) Invited review coordinated supply chain management, European Journal of Operational Research, Vol. 94, 1-15.
- [28] Thompson, R.G. and Taniguchi, E. (2001) City logistics and freight transport. In A. M. Brewer, K.J. Button and D.A. Hensher (eds.), Handbook of Logistics and Supply Chain Management. Elsevier Science Ltd., UK, 393-405.
- [29] Tilanus, B. (1997) Information Systems in Logistics and Transportation. Elsevier Science Ltd., UK.
- [30] Raport Ministerstwa Infrastruktury i Rozwoju [Report of the Ministry of Infrastructure and Development], (2014), Warsaw
- [31] Romanow P., (2008), Strategie transportowe operatorów w branży TSL łańcuchach dostaw [The transport strategies of the TSL operators in the supply chain], Logistyka, No 2, p. 34 – 37.