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## Supply Chain and Logistics For The Present Day Business

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### Abstract

We are living in an era of competition which is increasing day by day. Transportation comprises of key area where logistics companies can truly differentiate themselves and prove with, reduce costs, and build real competitive advantage. Logistics outsourcing can offer business men with measurable cost and efficiency advantages, yet often overlooked as a viable option due to the inherent difficulties in implementing the practice in a manageable, consistent manner. Third-party logistics (3PL) providers tend to apply the same approach to businesses of every type, oblivious to the unique needs – and opportunities – present in specific customer scenarios.

Logistics have existed since ancient time but not be called so where invention of wheel was a starting point of logistics which allowed people to move raw material as well as finished goods. Population began moving from rural to urban areas and to business centres. No longer did people live near production centres, the concept of starting business near to the raw material availability location was replaced due to the comfort of shifting the required material from one place to another with the help of research done on the logistics related problems, nor did production take place near residence centres. The geographical distance between the point of manufacturing and point of consumption increased, this is how logistics gained importance.

The present paper tries to highlight the importance of logistics in the present day business development. Here the author gives a briefing about the present logistics position in India and also the problems/hurdles for the slow growth of Indian logistics system. The author also want to highlight the scope of logistics in Indian business and how it can cope for better business development with other developed nations all over the globe.

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## 1. Introduction

The present corporate job is very challenging. Every business has to face competitions from multiple dimensions and directions. As explained by Michael Porter the business in 21<sup>st</sup> century can survive and succeed only if it is able to fulfill the challenges of the present demands regarding logistics. History repeats where the business which is not able to provide proper logistics for its products and supply the product to ultimate consumer has lost its reputation in the business world. However good the product is if it would survive the competition and reaches the ultimate consumer in time it is demanded for.

**Introduction to Logistics:** Since the early 1990's, the business outlook has changed. Due to the globalization, the competition has demanded the customer should get the right material, at the right time, at the right point and in the right condition at the lowest cost. Outsourcing logistics functions enables a company to focus on its core competencies. By doing so, the companies can best utilise their resources, allowing a world class solution provider to professionally manage their logistics, leveraging their technology and staff infrastructure. Logistics has become a part and parcel for every business today. No business with marketing, manufacturing or project execution can succeed without logistics support.

## 2. Review of Literature

LOGISTICS is defined as “ Planning implementing and controlling the physical flow of material and finished goods from point of origin to point of use to meet customer's need at a profit” by “Philip Kotler” It is essentially a planning process and an information activity So it is a integrative process that optimizes the flow of material and supplies through the organization and its operations to the customer. The word logistic has originated from Greek word ‘Logistikos’ and the Latin word ‘Logisticus’ which means science of computing & calculating . During World War II logistics gained importance in army operations covering the movement of food, medicines, men & equipment across the border. Today It has acquired a broader meaning and is used in the business for the movement of material from suppliers to the manufacturer and finally the finished goods to the consumers .

The Council of Logistics Management (CLM), now the Council of Supply Chain Management Professionals (CSCMP), defines logistics as ‘that part of the supply chain management 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.

According to Stern and El-Ansary (1988), ‘the term Logistics Management encompasses the total flow of materials, from acquisition of raw materials to the delivery of the finished product to the ultimate consumer and the counter-flow of information that controls and records the material movement’.

### 3. Scope of Logistic

The logistics infrastructure has received lot of attention both from business and industry as well as policy makers. However, the role of coordinating and organizing this infrastructure (or the logistics management regimen) to effectively compete has been slightly under-emphasized. The Indian logistics sector has typically been driven by the prime objective of reducing costs involved with transportation that were incredibly high due to regional concentration of manufacturing and geographically diversified distribution activities as well as inefficiencies in infrastructure and accompanying technology. The logistics management has a great scope for the development in the Indian market and can do wonders beyond the Indian borders if properly planned. To face the demand the country has to build the infrastructure, manage the requirements of a changing demands from various sectors of supply chain, change industrial policies to smooth the progress of efficient production and movement of goods and services, implement effective managerial practices and technology to enhance the competitiveness through better management of logistics networks, and develop new models for different sectors.

### 4. Analysis: Current Logistics Related Issues

There are several factors and costs that affect logistics. These issues may be listed as:

- **External:** Globalization, Technology, Workforce 2000, Challenging nature of the work force, Environmental concerns
- **Internal:** Customer service and quality, Third party networks, Supply chain management Changes in management and organization style. Here are few steps that could be followed to mitigate the above mentioned issues:
- **Performance:** Better service for customers, improved productivity, modify just in time and quick response needs as a process.
- **System structure:** Better relationship with suppliers , customers and third parties to more manage well the supply chain, Better relationship within the organization in and out.
- **Technology integration:** Better information systems that connect functions and organizations which would combine information and material handling systems for increased efficiency and effectiveness.
- **Many more other expenses like :** *Transportation Cost, Holding cost, Inventory cost, Order processing Cost and other etc.*

## 5. Survey carried out with many industry professionals around the world listed out the following reasons as Challenges faced by the Logistics industry in India

**Railways :** India's rail network is an proof of British rule. Over 80 per cent of the current railway lines were built before the country's independence in 1947 and therefore the governments has to research into the present infrastructure and re do the system to meet the demands of the present day business. The traffic on rail has grown more than 10-fold between 1951 and 2009, rail track length has only grown 1.4 times in the same period. Furthermore, traffic growth will continue at high rates, and demands for more perfect network of the railway system in India.

Indian Railways have few drawbacks in the system like :

- Poor maintenance of the tracks as the organization is highly influenced with politics .
- Improper tariff rates where there is no transparency for the cost charged while loading and unloading the products is high. If truck overloading is also taken into account then rail freight rates are higher than roadways in many instances and already to be highest in the world .
- Rail networks are oversaturated as the traffic has increased but no new lines were laid. Both passenger/goods transit has increased in multiphase but the infrastructure is not up to the mark.
- Transit times are long and uncertain due to the old infrastructure and over loaded traffic on the railway lines.
- Terminals at railway stations are very poor to loading and unloading the consignments.
- Less flexibility to carry different types of products as special wagons are not easily available for carrying specialized products.
- Though the transit of goods is safe for long distances it is not at the reach of all industries as few companies may not be able to book the complete wagon.

**Figure 1: Integrating Supply Chain And Logistics Management ,2002,Tatamcgrawhill/Irwin**

| MODE     | RELATIVE ADVANTAGES   | RELATIVE DISADVANTAGES   |
|----------|---|--|
| Rail     | <ul style="list-style-type: none"> <li>• Full capability</li> <li>• Extensive routes</li> <li>• Low cost</li> </ul>                 | <ul style="list-style-type: none"> <li>• Some reliability, damage problems</li> <li>• Not always complete pickup and delivery</li> <li>• Sometimes slow</li> </ul> |
| Truck    | <ul style="list-style-type: none"> <li>• Complete pickup and delivery</li> <li>• Extensive routes</li> <li>• Fairly fast</li> </ul> | <ul style="list-style-type: none"> <li>• Size and weight restrictions</li> <li>• Higher cost</li> <li>• More weather sensitive</li> </ul>                          |
| Air      | <ul style="list-style-type: none"> <li>• Fast</li> <li>• Low damage</li> <li>• Frequent departures</li> </ul>                       | <ul style="list-style-type: none"> <li>• High cost</li> <li>• Limited capabilities</li> </ul>  |
| Pipeline | <ul style="list-style-type: none"> <li>• Low cost</li> <li>• Very reliable</li> <li>• Frequent departures</li> </ul>                | <ul style="list-style-type: none"> <li>• Limited routes (accessibility)</li> <li>• Slow</li> </ul>   |
| Water    | <ul style="list-style-type: none"> <li>• Low cost</li> <li>• Huge capacities</li> </ul>   | <ul style="list-style-type: none"> <li>• Slow</li> <li>• Limited routes and schedules</li> <li>• More weather sensitive</li> </ul>                                 |

**Road:** Similar to the railways, investments in India's roadways are not kept up with growth at par with the need of the day. The infrastructure laid is not up to the mark to withstand the traffic after independence. Passenger and freight traffic have grown close to 200-fold since 1951. However, in the same period, road length has increased only 8-fold from 0.4 million km in 1951 to over 3.3 million km in 2007. Further, India's roads are not properly maintained. Though the government knows that 70% of the logistics people depend on the road way for transiting their products, but even then the condition of the roads is poor with over 30 per cent of the National Highway network constructed before independence. While the road network of over 3.3 million km seems extensive, only 15 per cent of these roads are supervised by the highways and only 0.5 per cent of roads are two or four-lane roads. The basic drawback of the road way may be listed as:

- Inadequate road network coverage as many roads do not properly connect the cities and most of the roads take the route within the cities. This causes delay in time and increase in cost.
- Poor road quality is another matter of concern. As soon as the rainy season starts 50% of the roads become unportable.
- Road lanes : Large stretches of National Highways are also two lined in many stretches reducing their capacity to handle large traffic loads and increasing the travelling time. This becomes a major problem for the perishable goods.
- Expressway network not available and outer ring roads are not yet implemented for all the major cities.

- **Multiple check points:** At places where there is a facility to move fast the traffic gets stuck due to the multiple checking points, toll gates and other etc. ultimately increasing the travel time and restricting the movement of goods easily.

**Waterways:** Growth in waterways has been hampered by limited investments and the loss of key routes following partition. Prior to the Fifth Five-Year Plan, developing inland waterways was accorded low priority with a cumulative investment of under INR 35 crore. This was partly due to the prioritization of irrigation, and limited viability of inland waterways owing to deforestation and silting. Further, the partition of the country rendered several routes unviable. Little is done for improving the conditions of the port.

**Air Cargo:** Air ways also has not received proper attention in India. With increased volumes of cargo major airports are getting congested resulting in long waiting time. The waiting time for exports in India is 50 hours compared to a World average of 12 hours while the waiting time for Imports in India is 182 hours compared to a World average of 24 hours. Waiting time is more or less same as other mode of transport. Airways charge high rate with the assumption of delivery of the product faster and the ultimate cost of the product increases twice before it reaches the ultimate consumer. The airfreight sector also suffers from high fuel costs and tariffs as well as several manpower issues.

**State of cold storages is poor:** Despite the significant requirement of cold storages from the retail sector, pharmaceutical industry, bio technology and chemical sector, where it is estimated that up to 40% of the fruits and vegetables grown in India are getting wasted because of unavailable technological support for proper storage. The sector needs to grow much faster to meet the needs. Estimates on cold chain facilities in India put the number of cold storages at around 5400 with a capacity of 24 million metric tons. However records tell nearly 60% of these facilities are meant for storing potato crop. Also with the poor electricity condition in the country the cost of operating such facilities is very high. With government intervention and various schemes the situation is slowly improving but many challenges remain.

**Multimodal Logistics parks yet to take off:** With emerging requirements of integrated logistics, provision of transportation hub, value addition etc. large logistics parks were planned to be developed. However as with other components to support the system the number of such facilities continues to remain much less than the requirement. Other issues include the lack of recognition of the concept of Logistics Park by state government thereby obtaining permission for setting up one cumbersome.

**Technology and Skills related challenges** the logistics industry is also hampered by low level of adopting the latest technological tools in improving the speed and performance. On the technology front the industry now

seems to be paying serious attention with use of RFID(Radio Frequency Identification ) in vehicle tracking technologies, warehouse management systems etc.

However while acceptance is perhaps not an issue, the tie-up between IT and domain requirement are to be sorted out effectively for the benefit of the industry. Process of Automation is still only on its way. Further progress is dependent on a certain level of standardization which is made more difficult by the high level of fragmentation in the industry. This is a drawback that needs to be tackled early. In addition to technology-related issues the skill levels in the logistics industry also require to be upgraded urgently. A recent study has found that a variety of skills are required in the sector and very little is known to the present generation. Government should take measure to educate the present student group to solve the unsolved issue in the area of Supply Chain, Logistics, Warehouse Management and other demand areas. Area where there is a need for human potential skills include technology skills, driving skills including safety procedures, industry understanding and multi-operations skills.

## 6. Impact of challenges faced

The various challenges faced by the logistics industry lead to high logistics cost incurred by the Indian Economy despite the fact that the cost of labor is cheaper in India which is one of the most cost included in the logistics cost. With regards to cost of spends on logistics, India's logistics sector accounts for 13% of the GDP of India. This is much higher than that in the US (9%), Europe (10%) and Japan (11%) but lower than in China (18%).

- a) Logistics cost is high in India due to the high cost involved in distribution across the country.
- b) The cost of logistics when looked separately from the point of view of the consumer may not be too high but unfortunately this is not meeting the expectation of the consumer. If the product meets the expectations then the consumer may be ready to pay a little higher rate for the product.
- c) The rewards of reduction in logistics cost are many. As has been shown for other parts of the world, decrease in logistics cost leads to significant increase in employment opportunities in the economy.
- d) Logistic management helps in increasing the trade flows in a country by increasing the inherent competitiveness of the economy.
- e) Finally, and importantly for India, decrease in logistics costs leads to a decrease in poverty levels in the country. Therefore efforts are to be made to reduce the logistics cost.
- f) Transportation Inventories Warehousing Others (Including Losses)

## 7. Discussion: Steps to be taken to improve the system of Supply Chain & Logistics in India

- a) **Rail corridors:** Government should have a dual focus. First, accelerating the special purpose vehicles (SPVs) for the two planned DFCs (Dedicated Freight Corridor's)—Delhi- Kolkata, Delhi-Mumbai—and

simultaneously incorporating SPVs for three additional DFCs. These are on the Kolkata-Mumbai, Delhi-Chennai, Mumbai-Chennai corridors.

- b) **Coastal corridors:** The objective of improving the logistics management must be to strengthen the West i.e., Kandla to Kochi and East i.e., Kolkata to Chennai coastal freight corridors through integrated projects that include last-mile rail and road programmes, transshipment hubs, proactive marketing and accelerated port development.
- c) **Road ways :** This includes constructing expressways of 100 to 300 km stretches that factor in expected increases in traffic by 2020. While currently 5 to 7 expressways are likely to be built by 2020 including the golden quadrilateral, ideally, the number of expressways should be increased to over 20 by 2020. Expressways should include high-traffic routes such as Nasik-Shirpur and Ghaziabad-Bareilly.
- d) **Last-mile roads:** measure should be taken to connect last-mile links to connect in particular port and railway terminals to production and distribution centres.
- e) **Last-mile rail:** This should ensure last mile rail infrastructure in many of the last 750 mile links. It will include development of tracks and trains head infrastructure to support 8 to 10 critical coal corridors in mineral rich states such as Jharkhand, Chattisgarh and Orissa.
- f) **Roads maintenance:** This comprises creating long (e.g. 10 years) annuity-based maintenance contracts for 400 km to 500 km stretches. The current practice has been to issue contracts for shorter distances of 50 km to 100 km. Clear commitment to maintenance could also encourage the participation of more private providers.
- g) Technology adoption like **national electronic tolling:** This entails standardizing technology for all toll centers on national highways (ETC) in future contracts and establishing a nationwide clearing house with set norms and service standards to facilitate transactions, thereby reducing waiting time and improving service levels.
- h) **Logistics skills development:** The student groups should be educated with the necessary skills required for the industry. This in turn would create demand for four types of personnel — warehouse managers, logistics managers, coastal seafarers and truck drivers. Which in turn will require upgrading the training infrastructure and collaborating with institutes of technology, engineering colleges, marine training institutes and driver training institutes to growing demand?
- i) **Enabling access to better equipment and setting common standards:** This refers to acquiring access to better equipment such as larger trucks and higher tare load railway wagons and developing common standards to aid inter-modal transport that ensures consistency in containers, pallets and cranes. Further, supporting research institutions like Road Research Institute could help develop better quality road construction material to bolster construction while simultaneously reducing costs.



## 8. Suggestions: The way forward

- The growth in the Indian economy in coming decade is likely to be driven by the increased activity in the manufacturing and retail sectors. To enable these sectors to contribute effectively to India's growth the logistics sector will have to step up to provide value-enabling solutions for these sectors. This would require action on three fronts:
- Creating an environment for graduating the Indian logistics market to provide value propositions in logistics solutions.
- Increasing the capability of the Indian Logistics Industry to provide such solutions
- Government should create necessary regulatory mechanisms in the country to provide an enabling environment for value propositions in logistics services
- Due to decades of growth and increasing globalization of the Indian economy Indian entrepreneurs become active participants in business strategy. However old habits die hard. Therefore we still see numerous instances where little premium is put on service delivery, quality and transparency in logistics services. Demand for logistics solutions still gets conditioned by an undemanding, quality-neutral client used to a non-standard product and service deliveries. Large logistics departments have come up within companies to manage this 'chaos' and lowest
- The Logistics industry assesses client needs in practical terms. **Most logistics companies do not have the financial wherewithal to put in world class facilities** upfront and wait for the returns to be realized at a later date through an 'education' of the customer.
- **Capabilities and skills are neither available nor do the customers currently demand them.** However the ray of hope is that the thinking of people is changing. The reason behind the changing perceptions appears to be mainly because logistics people are seriously probing for better alternatives to reduce the cost of logistics.
- **Increasing competition is forcing manufacturers and retails to increasingly differentiate their products.**
- However this change may **still be discouraged in the bud** if no efforts are made by the Government and its associated regulatory mechanisms to provide an enabling environment to facilitate a paradigm shift in how logistics industry can grow unfettered. It is well recognized that government is making efforts to make improvements to bring out feasible solutions to meet the infrastructure deficit- be it in physical transport, warehousing and terminal infrastructure etc. These include:
- **Coordination in infrastructure planning:** Today there seems to be a very little or even to say no coordination amongst the various agencies of the government in creation of infrastructure. Due to this lack of coordination all the modes of transport are at stake. Every mode of transportation demands for immediate attention for the government regulatory bodies. To improve the situation it requires a change in our planning mindset. Coordination in infrastructure planning will need to happen not only to truly remove

bottlenecks, but also to avoid overlap and attendant extra costs. Such resultant integration of facilities will help to reduce the high transaction costs prevalent in the economy.

- **Reforms in urban planning:** Urban planning today does not appear to factor in the enormous volumes of goods distribution catering to urban conglomerations in terms of road and peripheral infrastructure resulting in traffic restrictions and serious bottlenecks and logjams. This needs to be paid special attention by our planners.
- **Improving dialogue with industry:** Finally the regulatory agencies do not discuss the issues with the industries. If the authorities discuss the bottle necks and problems faced by the industry taking them as a part of discussion then solutions can be arrived much easily and even better outcomes can be implemented. But unfortunately the blueprints and policy regulations today are a largely one-sided affair with some industry representations sought. This makes policies prone to avoidable trial and error events.
- The future Of the Indian Logistics Industry lies ultimately in value propositions for the customer. Value solutions can be engineered only if the complex strands of supply-chain mesh together seamlessly. These solutions are expected to command a premium but also come at a cost. The cost –conscious Indian Market first has to be made to appreciate the value of premium services. This would result a reduction in cost down the line, which can only happen when most of the deficiencies mentioned above are removed. Logistics can also provide economics of scale to the business which calls for collaboration among the industries which is mutually beneficial and results in the greater saving such as the auto-component companies in India are practicing. The future is bright for the logistics industry in India- the expectation is that tipping point for the industry will soon be reached which will propel it to greater heights.

## 9. Conclusion

Logistics infrastructure is a important yard stick to measure the India's economic development. Recognizing this pivotal role, logistics infrastructure spend has been tripled from around USD 10 billion in 2003 to a planned amount of around USD 30 billion in 2010. Despite this increase, the country's network of roads, rail and waterways will be insufficient as freight movement increases about 3 fold in the coming decade. This deficit in the planning for logistics infrastructure will put India's growth a question mark. This is because even at this point large part of India's future logistics network is still to be built, the country has a chance the old network and implement the new structure to meet the growing demand. Doing so requires an integrated and coordinated approach in which the development of each mode—railways, waterways and roads—is matched to the needs and existing assets are better utilized. Logistics is an important area where every company has to concentrate on and differentiate themselves with their competitors. With the growing demand for various varieties of products available all over the world people's expectations are changing for every product. If a company wants to survive in the long run it should pay special attention to the area of supply chain and logistics. Research is demanded to reduce the product cost and improve the quality with reduced delivery time.

## References

- <http://logisticsmanagementandsupplychainmanagement.wordpress.com/2007/03/21/importance-of-logistics/>  
<http://smallbusiness.chron.com/importance-business-logistics-30906.html>  
<http://www.bestlogisticsguide.com/what-is-logistics.html>  
<http://www.siam.org/journals/plagiary/1814.pdf>  
<http://www.reportlinker.com/ci02330/Logistics-and-Freight.html>  
<http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/Documents/Logistics-in-India-Part-2.pdf>  
<http://indiawlshow.com/interview-with-dr-r-arunachalam/>  
Irwin, *Integrating Supply Chain And Logistics Management* , 2002, Mc-Graw Hill.  
Arjan J Van Weele , *Purchasing and Supply Chain Management: Analysis, Planning and Practice*, 2nd Edition Thomson Learning.  
Monczka, Trent, Handfield, *Purchasing And Supply Chain Management* 2nd Edition , Thomson Learning.