Institute of Logistics
CII Centre of Excellence in Logistics and Supply Chain

FROST & SULLIVAN

SMART LOGISTICS 2015

"Ease of Doing Business"

Frost & Sullivan - Knowledge Partner at

SMART LOGISTICS

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Foreword

Owing to globalized economies and an ever increasing competitive environment, the logistics function is now a competitive differentiator for most industries. As a result it has become imperative for organizations to continuously enhance their logistics management practices or make their logistics smarter.

This "Smart Logistics Summit 2015: Ease of Doing Business", is a joint initiative between Frost & Sullivan and the Confederation of Indian Industries' (CII) Institute of Logistics. It aims to highlight major initiatives that could be smarter ways of managing the logistics function and help in enhancing logistics efficiency as well as ease of doing business. The summit would also focus on understanding the perspectives of key stakeholders on these initiatives.

In this context, the following four initiatives were identified to be covered in this summit:

1. Multimodal Transportation
2. Information Technology (IT) Usage in Logistics
3. Mechanization and Automation in Logistics
4. Green Initiatives in Logistics

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TABLE OF CONTENTS

I. Multimodal Transportation

Transportation is the single largest logistics function for Indian industries and accounts for 50–60 percent of the total logistics cost for physical movement of goods (this typically for manufacturing industries).

For most of the 20th century, transportation activities in India were highly dependent on railways, especially, due to the lack of proper infrastructure for other modes such as road, air, and inland waterways. However, the evolving economy, industrialization, and urbanization across the country led to major improvements in road and air modes. Roads, especially, have become the most extensively connected mode of transport linking every nook and corner of the country.

However, transportation costs by road are very high compared to other modes, and limitations in other transport modes such as network reach, last mile connectivity and possibility of door-to-door services through a single mode compel most industries to rely heavily on this mode despite its higher costs.

Exhibit-1: Indian Transportation Market Value Breakup by Mode, 2014

Air - 4.0%

Rail - 27.0%

Sea - 3.0%

Pipeline - 2.0%

Road - 64.0%

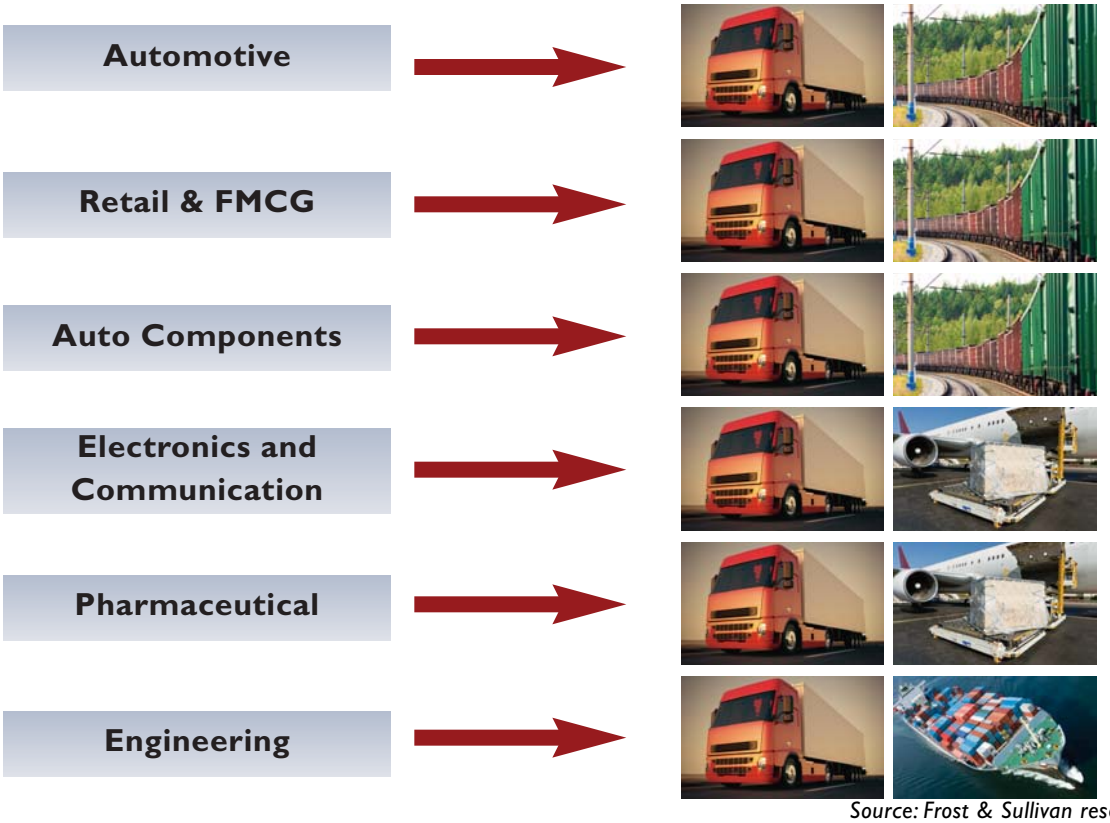
Source: Frost & Sullivan research

With growing infrastructure in other modes (excluding roads) over the past few years, logistics service providers and users in India can think of using them in a smarter way to obtain efficiency in logistics.

Multimodal transportation refers to a transport service or solution involving the use of more than one mode of transport for the carriage of a goods consignment, such as a combination of road (truck), rail (train), air (aeroplane), or sea (ship) in succession to each other, all under the control or ownership of a single transportation service provider. The service provider responsible for the entire carriage is referred to as a multimodal transport operator (MTO).

The transportation time and cost can be reduced significantly while achieving a complete end-to-end transportation solution, with a combination of multiple transport modes. However understanding and applying an optimal mix of multiple modes as appropriate for a given industry requires its planning and execution based on the industry/product nature.

Exhibit-2: Common Multiple Modal Combinations for Few Key Logistics User Industries



Source: Frost & Sullivan research

Multimodal Transportation has a very high potential in India since its manufacturing hubs are located deep within the hinterland and far away from gateway ports, which contribute to the majority of exports. Therefore, transporting all the manufactured output from the hinterland hubs would require the use of multiple modes of transport in an optimal sequence/mix. Containerization of cargo facilitates easier shifting between multiple modes and thus, promotes mixed use.

The Dedicated Freight Corridor (DFC) project of the Indian Railways is expected to commence operations by 2020. With this, the share of rail transportation in the country is expected to increase further. Output from industrial corridors, adjoining the DFC, would be moved by road up to their loading junctions. From here, this industrial output will be further moved to ports or other distribution hubs, driving multimodal use.

Typically, logistics service users would prefer to engage a single service provider for end-to-end fulfillment of their logistics consignments, which could be an impeller for logistics service providers to acquire capabilities in all modes of transportation along with warehousing and freight forwarding. This is expected to create more opportunities for multimodal transport operators.

However, a few challenges could be the roadblocks in faster adoption of multimodal transportation in the country. Lack of multimodal ports makes shifting cargo between modes difficult, restraining growth of multimodal transportation. Also, absence of linked schedules between different modes of transport hampers the provision of multimodal solutions in most cases. The final punch is delivered by procedural bottlenecks that arise from the different policies applicable to different transport modes and compel service providers to limit services to just one or two modes.

II. Information Technology (IT) Usage in Logistics

Use of information technology within various logistics activities has been growing consistently and today organizations employ focused information technology solutions by activity such as transportation management system (TMS), and warehouse management system (WMS). However, the type of IT solutions used varies based on the value chain of a given industry and importance of visibility/tracking of cargo in movement and storage activities.

While the logistics industry the world over is characterized by challenges such as high operation costs, low margins, shortage of talented manpower and infrastructural bottlenecks, to name a few, logistics costs in India are estimated to be 30-40% higher than most developed and developing economies around the world.

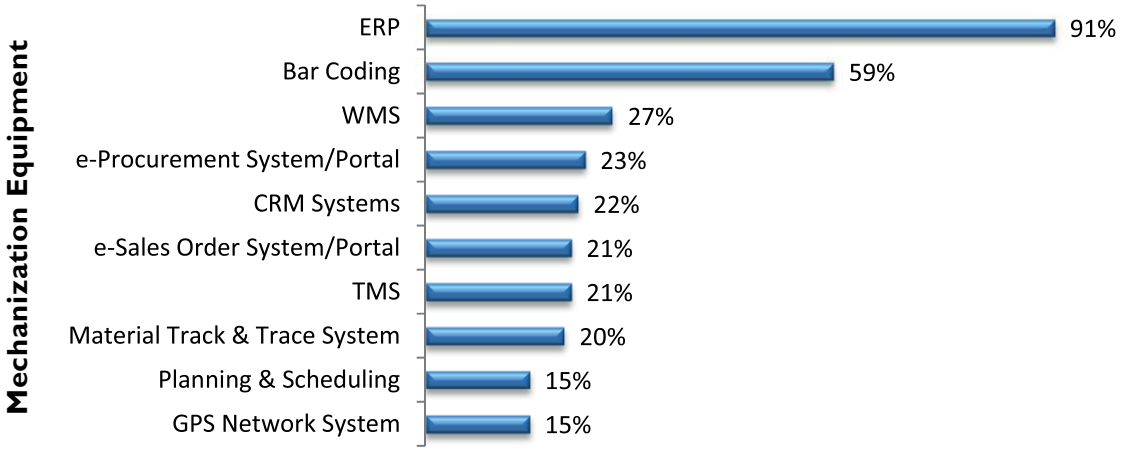
With 100 percent FDI permitted in the logistics industry, many multinationals have established or are looking to establish their presence in India through the acquisition route. The global reputation of these MNCs is one of their paramount advantages in tapping business opportunities in India and they are well placed to introduce best processes and technologies from their global experience But, they are hesitant to introduce the advanced technologies and innovative practices while functioning within India, due to the fragmented nature of market and expected low returns from services. However over the past 5-6 years, Indian logistics users have become demanding of few basic capabilities in their LSPs such as security, quality and reliability of vehicles, transit time adherence, in-transit information availability, and the overall safe handling of goods in transit. All of these doubts necessitate the use of technology aids in logistics operations.

In the effort to identify the key logistics benefits to be gained from the use of technology aids, the common and most significant challenges can be broadly linked to four key objectives of any logistics operation, namely,

- Rapid Response
- Minimum Inventory
- Quality
- Life Cycle Support

In the IT solutions area, logistics end users collectively opine that these solutions have a significant value to add to logistics operations. The most important, and the most widely used IT based solutions in the logistics sector in India are ERP and Bar Coding systems, yet, the overall opinion of the end-user community, is that, the level of penetration of IT based solutions in logistics is significantly low.

Exhibit-3: Reported Share of the use of IT Solutions by Indian Logistics Users, 2014



Source: Frost & Sullivan research & analysis

However, over two thirds of the end-user community researched in this effort indicated that their reason for not using IT based technology in their logistics operations is that such systems are too expensive, and are well beyond the reach of most end-user companies. Consequently, cost is one of the key parameters in selection of a technology based aid for logistics operations. Fitness for purpose, reputation of the solution provider, ease of implementation and use, and scalability and capability for upgrades are amongst the other key parameters in selecting any automation technology. In the selection of IT based solutions, the top most selection parameter is the reputation of the solution provider, followed by the solution's fitness for purpose, or match to the specific industry need.

Given all the above, the logistics market in India presents tremendous scope for the penetration of IT based solutions. A key prerequisite for the success of such technologies is high quality data input. The current penetration of android and windows based smart phones provides an able platform for the use of smartphone applications in logistics operations. Advanced IT based logistics systems come at a price, but the value and benefits to be gained from such systems are significant and long term such as comprehensive visibility, lower levels of inventory in the supply chain, better balance between owned and rented assets, better planning and asset utilization, and overall better control over logistics operations.

III. Mechanization and Automation in Logistics

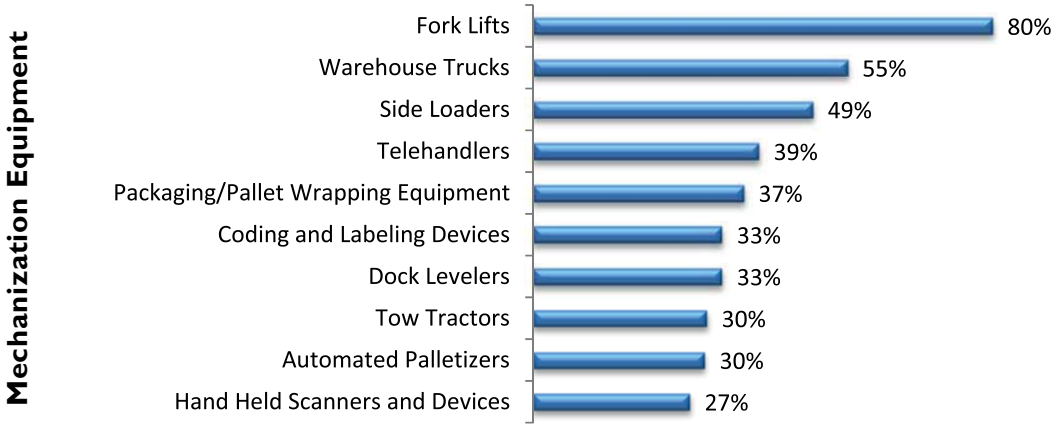
Driven by the scarcity of skilled human resources and competitive demand for higher efficiency in logistics, organizations are increasingly resorting to mechanization of logistics activities such as loading and unloading, warehouse internal cargo handling, picking, packing, sorting, and bundling among others. However determining activities that can be mechanized to obtain desired efficiencies is a challenge for most organizations, due to lack of luxury to invest in or evaluate multiple options to find the most suitable one.

Relating the use of mechanization and automation technology in logistics operations to these key objectives of the sector – human resources scarcity and demand for efficiency, the immediate tangible benefits to be gained from technology implementation are, (but not limited to):

- Faster movement of goods through the supply chain
- Minimised manpower requirements
- Optimal asset utilization
- Processing accuracy
- Quality and damage control

A Frost & Sullivan research effort, covering around 300 participants from various industries across the country indicated that the current levels of mechanization were minimal, despite the need and intent to use such aids. Forklifts and warehouse trucks are known to be the most widely used forms of mechanisation in the Indian logistics sector.

Exhibit-4: Reported Share of Use of Mechanization Equipment by Indian Logistics Users, 2014



Source: Frost & Sullivan research & analysis

Over half of the end-user community researched in this effort indicated that their reason for not using advanced mechanization equipment such as conveyors, automated storage and retrieval systems, etc. in their logistics operations is that such systems are too expensive, and are well beyond the reach of most end-user companies. Consequently, cost is one of the key parameters in selection of a mechanization equipment and/or technology based aid for logistics operations. In addition, a majority opined that logistics service providers should invest in advanced/modern mechanization and automation equipment and share the benefits of their efficiency with users.

Keeping these considerations in mind, the logistics market in India offers a very high potential for the penetration of mechanization and automation solutions: an opportunity that should be leveraged by both logistics service providers and users. However, a key prerequisite for the success of such technologies is high flexibility, affordability and ease of use. Advanced mechanization equipment comes at a price, but the value and benefits to be gained from such systems are significant and long term; reduction in handling time and lower damages are a good reason for this investment.

IV. Green Initiatives in Logistics

Green initiatives (or environment friendly practices) have become a buzzword even in the logistics sector over the past few years. Green practices in logistics and supply chain represent actions and programs spanning across firms that improve environmental performance, and minimize the environmental burden. This includes minimizing emissions, pollution, energy consumption, and reducing wastage.

Realizing the imminent need of reducing environmental pollution and its carbon footprint, the key stakeholders of the logistics industry have started adopting initiatives such as clean fuels and electric vehicles for transportation buildings leveraging natural greenery based climate control and solar powered lighting and other equipment. However use of such initiatives will also depend on the value chain of a given industry and its products.

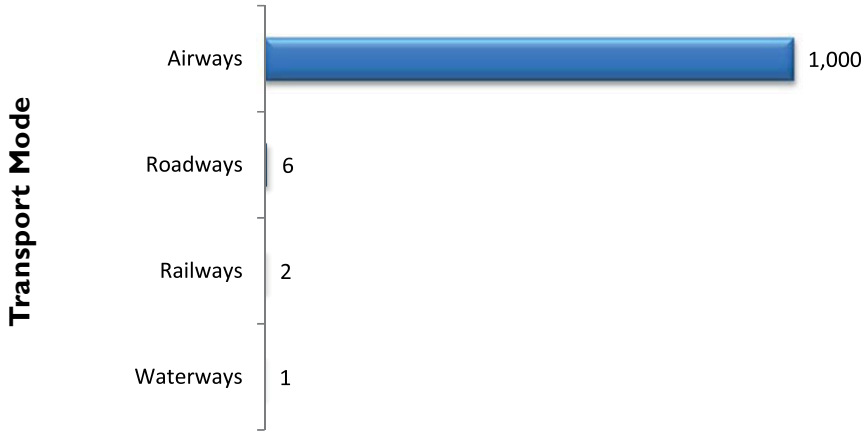
Frost & Sullivan studies found that innovative green initiatives in logistics, however simple they may be, can have definite cost savings for companies. For example, Sansera Engineering, an SME in the Indian auto components industry saved over 80 percent of packing costs (above INR 1 Crore per annum) just by shifting to reusable pack-boxes from traditional cardboard and wooden boxes. Similarly, Nokia's drive to procure a used mobile for every new mobile sold and recycle the waste has resulted in substantial savings for that company, apart from gaining a high level of goodwill among customers, environmental organizations, and governments.

Expert group deliberations during Frost & Sullivan's logistics strategy workshops opined that organizations should shift to alternate or clean sources of energy such as using electric vehicles for last mile deliveries. Switching to lower polluting transport practices such as coastal shipping, rail, CNG trucks, etc. would make a large impact on the environment. Organizations can also work on "Carbon Credits" through "Collaborative" methods. Carbon Credit is a generic term for any tradable certificate given to an organization that achieves levels lower than permitted emission norms. It represents the right to emit one ton of carbon dioxide (CO_2) or its equivalent of another greenhouse gas. Further, companies should focus on recycling of packing material for re-use; to encourage this, companies can make customers pay extra for one-time use packing material and incentivize contribution in recycling. The key is to focus on developing innovative green initiatives in logistics and how to achieve the maximum economic impact from those initiatives.

Use of Coastal Shipping

Coastal and inland waterways are considered to be the most economical, safe, and environment-friendly modes of transportation for domestic cargo movement across the world; this is widely practiced by large industrial nations, including China. Further, coastal shipping has proven to be the most energy-efficient and the cheapest mode for transporting bulky goods like iron and steel, iron ore, coal, timber, cement, etc. over long distances. It is also well-suited for transportation of petroleum products. It is estimated that using the waterways mode offers 25-50 percent savings in the overall transportation cost, especially when utilized for long distances.

Exhibit-5: Transport Mode-wise Emission* Per Ton-Km



Source: World Economic Forum, Frost & Sullivan Analysis

* *CO2 Equivalent Grams*

Shifting to Cleaner Fuels

Shifting from conventional diesel fuel to a lower-cost and cleaner burning fuel, Liquefied Natural Gas (LNG) can be beneficial to everyone in the supply chain, as witnessed by Owens Corning Corp (OCC) and its transport partner, Dillon Transport Inc., in the USA. OCC reported savings of US $1.1 million out of its total annual transportation bill of US $100 million by its joint initiative with one of its transporters in Chicago, Dillon Transport. The transporter passed only the savings from reduced fuel surcharge incurred to OCC, which itself turned out to be a significant saving. The transporter too witnessed substantial savings due to lower fuel costs. OCC expects multiples of such savings if more of its transporters join in this initiative. Diesel is 10 times more polluting compared to CNG. Indian logistics service providers and users can also attain similar benefits by adopting the available cleaner fuels in the country.

Initiatives in Warehousing

Green buildings for warehouses that use natural lighting and solar power can significantly reduce costs of lighting, and cooling and overall cost of operations. Solar energy is relatively easy to tap in India if organizations think beyond the initial high investment costs; these may also normalize with large scale adoption of these systems. Solar energy can also be applied/used for operation of heating or cooling systems within the warehouse. Warehouses with transparent roofs and walls or ample inlets for penetration of sunlight can save significant levels of lighting costs. Human sensor based lighting systems that are gaining prominence in corporate offices and residences can also be employed in warehouses to achieve significant savings in electricity consumption and hence positively impact the environment, too (especially in countries like India where electricity is generated largely using coal and gas that cause significant pollution). Carbon credits gained from green initiatives can be traded, too.

Warehouse layout also plays an important role in achieving greater efficiencies, thereby saving resources and having a positive impact on the environment. Minimizing travel time between picking locations can greatly improve productivity. However, to achieve this increase in efficiency, companies must develop processes to regularly monitor picking travel times and storage locations.

Insofar as Green Initiatives in logistics, even simple changes or small changes in the way things are done can have a significant positive impact on the environment as well as benefit all the organizations involved in the process. Hence, LSP should work closely with end users in devising environment friendly initiatives in logistics that can also save costs. LSP and end users should devise simple but innovative initiatives in logistics like reusable packing material or using electric vehicles for last mile delivery, which would bring definite cost savings.

Frost & Sullivan Transportation & Logistics Practice profile

The Transportation & Logistics Consulting Practice of Frost & Sullivan has been providing strategic business advisory and growth consulting solutions for most leading transportation and logistics companies across the world, apart from logistics infrastructure providers and government authorities related to the logistics sector. Our competencies in providing growth solutions cover a broad range of markets for the following types of organizations:

Service Providers	Service Users	Infrastructure Developers
Third Party/Fourth Party Logistics Sourcing Opportunities and Strategies	Customer Satisfaction of LSP Users	Business Planning and Growth Strategies
Transportation markets (Surface, Railways, Air, Ocean and Intermodal)	Outsourcing Maturity Index	Growth Opportunities in Transportation infrastructure
Business Planning and Growth Strategies	Supply Chain Efficiency Enhancements	Growth Opportunities in Warehousing Infrastructure
Warehousing Markets opportunities (Logistics Parks, FTWZs)	Alternate Transportation Modes opportunity	Demand Estimation
Best Practices	Partner Selection	Location Identification

As increasing globalization, industrialization and trading across countries and continents drives growth in the logistics and transportation industry across nations, we at Frost & Sullivan's Transportation & Logistics Consulting Practice aim to help our clients in that country or those targeting to enter that country to carve their own niche in the promising service segments.

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