Abstract

Logistics management is increasingly becoming a topic of interest among academicians and practitioners since it may lead to reduced operational costs, improved delivery performance and increased customer satisfaction levels.

The global logistics industry is estimated to be worth USD 300 billion. Though most of the large service providers are headquartered in Europe, the biggest market is the US, which captures about one-third of the world market. The global logistics industry is characterized by high costs of operations, low margins, shortage of talent, infrastructural bottlenecks, demand from clients for investing in technology and providing one-stop solutions to all their needs, and consolidation through acquisitions, mergers and alliances.

Though, in India, the industry is still in its infancy, there is immense potential for growth. The Indian logistics industry is currently plagued with low demand, poor infrastructure, high costs, government regulations etc. However, it is going to turn around on the back of robust GDP growth, globalization, FDI in logistics and increasing government support. This paper highlights the current state of the industry, including the dynamics and opportunities for growth, globally, in general, and in India, in particular, based on findings from surveys of logistics service providers, and users, of India and other countries.

Introduction

Logistics and supply chain management (SCM) as an area of research has been getting increasing attention from academicians and practitioners over the last two decades since it may lead to reduced operational costs, improved delivery performance and increased customer satisfaction levels, thereby making an organization more competitive in terms of cost, quality, delivery and flexibility. The importance of logistics and SCM is increasing also due to globalization as more and more multi-national companies (MNC) are sourcing, manufacturing and distributing on a global scale, making their supply chains very complex to manage. However, outsourcing logistics activities to experienced logistics service providers (LSP), also known as third-party logistics (3PL) providers, may enable companies get very efficient and customized logistical support while themselves focusing on the core organizational activities. Today, there are many large multi-national LSPs that offer complete supply chain solutions across many diverse countries in terms of their socio-economic and political environments. Apart from core logistical activities such as transportation and warehousing, LSPs also offer value-added services such as customs clearance, freight forwarding, import/export management, inventory management, assembly/installation, packaging and labeling, distribution, after sales support, reverse logistics and so on. By outsourcing logistics, companies can leverage the expertise of LSPs while concentrating on their core competencies.

In literature, logistics and SCM are often used interchangeably, though there is a subtle difference between the two. While SCM is more strategic in nature, logistics is more operations-oriented. The evolution of logistics and SCM in the 1990s can be traced back to “physical distribution management” in the 1970s when there was no coordination among the various functions of an organization, and each was committed to attain its own goal. This myopic approach then transformed into “integrated logistic management” in the
1980s that called for the integration of various functions to achieve a system-wide objective (Vrat, 1999; Seturam, 1999). SCM further widens this scope by including the suppliers and customers into the organizational fold, and coordinating the flow of materials and information from the procurement of raw materials to the consumption of finished goods. The objectives of SCM are to eliminate redundancies, and reduce cycle time and inventory so as to provide better customer service at lower cost. The focus has shifted from the “share of the market” paradigm to the “share of the customer” paradigm, wherein the goal is to create “customer value” leading to increased corporate profitability, shareholder value, and sustained competitive advantage in the long run (Evans and Danks, 1998). The successive stages of evolution of logistics and SCM, the central characteristics of each stage, and the drivers of change are shown in Fig. 1.

![Fig. 1 Evolution of Logistics and Supply Chain Management](image)

While SCM deals more with the linkages in the chain, contracts and relationships, supplier selection, information and financial flows besides materials flows, creating new facilities such as plants, warehouses and distribution centres, and broader issues such as society, economy, government and environment, the scope of logistics is more or less confined to the routine job of transportation and storage of goods. However, if one deeply ponders, one may realize that logistics is the core of SCM, and if logistics fails, the whole chain snaps. Though logistics deals with mundane vehicles, warehouses, layouts, material handling equipment, Motor, Vehicles Act, toll tax, sales tax, octroi, documentation etc., efficient management of it has the potential to make the chain taut and agile. Therefore, there is growing interest in logistics, and hence in SCM, around the world.

The concept of logistics outsourcing can be traced quite far back in history. In Europe, a number of LSPs can trace their origins back to the Middle Ages (Lynch, 2002). Tracing the evolution of logistics outsourcing in recent decades, we find that, in the 1950s and 60s, logistics outsourcing was limited to transportation and warehousing. The transactions were mainly short-term in nature. In the 70s, the emphasis was on improved productivity, cost reduction and long-term contracts, while value-added services such as packaging, labeling, systems support and inventory management were on offer in the 80s. Since the 90s, outsourcing has picked up momentum, and more value-added services are being offered. Some of them are import/export management, customs clearance, freight forwarding, customer service, rate negotiation, order processing, assembly/installation, distribution, order fulfillment, reverse logistics, consulting services that include distribution network planning, site selection for facility location, fleet management, freight consolidation, logistics audit etc.
Literature on the logistics industry is abundant in the form of survey-based empirical research and reviews of extant literature. Notable surveys of logistics users of different countries include, among others, Langley et al. (2007) (North America, Latin America, Europe and Asia-Pacific), Lieb and Bentz (2005) (North America), Lieb et al. (1993) (North America and Europe), Arroyo et al. (2006) (Mexico), Cilliers and Nagel (1994) (South Africa), Dapiran et al. (1996) (Australia), Mollenkopf and Dapiran (2005) (Australia and New Zealand), Kim (1996) (Korea), Bhatnagar et al. (1999) (Singapore), Sahay and Mohan (2006) (India), Sohail and Al-Abdali (2005) (Saudi Arabia), Sohail et al. (2005) (UAE) and Aktas and Ulengin (2005) (Turkey). In these surveys, logistics managers of user firms are asked to respond to issues such as reasons for outsourcing, number of activities outsourced and volume of outsourcing, logistics budget allocated to outsourcing, impact of outsourcing on cost, service level, customer satisfaction and employees, experience on collaboration with LSPs, expectations and future plans. All these surveys indicate growing needs of outsourcing, higher allocation of logistics budgets to outsourcing, and longer and deeper collaboration with LSPs. Long association with a service provider proves to be beneficial for both the user and the service provider. Building and sustaining a successful logistical alliance requires, besides mutual trust and transparency, a cultural synergy between two different organizations, a clear internal assessment of logistics cost components and outsourcing only those services that are really needed, not giving up complete control of the supply chain, an unambiguous contract minutely detailing the roles of and expectations from the service provider, development of key performance indicators and incorporation of the same in the contract, close monitoring of the performance of the service provider, and constant dialogue and communication with the service provider. As far as the impacts of outsourcing are concerned, most of the firms have experienced either positive or very positive impacts on cost, service delivery and customer satisfaction level. The only negative impact of outsourcing that was reported was employee dissatisfaction, which may be caused due to the shift of responsibility, and hence authority, and probable downsizing of logistical workforce. The expectations of user firms range from offering more value-added services to globalization of operations by LSPs so that they could avail of services of a limited number of LSPs for all their logistical needs. For example, Exel Logistics has a contract with Motorola to manage large parts of its supply chain in Amsterdam, Chicago, Hong Kong and Singapore. Unilever is looking to Exel to provide warehousing services in Brazil, Mexico, the UK and the US (Bot and Neumann, 2003). IBM has outsourced the management of its service parts supply chains in North America and Europe to UPS while its finished goods supply chains are managed by Menlo Worldwide and Geodis in North America and Europe, respectively (Bowman, 2006).

While literature from the perspectives of logistics users is abundant, the same from the perspectives of LSPs is scarce. In their survey, Lieb and Butner (2007) asked 22 top North American LSPs to respond to issues such as mergers and acquisitions, managing relationships, differentiating the company in the marketplace, adoption of new technologies, industry dynamics, and future prospects of the industry and the company. Respondents perceived more merger and acquisition activities, continued globalization and broadening of service offerings, more collaborative relationships, evolution of niche players, gradual adoption of new technologies such as RFID (Radio Frequency Identification), continued problems of high-cost, low-margin and lack of management talent, and steady growth of revenue and profitability of both the industry and the company. The logistics industry is growing very fast in south-east Asian countries due to a shift of manufacturing base and increasing volumes of exports from these countries. A survey of Indian LSPs (Mitra, 2006) found the logistics industry in India very promising, currently growing over 20% per year. Though the estimated size of the industry is still miniscule (~ USD 1-1.5 billion) and the industry is still concentrated (20% of the respondents accounted for nearly 90% of the total revenues), there is immense potential for growth as the Indian GDP is growing at over 9% for the last couple of years compared to the world GDP growth rate of 3% and a lot of consolidation activities are taking place as more and more multi-national LSPs are expanding their presence in India through direct investments, acquisitions and alliances. The main roadblocks identified by the respondents to the growth of the industry in India were the lack of trust and awareness among Indian shippers and poor physical and communications infrastructure. However, it was also pointed out that Indian shippers are gradually realizing the benefits of outsourcing and the government is taking steps in the right direction for development of infrastructure.

Reviews of extant literature on the logistics industry are available in Maloni and Carter (2006) and Selviaridis and Spring (2007).
The organization of the paper is as follows. The next section gives an overview of the global logistics industry, an estimate of its size, and current status and dynamics of the industry. The subsequent section gives an overview of the Indian logistics industry, its competitive dynamics, and problems and prospects of the industry. Finally, managerial implications are presented in the concluding section.

**Global Logistics Industry**

This section gives an overview of the size of the global logistics industry and its current status and prevailing dynamics.

**Size of the global logistics industry**

Currently the annual logistics cost of the world is about USD 3.5 trillion. For any country, the annual logistics cost varies between 9% and 20% of the GDP, the figure for the US being about 9%. US-based Armstrong & Associates, Inc. tracks the issues and trends in the world logistics market and in the US logistics market, in particular, in their annual surveys of top 25 global LSPs. According to the firm, the global logistics market sizes in 1992, 1996 and 2000 were USD 10 billion, USD 25 billion and USD 56 billion, respectively. In 2003 and 2004, the corresponding figures were USD270 billion and USD 333 billion, registering high growth rates. Though most of the large LSPs are headquartered in Europe, the US logistics market is the largest in the world capturing one-third of the world logistics market. In 2003, it was about USD 80 billion. In 2004, it grew to USD 89 billion, and in 2005, it registered an impressive growth rate of 16% to cross the USD 100 billion mark for the first time and reach USD 103.7 billion (Foster and Armstrong, 2004, 2005, 2006). However, considering the fact that the logistics market in the US is about 10% of its annual logistics cost (Foster and Armstrong, 2006), there is still immense potential for growth of 3PL in the US in particular, and in the world in general.

**Current status and dynamics of the industry**

The extant literature on the logistics industry points to a number of issues that service providers have to address, such as pricing pressures, high costs of operations and low returns on investments, hiring and retaining talent, pressure from clients to broaden the range of service offerings and internationalize operations, demand for customized solutions and more value-added services, besides infrastructural bottlenecks and government regulations. Service providers complain that clients expect them to have the latest software, databases and ERP (Enterprise Resource Planning) packages, and invest in new technologies such as RFID and satellite-based real-time tracking systems. Clients perceive that these investments are part of the basic service package, and often do not want to match the same with increased payments for these additional services. Pressure from clients to broaden the range of service offerings and internationalize operations, has forced service providers to look for suitable alliances, mergers and acquisitions that help fill the gaps in service offerings, and industry verticals and geographic areas served, achieve economies of scale and enhance service providers’ capability to support international operations. Currently, the world logistics market is going through a consolidation phase. Tibbett & Britten Group of North America was acquired by Exel Logistics in August, 2004, and Deutsche Post World Net, parent company of DHL, took over Exel in December, 2005. Bax Global was taken over by Deutsche Bahn, parent company of Schenker, in November, 2005 while A. P. Möller acquired P&O Nedloyd in February, 2006, and TNT Logistics was sold to Apollo Management L. P. in November, 2006. However, mergers and acquisitions have their own set of problems in terms of integration of two diverse business units. Carbone and Stone (2005) tracked the evolution of 20 leading European LSPs between 1998 and 2004 in terms of their approach to mergers, acquisitions and alliances, and found that although growth led to more coverage, integration of two different cultures was one of the most difficult challenges faced by these firms in the consolidation process. Recent trends in the logistics industry indicate that to be successful, service providers have to differentiate themselves from their competitors in terms of offering value-added services, focus on key customer accounts that have the potential to generate high profitability for a long term, enter into suitable alliances to complement the range of services offered and geographic areas served, and sell logistics services to clients’ suppliers and customers, thus leading to complete supply chain integration.
Indian Logistics Industry

This section gives an overview of the size of the Indian logistics industry, its competitive dynamics and future prospects.

Size of the Indian logistics industry

The annual logistics cost in India is estimated to be 14% of the GDP, which translates into USD 140 billion assuming the GDP of India to be slightly over USD 1 trillion. Out of this USD 140 billion logistics cost, almost 99% is accounted for by the unorganized sector (such as owners of less than 5 trucks, affiliated to a broker or a transport company, small warehouse operators, customs brokers, freight forwarders, etc.), and slightly more than 1%, i.e. approximately USD 1.5 billion, is contributed by the organized sector. So, one can see that the logistics industry in India is in a nascent stage.

However, the industry is growing at a fast pace and if India can bring down its logistics cost from 14% to 9% of the GDP (level in the US), savings to the tune of USD 50 billion will be realized at the current GDP level, making Indian goods more competitive in the global market. Moreover, growth in the logistics sector would imply improved service delivery and customer satisfaction leading to growth of export of Indian goods and potential for creation of job opportunities.

Competitive dynamics and other issues

The following problems existing in the Indian logistics industry make it unattractive for investments and also create entry barriers.

- Logistics is a high-cost, low-margin business. The problem of organized players is compounded by unfair competition with unorganized players, who can get away without paying taxes and following operating norms stipulated in the Motor Vehicles Act such as quality of drivers and vehicles, volume and weight restrictions, etc.

- Economies of scale are absent in the Indian logistics industry. Even the organized sector that contributes slightly more than 1% of the logistics cost, is highly fragmented. Existence of the differential sales tax structure also brought in diseconomies of scale. Though VAT (Value Added Tax) has been implemented since April 1, 2005, failure in implementation of a uniform VAT structure across different states has let the problem persist even today.

- Apart from the non-uniform tax structure, Indian LSPs have to pay numerous other taxes, octrois, and face multiple check posts and police harassment. High costs of operation and delays involved in compliance with varying documentation requirements of different states make the business unattractive. On an average, a vehicle on Indian roads loses 24-48 hours in complying with paperwork and formalities at different check posts en route to a destination. Fuel worth USD 2.5 billion is spent on waiting at check posts annually. A vehicle that costs USD 30,000 pays USD 7,500 per annum in the form of various taxes, which include the excise duty on fuel. This is why freight cost is a major component of the cost of a product in India.

- There is lack of trust and awareness among Indian shippers with regard to outsourcing logistics. The volume of outsourcing by Indian shippers is presently very low (~ 10%) compared to the same for the developed countries (> 50%, sometimes as high as 80%). The unwillingness to outsource logistics on part of Indian shippers may be attributed to skepticism about the possible benefits, perceived risk, and losing control, of sensitive organizational information, and vested interests in keeping logistics activities in-house.

- Indian shippers expect LSPs to own quality assets, provide more value-added services and act as an integrated service provider, and institute world-class information systems for more visibility and real-time tracking of shipments. However, they are unwilling to match the same with
increased billings; even pay little attention to timely payments that leave LSPs short of adequate working capital.

- Indian freight forwarders face stiff competition from multi-national freight forwarders for international freight movement. MNCs, because of their size and operations in many countries, are able to offer low freight rates and extend credit for long periods. Indian freight forwarders, on the other hand, because of their smaller size and lack of access to cheap capital, are not able to match the same. Moreover, clients of MNCs often want to deal with a single service provider and especially for FOB (Free on Board) shipments specify the freight forwarders, which most of the time happen to be the multi-national freight forwarders. This is sort of a non-tariff barrier imposed on Indian freight forwarders.

- Poor physical and communications infrastructure is another deterrent to attracting investments in the logistics sector. Road transportation accounts for more than 60% of inland transportation of goods, and highways that constitute 1.4% of the total road network, carry 40% of the freight movement by roadways. Slow movement of cargo due to bad road conditions, multiple check posts and documentation requirements, congestion at seaports due to inadequate infrastructure, bureaucracy, red-tapeism and delay in government clearances, coupled with unreliable power supply and slow banking transactions, make it difficult for exporters to meet the deadlines for their international customers. To expedite shipments, they have to book as airfreight, rather than seafreight, which adds to the costs of shipments making them uncompetitive in international markets. Moreover, many large shipping liners avoid Indian ports for long turnaround times due to delays in loading/unloading and hence Indian exporters have to resort to transshipments at ports such as Singapore, Dubai and Colombo, which adds to the costs of shipments and also delays delivery.

- Low penetration of IT and lack of proper communications infrastructure also result in delays, and lack of visibility and real-time tracking ability. Unavailability and absence of a seamless flow of information among the constituents of LSPs creates a lot of uncertainty, unnecessary paperwork and delays, and lack of transparency in terms of cost structures and service delivery. For example, a shipper has to pay a higher freight rate if it cannot ensure return load. At present, there is no real-time process by which a shipper may know about the availability of trucks and going rates at the destination market. Therefore, it has to pay more. Had the market information been available to both the shipper and the service provider, the service provider’s cost structure would have been transparent to the shipper and it would have ended paying the actual market rate. Another example would be that LTL (Less than Truckload) shipments cost more than FTL (Full Truckload) shipments. Now, when a shipper books a LTL shipment, it has no idea about the status of its shipment after it leaves the warehouse at the origin and before it reaches the warehouse at the destination. The service provider may still convert this LTL shipment into a FTL shipment at its own warehouse before delivering at the destination. So, the shipper ends up paying LTL rates for a FTL shipment. Had there been visibility during delivery, this problem would not have occurred.

- Since most of the LSPs are of relatively small size, they cannot provide the entire range of services. However, shippers would like service providers to offer more value-added services and a single-stop solution to all their logistical problems. The inability of service providers to go beyond basic services and provide value-added services such as small repair work, kitting/dekitting, packaging/labeling, order processing, distribution, customer support, etc. has not been able to motivate shippers to go for outsourcing in a big way.

- Service tax levied on logistics service fees (currently 12.36% with educational cess) may make outsourcing costly and outweigh the possible benefits.

- There is lack of skilled and knowledgeable manpower in the logistics sector. Management graduates do not consider logistics as a prime job. To improve the status of the industry, service providers have to move beyond the level of brokers and truckers to attract and retain talent.
**Future prospects**

Despite problems, The Indian logistics industry is growing at 20% vis-à-vis the average world logistics industry growth of 10%. Since the organized sector accounts for merely 1% of the annual logistics cost, there is immense potential for growth of the sector. The major opportunities are highlighted below.

- Many large Indian corporates such as Tata and Reliance Industries have been attracted by the potential of this sector and have established logistics divisions. They started providing in-house logistics services, and soon sensing the growth of the market, have started providing services to other corporates as well.

- Large express cargo and courier companies such as Transport Corporation of India (TCI) and Blue Dart have also started logistics operations. These companies enjoy the advantage of already having a large asset base and an all-India distribution network. Some large distributors have also forayed into the logistics business for their clients.

- Since logistics service can be provided without assets, there is growing interest among entrepreneurs to venture into this business.

- Indian shippers are gradually becoming more aware of the benefits of logistics outsourcing. They are now realizing that customer service and delivery performance are equally important as cost to remain competitive in this global economy.

- The Indian economy is growing at over 9% for the last couple of years (compared to the world GDP growth rate of 3%), which implies more outputs and more demand for specialized logistics services.

- The Indian government has focused on infrastructure development. Examples include the golden quadrilateral project, east-west and north-south corridors (connecting four major metros), Free Trade and Warehousing Zones (FTWZ) in line with Special Economic Zones (SEZ) with 100% Foreign Direct Investment (FDI) limit and public-private partnerships (PPP) in infrastructure development. It is expected that infrastructure development would boost investments in the logistics sector.

- In India, 100% FDI is allowed in logistics whereas in China, until recently, foreign investment was not allowed in domestic logistics. Almost all large global logistics companies have their presence in India, mainly involved in freight forwarding. For domestic transportation and warehousing, they have tie-ups with Indian companies. As the Indian logistics scenario looks promising, these MNCs are expected to play a bigger role, probably forming wholly-owned subsidiaries or taking the acquisition route. The latter may be the preferred route of investment since the target company is readily acquired with its asset base and distribution network, and the need for building everything from scratch can thus be avoided. The benefits for the acquired company include the patronage of an MNC and access to the MNC’s global network. As an example, DHL Danzas, the biggest logistics company in the world, has taken over Blue Dart.

**Managerial Implications**

Studies on logistics indicate that in this highly competitive and high-cost, low-margin business, logistics managers have to not only focus on differentiating the services rendered by their companies, but market the differentiating factors of their services appropriately to the clients. They also need to make their cost structures transparent, and convince clients to foot the bill towards investments in quality assets and new technologies such as RFID and GPS (Global Positioning System) leading to improved, and differentiated, delivery of service. Since clients usually prefer a single-point solution to all their logistical problems, managers need to broaden the range of their service offerings, internationalize operations and cover as
many industry verticals as possible. They may focus on key customer accounts gradually moving away from accounts generating low, even negative, profitability. However, small-to-medium-sized companies that seem to have high growth potential should not be ignored in the process. In order to become a single point of contact for clients, logistics companies may pursue acquisitions or alliances, which, however, pose the challenge of integration of diverse cultures. Attracting, recruiting, training, motivating and retaining management talent are also a great challenge that logistics managers need to take on (Lieb and Butner, 2007).

A survey of North American LSPs (Bagchi and Mitra, 2006) found that logistics managers perceived internationalization of operations, industry focus or specialization, investment in information systems, availability of skilled logistics professionals, integration of supply chains, customer focus and breadth of service offerings as the most important factors for success as a LSP. However, the survey identified significant gaps between expectations and actual achievements of LSPs with respect to internationalization of operations, skilled logistics professionals and integration of supply chains, which should be seriously looked into by managers. The survey also established relationships among a set of performance metrics and key success factors to identify significant predictor and criterion variables. One of the most important observations was that collaborative relationships with clients and investments in assets are necessary but not sufficient conditions for success in logistics. The findings of the survey may provide a useful guideline to logistics managers for allocation of scarce resources.

As far as the Indian logistics industry is concerned, logistics managers of user firms need to realize that, with supply chains getting more and more complex, outsourcing part or all of their logistical activities to experienced LSPs will help reduce their overheads, streamline supply chains, reduce costs and improve service delivery. The organizational interests should be put above vested interests, if any. They need to realize that organized LSPs are professionals, who will maintain confidentiality of sensitive client information.

The Indian government should also focus on developing infrastructure and encourage public-private partnerships in investments in infrastructure. Highway projects such as golden quadrilateral and east-west, north-south corridors connecting all four metros are already underway. Private investments in inland containerized transportation by railroad, which was a monopoly of Container Corporation of India Limited (CONCOR), a subsidiary of Indian Railways, until recently, have been allowed. 100% FDI is also allowed in Free Trade and Warehousing Zones (FTWZ) to create necessary trade-related infrastructure to facilitate import and export of goods and services. The government may create logistics SEZs (Special Economic Zones) or logistics hubs with concessions in land and tax rates. Incentive schemes may also be extended for construction of modern automated warehouses and cold chains. Access to cheap capital should be made available to LSPs for investments in infrastructure, enabling them to extend longer credit periods to their clients and supplementing their working capital. The government may create a uniform tax structure and do away with multiple check points and documentation requirements, which would lead to speedier delivery of cargo. To generate awareness, the government may organize seminars, workshops, exhibitions and meetings to bring in representatives of logistics users, service providers and government under one roof, and also sponsor courses in leading Indian institutes to attract talent. Growth of the logistics industry in India will not only contribute to the GDP, but also generate employment (Mitra, 2006).
References


