Research Report

India Logistics Industry

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TECHNICAL REPORT

Executive Summary

Abstract

Logistics has huge impact on the domestic and global economy of any country. As such, the role and importance of logistics has been elevated in many business environments. This report gives an overview of logistics industry in India. The focus of the report is to present the existing and emerging practices in the logistics industry in India and to predict the future trends that are likely to contribute to its transformation. We highlight on the potential growth areas and expansion strategies for the logistics players in India to becoming highly localised world-class players.

We begin with an overview of the evolution of logistics industry in India and the challenges faced by the industry in Chapter 1. In Chapter 2, we present the logistics infrastructure and the different modes of transportation in India, and for each of them we discuss the cargo statistics, current hindrance and the on going initiatives to improve the respective infrastructure. Next in Chapter 3, we identify some of the important industry segments in India and emphasise on the industry profile and growth, market size segmentation, major players and challenges and outlook, so as to provide some guidance to the logistics players who are trying to penetrate into these growing markets. This is followed by Chapter 4, with some more reference on the characteristics and major drivers of logistics market in India and the current strategies adopted by the players. Our focus is however on the third party logistics (3PL) service providers, both the local and multinational companies, where we identify their potential growth strategies in India, such as establishing an organic growth, acquisition and joint ventures within the country. We discuss the structuring policies for the most popular expansion strategy of joint venture with some recent cases in the country. In order to create a solid foundation for the long-term success in the logistics business, it is important that they understand the opportunities, challenges including the complex tax laws on implementation of value added tax (VAT), and compelling ways to approach the local logistics market. Hence, we present some of the customised ideas. Finally, in Chapter 5 and 6, we conclude with the fast emerging and future trends in the India logistics business which is going to churn the industry in a major way.

This report would be of immense value to multinational 3PL service providers in manufacturing and logistics wanting to enter India, and to the existing local 3PL service providers who are set to expand their service portfolios. Representatives from the local government authorities, regulatory agencies and trade associations would also benefit from the information given as this would assist them greatly in identifying ways to streamline operations in order to prepare the country to meet the global logistics needs. It is also our hope that this report will foster interactions between the many players involved in the logistics and supply chain marketplace to further stimulate the fast growing industry in India.

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Chapter 1 An Introduction to the Logistics Industry in India

1.1 Overview of Global Logistics Industry

Logistics is about moving materials, information and funds from one business to another business or from a business to the consumer. Logistics is an important part of the business-economic system and is a major global economic activity. It encompasses activities like freight transportation, warehousing, material handling, protective packaging, inventory control, order processing, marketing, forecasting and customer service.

Fierce competition in today's global market, the introduction of products with short life cycles, the heighten expectations of customer and the cost cutting measures have forced business enterprise to focus attention on logistics industry. Historically, the logistics sector was clearly separated and restricted mainly to transportation and warehousing. The logistics management in today's world however, covers all the aspects of value chain including an efficient integration of transportation, distribution, warehousing, reverse logistics, value added services such as payment collection, packaging, documentation, customer brokerage facilities, kitting, repair management, reconfiguration etc. The developments of state-of-the-art IT in recent years have further had remarkable implications for the logistics industry.

Various surveys have been conducted to estimate the logistics activities as a percentage of whole production value, and it is found that between 12 and 20% of the final retail price of current consumer goods is associated with logistics cost. (The three major cost components of logistics operations are inventory carrying, transportation and administration.) Logistics industry represents a significant part of the economy, as they generally constitute between 10 and 15% of the GDP of a country. The European market for logistics industry can be categorized as matured and crowded with several globally strong logistics players. The 3PL penetration rate in Europe is also estimated to be high, at 10%. It is estimated that about 11.6 million jobs are involved in logistics in this region. Having such matured market, there is only limited scope for new entrants in Europe. In the US, the European players have

started establishing strong US networks. The US appears as the home ground of global giants of logistics players, with a reported 3PL penetration rate of 8%. In 2000, total business logistics costs exceeded US$ 1 trillion and accounted for 10.1% of the country's GDP. The breakdown for the total logistics cost for the US is as follows[13] :

Inventory carrying costs: The major cost components are interest charges, taxes, obsolescence, depreciation, insurance and warehousing. The inventory-carrying rate for the past 40 years has remained relatively steady at about 25%, except for periods of recession when the rate increased to above 30%.

Transportation costs: In the US, the trucking industry has accounted for the bulk of the transportation costs, with inter-city trucking as the key contributor.

Administrative cost: This cost is attributable to logistics administration and it accounts for less than 5% of the total logistics costs.

Over the last decade, the logistics costs have come down from 15% to 9% in the US. Back in the east, the strong presence of local players in Japan resulted in difficult market entry in this region. Likewise, the consolidation in Australian logistics markets have resulted in large domestic logistics companies, which also limits the scope for new entrants.

The story is however different in Asia. There are no dominant integrated logistics players, and the Third-Party Logistics (3PL) and Fourth-Party Logistics (4PL) service providers are still growing concepts in Asia. As such, there is an urge for local players to expand capabilities and move into unoccupied space before the global players dominate the market. In addition, Asia is expected to show a tremendous growth in logistics market and to account for over 50% of world cargo in 20 years' time. China and India specifically are the two leading logistics markets in Asia which are forecasted to grow more than 40% annually in this decade. As of the year 2000, the annual logistics cost for China was estimated to be more than US$ 200 billion and the 3PL service providers accounted for about 2% of the logistics market (lower than the Europe and US). The logistics cost in China was recorded to be 20% of GDP, and by the first quarter of 2004, the proportion increased to 21.4%. India, the second fastest economy in Asia after China, with estimated GDP growth rate of 7.2% for 2004 and with the value of logistics market estimated at 13% of GDP, is expected to be at

least US$ 50 billion worth of logistics industry and still growing. As such, the logistics industry in India has emerging opportunities and is poised for continued significant growth in the coming years especially in the Fast Moving Container Goods (FMCG), textiles, retail, automotive, pharmaceutical and manufacturing sectors. In the following sections we look at the evolution of the Indian logistics industry and its future.

1.2 The Evolution of Logistics Industry in India

The Indian logistics industry has come a long way from being a labour intensive during 60's to the present technology oriented system that provides wide range of logistics services. The concept of 3PL is a recent past culture in India. Traditionally, manufacturing companies in India managed their own logistics requirements in-house. The country then gradually evolved from the stage where the Indian organizations outsourced their labour requirement in order to avoid labour related problems. Subsequently, basic services such as transportation and warehousing were outsourced to different service providers known as the (Second-Party Logistics) 2PL service providers. With the increasing demand, the service providers started providing integrated services together with other value added services, while the organizations focus on the core competencies and streamline their supply chain.

In terms of infrastructure, road is the dominant mode of transport which accounts for 68% of freight movement in India. Trucks are the most widely used mode of transportation in India. At present, around 1.5 million trucks operate on the Indian roads and the number of trucks increases around 10% a year. Railways are considered a relatively cheaper mode of transport and are used mainly for transporting bulk materials over long distances. About 89% of its freight traffic is contributed by major commodities such as coal, fertilizers, cement, petroleum products, food grain, finished steel, iron ore and raw material to steel plants. The balance 11% is other commodities moving in bulk and containers.

The present form of logistics industry in India is still in its infancy and is highly fragmented. There are thousands of logistics companies, ranging from the international giants to the highly localised small players in the country. As the logistics industry in India is in nascent stage, there are a lot of logistics issues to be improved. For example, the Indian companies

continued to perceive cost as the major consideration in selecting their service providers. With increased competition and global trade, and greater thrust on customer-centricities, the companies are now realizing the value of high quality "customer-responsive" factor. Traditional transporters, freight forwarders and courier companies are rapidly transforming themselves into integrated logistics service providers by incorporating other activities like inventory management, order processing, collection of bills, sales and excise duty documentation in order to effectively utilize their existing assets and experience. The gradual deregulations over the 1990s, which includes the opening up of sectors to foreign MNC investments, full liberalization of current account transactions and the largely permissible of capital account transactions, have further boosted the logistics industry.

However, when compared with developed countries, the Indian logistics industry is still considered to be underdeveloped. The major restrictions hindering the growth of logistics industry in India include the poor conditions of infrastructures and transport vehicles, complex tax laws, complexity of international trade documentation process and lack of IT infrastructure, shortage of professionally competent logisticians and insufficient technological aids and the lack of industry readiness. Due to these restrictions, the logistics costs in India are still higher than in the developed markets. It is estimated to be around 13% of GDP, against 9% of GDP in the US. (This is however lower when compared to countries like China which accounts for 20% of GDP). It is also forecasted that the potential savings for India if logistics cost decreases by 1% is about a significant amount of $4.8 billion per year. At the other end, the average inventory level of grocery stores is recorded to be 45 days of sales in India compared 11-22 days in developed countries. Such inefficiencies indicate that there is much to be done with the current situation in order to boost the Indian logistics industry.

1.3 Report Summary

In this report, our goal is to summarize the state of logistic industry in India and also bring to focus the issues India faces as the globalization continues and growth rates increases. In Chapter 2, we present the overview of logistics infrastructure in India comprising the mode

of roadways, railways, seaports and the airports, and for each of them, we discuss the current state, cargo statistics, issues and ongoing and planned initiatives for improvement. In Chapter 3, we identify some of the important industry segments in India, i.e. automotive, pharmaceutical, FMCG, retail, electronics and IT hardware and emphasise on the industry profile and growth, market size segmentation, major players and challenges and outlook. The present state of FDI in different industry segments and FTA in India is also discussed in this chapter. Following in Chapter 4, the characteristics of logistics and 3PL market in India are presented. We highlight the major drivers of the industry and current strategies adopted by the logistics players in India. Our focus in this chapter is however on the 3PL service providers, both the local and multinational companies, where we identify their potential growth strategies in India, such as establishing an organic growth, acquisition and joint ventures within the country and some recent developments in these areas. We too draw attention to the opportunities and challenges faced by the 3PL service providers and the logistics industry including current problems hindering the growth and following, some suggestions to approach the logistics market in India. Finally, in Chapter 5 and 6, we conclude with the fast emerging and future trends in the India logistics business.

Chapter 2 Logistics Infrastructure in India

2.1 Overview of Logistics Infrastructure in India

Transportation is a key element in a logistics infrastructure. Adequate capacity and reliability of transport infrastructure and services are important factors which contribute towards the ability of the country to compete in the field of international trade and attract foreign direct investment. It is necessary for the country of the size of India to create a policy that encourages competitive pricing and coordination between alternative modes in order to provide an integrated transport system that assures the mobility of goods at maximum efficiency and minimum cost.

As for India, its infrastructure can be viewed as a major hindrance to the logistics business. Despite being a large country with a landmass of 3.29 million square km, the Indian infrastructure comprising roads, railways, seaports and airports is considered very poor as compared with other developed and developing countries. The poor infrastructure and inefficient transport services result in inefficient movement of freight and delays resulting in enormous amount of time, and therefore money. Such inefficient and unreliable transport and logistics systems make the country's export less competitive. The overall Indian infrastructure is rated 54th among the 59 countries in comparison to other developing countries[3].

The poor infrastructure and transportation performance in India is essentially due to some underlying institutional problems. Firstly, the fragmentation and overlapping of responsibilities among various government agencies confuse and limit accountability, and as a result, affect the pressure on various agencies to perform. For example, in urban transport, many agencies have a role but none assumes overall responsibility leading to poor policy and unclear accountability. Secondly, resource mobilization is inadequate in India. Public investments in transport have been stagnant and declining relative to GDP, and the input from private finance continues to be very limited. The weak asset or system management in the country is the third problem that affects the Indian's transportation infrastructure sector.

Overstaffing, inadequate data collection and untrained decision-makers results in poor analysis in decision making. Uneconomical investments made under political influence, lack of competition in procurement and excessive focus on new investment at the expense of existing asset maintenance are some of the other factors.

In order to tackle the shortcomings above and to reform the transportation and infrastructure sectors, India has made substantial efforts in recent years. For example, the public funding for transport sector has been increased significantly in the Ninth Five-Year Plan (Table 2.1). The increase in public funding is specifically notable in the roads, ports and inland waterways. Other initiatives will be discussed in their respective sub-sections of infrastructure and transportation.

(Rs billion)

Sub-sector	**1st Plan 1951-56**	**2nd Plan 1956-61**	**3rd Plan 1961-66**	**4th Plan 1969-74**	**5th Plan 1974-79**	**6th Plan 1980-85**	**7th Plan 1985-90**	**8th Plan 1992-97**	**9th Plan 1997-02**
Railways	2.2	7.2	13.3	9.3	20.6	65.9	165.5	323.0	454.1
Roads	1.5	2.4	4.4	8.6	17.0	38.9	63.4	161.0	386.5
Road transports	0.0	0.0	0.9	4.6	12.0	19.9	21.5	35.4	73.8
Ports	0.3	0.3	0.9	2.5	4.9	7.3	15.1	23.0	99.4
Shipping	0.2	0.5	1.4	4.5	7.6	8.3	7.2	30.3	63.1
Inland waterways	0.0	0.0	0.1	0.3	0.7	2.3	1.9	1.5	5.3
Civil aviation	0.2	0.5	0.5	1.8	2.9	9.6	19.5	72.5	113.7
Total transport sector	4.3	11.0	19.8	25.2	55.4	139.6	294.8	649.4	1202.5
Total plan (all sectors)	19.6	46.7	85.8	157.8	394.3	1092.9	2187.3	5332.5	8592.0

Table 2.1: Expenditure on transport sub-sectors under plan periods in India (1951-56 to 1997-02)
Source: India Transportation Infrastructure Blueprint

As a result from the continued progress on institutional reform in the transportation sector, India has observed a total transportation growth of 8-9% in the last ten years. The country's progress in transport however varies by sub-sector, with road, air and sea transport moving ahead steadily, while the rail transport has been sluggish (Table 2.2).

Freight Mode	1991-92	1998-99	Growth Rate (%)
Rail ton-km (billion)	257	284	1.4
Road ton-km (billion)	267	285	11.9
Goods vehicle exceeding 3-wheelers ('000)	1,356	2,260*	8.9
International air cargo ton-km (million)	115	158**	8.3
Domestic air cargo ton-km (million)	76	103**	7.7
Major port cargo tonnage (million)	152	252	7.5
Minor and intermediate port cargo tonnage (million)	13	36	15.7

Table 2.2: Freight traffic growth by mode in India (1991-92 and 1998-99)
Note: (*) data for year 1997, and (**) data for year 1997-98
Source: India's Transport Sector: The Challenges Ahead, The World Bank Group

Although recent reforms are impressive, the progress is still slow relative to the major changes around the world. For example, transport deregulation, increased private sector participation, and decentralized and commercial management of transport assets and operations. Worldwide transport growth has been consistently higher than the economic growth. If India wants to achieve its projected growth of 8% in GDP over the 10th Plan (2002-07) period, the country's transportation sector growth should hit 10 -12% per year! (current transportation growth is only about 8-9%). In order to reach global standards in transportation infrastructure, India has to emphasis on their capacity enhancement and more competitive operations from existing infrastructure through policy and operational improvements. Investments in the creation of better and more modern infrastructure could help to further boost their transportation growth. In the following subsections, we look into the current state, issues and initiatives under each of the infrastructure and transportation mode in detail.

2.1.1 Roadways

With about 3.3 million kms of roads, India has the third largest road networks in the world which is connected mainly through national highways and state highways. Other types of road network include district roads, rural roads, urban roads and special purpose roads (for military, port and etc). Road is also the dominant mode of transport which accounts for 68% of freight movement in India. Trucks are the most widely used mode of transportation in

India. At present, around 1.5 million trucks operate on the Indian roads and the number of trucks increases around 10% a year.

Despite having one of the extensive road networks in the world, India has long suffered a capacity shortage due to poor road quality. More than 25% of national highways and 50% of state highways are in poor surface conditions and congested. The major economic centers are not linked by expressways. Most national highways are double-lane or single-lane, with a mere 2% being four-lane or higher standard (Figure 2.1).

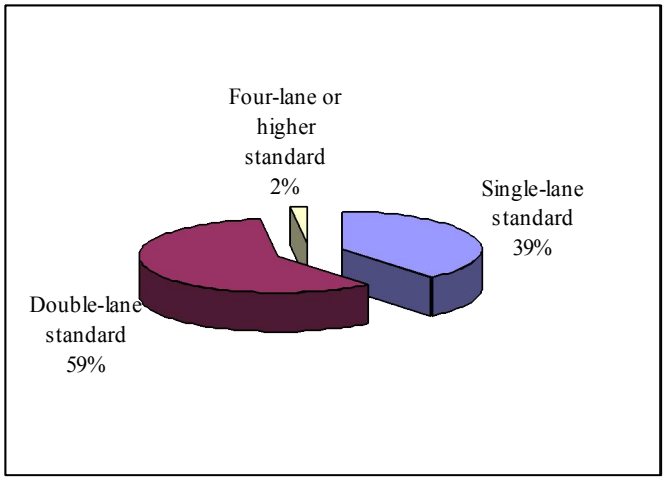


Figure 2.1: Road width of the National Highways in India
Source: State of Play, Logistics in India, Price Water House Coopers

According to the World Bank Group Report[2], the poor condition of roads is exacerbated by an outdated freight vehicle fleet. Very limited modern multi-axle trucks are used, while the extensive overloading by rigid two-axle trucks has resulted in serious damage of road pavement and structure. The overall poor road condition leads to low vehicle speed, and thus less coverage. To illustrate, trucks moves on the national highway with an average speed of 30 to 40 km with the distance covered by only about 250 to 300 km, where as in developed countries, the speed and distance covered average twice of that in India. The poor quality of roads further leads to increased wear and tear of vehicles and high accident rates. In addition, the growing freight traffic and vehicle population is not met by the slow level expansion of road length network. Hence the increasing traffic congestion, poor physical road conditions, the use of old vehicle, mixed traffic of fast and slow vehicles, highly crowded and unsafe urban crossings and frequent enforced stops at state or municipal check-

posts for permit inspection and tax collection in highways have lead to very low level of road transportation service in India. As a result, India is rated 56th among the 59 developing countries in terms of the competitiveness on road infrastructure [3].

Realizing the importance of the improved road infrastructure in the economic development of the country, the Indian Government has introduced a number of initiatives to handle the shortcomings in the sector. In 1998, National Highway Development Project (NHDP), the India's largest highway upgrading initiative to-date, was initiated. This project involves two main projects; the Golden Quadrilateral Project (GQ), involving four/six laning of the highway connecting four major cities of Bombay, Delhi, Calcutta and Madras and the North-South and East-West corridors (NS-EW), involving four/six laning of the two legs connecting Kashmir to Kanyakumari and Silchar to Porbandar. The NHDP is scheduled to be completed by end of 2007 at an estimated cost of around US $13 billion. Other efforts include creating a Central Road Fund (CRF) to finance road development and maintenance through an earmarked tax on diesel and gasoline, operationalizing the National Highways Authority to act as an infrastructure procurer rather than a provider, amending the National Highway Act to expedite land acquisition, permit private participation in road financing, and allow tolling of public roads.

In short, some radical changes in the road transport policy operations are needed. The full transport process needs to be optimized by controlling loading densities through packaging and palletizing standards, and by using loading and unloading facilities automation. Proper road network connectivity is critical not only at the major cities, but also at the other internal network within the states to allow access to rural markets. India should strive not only to release adequate funds for road maintenance but also to ensure that proper maintenance is carried out.

2.1.2 Railways

Introduced in 1853, Indian Railways (IR) which is a government monopoly is the second largest railway network in the world under a single management. The IR network is spread over the route length of 63,028 kms, 24% of which is electrified and covers 6,853 stations

with 42,570 coaches. Over the past 50 year, IR has experienced significant growth in both the traffic and passenger traffic. For example, in 1950-51, IR carried 100 passengers per kilometer and 100 net tonnes per kilometer, and in 2000-01, these figures increased to 614 and 715 respectively.

For the year 2000-01, the IR carried 473.5 million tonnes of freight traffic and 4,833 million passengers, and in turn earned Rs 23,305 crores of freight revenue and Rs 10,515 crores of passenger revenue. This signifies that majority of the revenue (69%) are generated from freight traffic and the remaining 31% are generated from passenger traffic. Though comprising only 16% of the network, the High Density Network (HDN) which connects the four major cities of Bombay, Delhi, Calcutta and Madras (known as GQ) carries a significant amount of 65% of the total rail freight traffic and 55% of passenger traffic. Opened in May 1998, the Konkan Railway (which is a zone of the Indian Railways) connects Bombay on the west coast with Mangalore, 760 km to the south. The link includes about 90 tunnels and 1,800 bridges and reduces the previous travel time by nearly five hours. India has high stakes in rail infrastructure and freight. Of all the freight moved through IR, it is estimated that over 70% of them are produced or marketed by government-owned agencies.

The containerized freight movement by rail in India is provided by Container Corporation of India Ltd (CONCOR). Incorporated in 1998 CONCOR provides multi-modal logistics support for the country's domestic trade and commerce, with 44 out of 51 of the CONCOR terminals are linked by rail network.

Railways are considered a relatively cheaper mode of transport and are used mainly for transporting bulk traffics over long distances. About 89% of its freight traffic is contributed by major commodities such as coal, fertilizers, cement, petroleum products, food grain, finished steel, iron ore and raw material to steel plants. The balance 11% is other commodities moving in bulk and containers. The traffic of major commodities carried by IR is presented in terms of percentage in Table 2.3. The decline in share in the segments of cement, POL and iron and steel is mainly due to the IR's competitive weakness as compared to other modes of transports, such as the road, pipeline and coastal shipping. For example, the POL product is at higher end within the freight tariff structure, which results the shippers to switch to other modes for this product segment.

Year	Coal	Iron Ore	Cement	Food grains	Fertilizers	POL	Iron & Steel
1991-92	63.9	66.1	57.0	16.4	66.6	52.9	71.9
1992-93	66.2	70.6	56.2	15.2	67.8	51.1	70.81
1993-94	67.9	65.3	56.1	14.5	71.7	50.7	69.38
1994-95	64.98	63.66	49.52	10.79	71.56	43.57	63.71
1995-96	64.97	65.15	47.45	13.76	69.15	40.16	58.30
1996-97	65.95	66.68	46.42	14.85	70.23	37.47	45.38
1997-98	66.37	69.72	44.93	13.51	74.58	37.52	44.04
1998-99	63.99	65.63	41.80	13.38	75.77	37.66	40.90
1999-00	65.67	66.97	43.42	14.78	78.60	35.96	39.70
2000-01*	67.67	72.93	43.10	13.57	74.17	37.49	34.44

Table 2.3: Percentage of traffic transported by Indian Railways (1991-92 to 2000-01)
Source: Status Paper on Indian Railways - Issues and Options, http://www.indianrailways.gov.in
*provisional data

The rail infrastructure in India has slow average speed of freight movement and low average wagon turnaround time. Freight trains run at the 23 km an hour, though it is expected to move at 40 to 50 km an hour. Wagon failure on the other hand, causes the train failure which results in 20% loss of line capacity. More importantly, in terms of freight rates, railways have out-priced themselves in the transport market, making the transport option uncompetitive, and thereby resulting in the diversion to other modes of transport. In addition, the system of variable freight rates depending on the class of commodity has further discouraged some of the industries from using rail transport. As a consequence, the rail infrastructure is rated 25th among the 59 developing countries[3]. As an effort to recoup the traffic, few strategies have been formulated, which includes the marketing of non-bulk, non-block rate and high value traffic, flexibility in rating by way of innovative variations to the schemes for station-to-station rates and volume discounts, facilitating private participation in creation of warehousing at existing railway terminals and formulating schemes for terminal service providers at railway goods sheds. Moreover, in order to improve the railway networks in terms of capacity and efficiency in transhipment points, the Indian government has undertaken Project Unigauge to convert all main routes and regional network of 13,000 km into a broad single gauge.

In spite of all these IR's strategies to win back the traffics, the rail's freight share is noted to have dropped over the past few years as the modal shift towards road transportation. Generally, road is favoured over rail as road transportation has the flexibility in despatching

and loading minimum loads and less inventory in transit. The declining trucking rate due to overcapacity, coupled with good support facilities and improved truck technology further encourages the boost road transportation.

2.1.3 Seaports

India, with a vast coastline of 7,517 kms handles 95% of India's foreign trade through its seaports. It has 12 major ports (Figure 2.2) and 184 other (minor and intermediate) ports. Among the minor ports are located in Gujarat, Maharashtra, Goa, Karnataka, Daman & Dui, Kartanaka, Kerala, Lakshadweep, and Andra Pradesh.

Figure 2.2: Indian major seaports
Source: http://www.mptgoa.com/

The major ports are governed by the Major Port Trust under the control of Central Government, while the minor ports are under the jurisdiction of their respective state governments. The major ports accounts for about 75% of total port traffic, with an annual

average growth of 6.6% in 1990s. During 2002-03, traffic in the major port witnessed a remarkable increase of 8.7%, from 288 million tonnes in 2001-02 to 313 million tonnes in 2002-03. The breakdown of the total cargo in major ports for 2002-03 is presented in Table 2.4. Due to the increase in the MNC shipping companies in India market, experts believe that by 2006-07, the total port traffic in India could reach over 565 million tonnes.

Major Port	Traffic handled (million tonnes)
Visakhapatnam	46.00
Kandla	40.63
Madras	33.70
Haldia	28.55
JNPT*	26.83
Bombay	26.53
Paradip	23.93
Mormugao	23.65
New Mangalore	21.43
Tuticorin	13.30
Cochin	13.00
Ennore	8.48
Calcutta	7.20

Table 2.4: Traffic handled by major ports in India (2002-03)
Source: Ports & Logistics Industries in India, http://www.uktradeinvest.gov.uk/ports/india/
* JNPT - Jawaharlal Nehru Port Trust

The main commodities handled at major ports in India are petroleum products, coal, iron, ore, containerized cargo, fertilizer and raw material. Container traffic specifically has shown an impressive growth in the last few years, with growth rates of over 10% annum (Table 2.5). Despite this growth rate, India's container ships make up only 1.5% of the country's total shipping capacity, far below the 10% of the global capacity. This depicts the low containerization in India when compared to the global trend in containerization. Over 75% of the container throughput in India of 2.88 million TEUs is handled by the JNPT, Madras and Bombay ports. The highest growth however is seen in the foodgrain commodity, which has doubled in 2001-02 (Table 2.5).

Commodity and cargo types	Traffic handled (million tonnes)		Growth (%)
	2000-01	2001-02*	
POL	108.3	103.3	-4.6
Coal	48.1	45.9	-4.6
Iron Ore	40.5	45.7	12.8
Containerized cargo	32.2	37.2	15.5
Fertilizer & raw materials	9.1	9.6	5.5
Other liquids	7.8	8.2	5.1
Foodgrains	1.9	3.8	100.0
Others	29.3	30.5	4.1
Total	**281.1**	**287.6**	**2.3**

Table 2.5: Trends in traffic at Indian major ports (2000-01 and 2001-02)
Source: Ports, http://www.indiabudget.nic.in
*provisional data

Likewise the other infrastructure in India, Indian ports are also underutilized, inefficient and poor in service level as compared to elsewhere in Asia. Although the capacity at major ports has been recently augmented, they are still rated 50 to 60% lower than other countries and the berth capacities have not been used efficiently. This is shown by the worsening capacity utilization with the increase in the capacity in Table 2.6.

Year	Capacity (MT)	Traffic (MT)	Capacity utilization (%)
1997	220	227	103
2001	291	281	97
2002	344	289	84

Table 2.6: Capacity utilization of Indian ports (1997, 2001 and 2002)
Source: State of Play-Logistics in India, Price Water House Coopers

The extremely low equipment use on berths (about 30 to 35%) results in high turnaround times for vessels. For example, the Singapore Port handles about 100 containers per hour with a very short turnaround time of 6 to 8 hours, where as in India, only 10 to 12 containers are handled and takes up to days of the turnaround time (Table 2.7). In addition, low productivity of equipment and labor, inefficiency in loading and unloading operations, absence of advanced technology in handling and insufficient coordination by the customs authority on various formalities involved further increases handling costs for cargo and containers. These factors inhibit major shipping lines from bringing mother container ships for handling at Indian ports, adding to the transport costs of exports and imports. As a result, in the year 2000, the facility and infrastructure of Indian ports is rated 51th among 59 countries[3].

Port	Containers handled per hour	Turnaround time
Singapore	100	6-8 hours
Colombo	25-30	8 hours
Dubai	28	19 hours
India (Government terminals, which from bulk of ports in India)	10-12	5 days

Table 2.7: Comparison of turnaround times
Source: State of Play-Logistics in India, Price Water House Coopers

Realizing the importance of seaports in the international trade, Indian Government has accorded greater priority to its development. Among their effort includes establishing a Tariff Authority for Major Ports (TAMP) and amending the Major Ports Trust Act to enable corporatization of major ports. The port privatization policy announced by the government has identified few areas for private sector participation. It includes leasing of existing port assets, construction and creation of additional assets at major ports, leasing of equipment for cargo handling and leasing of floating crafts, pilotage and captive facilities for port based industries. Planned development of minor ports and recent announcement to launch the "Golden Sea Chain" (Sagar Mala) project which will link all the ports along India's coastline is further expected to bring focus and accelerate the reforms in Indian seaports. According to the Summary of Economic News in India (August 2003), the Sagar Mala project is expected to be funded through both the public and private sectors, with the government's share around 10-15 %.

2.1.4 Airports

Airports in India are managed by Airport Authority of India (AAI), under the central government. The country has six international airports- Delhi, Bombay, Calcutta, Madras, Trivandrum and the newly upgraded Bangalore airport. The location of major and some minor airports in India are shown in Figure 2.3. The air cargo carried by airways usually constitutes high value goods such as computers, microprocessors, electronics and optical equipment, precision instruments and perishable foodstuffs.

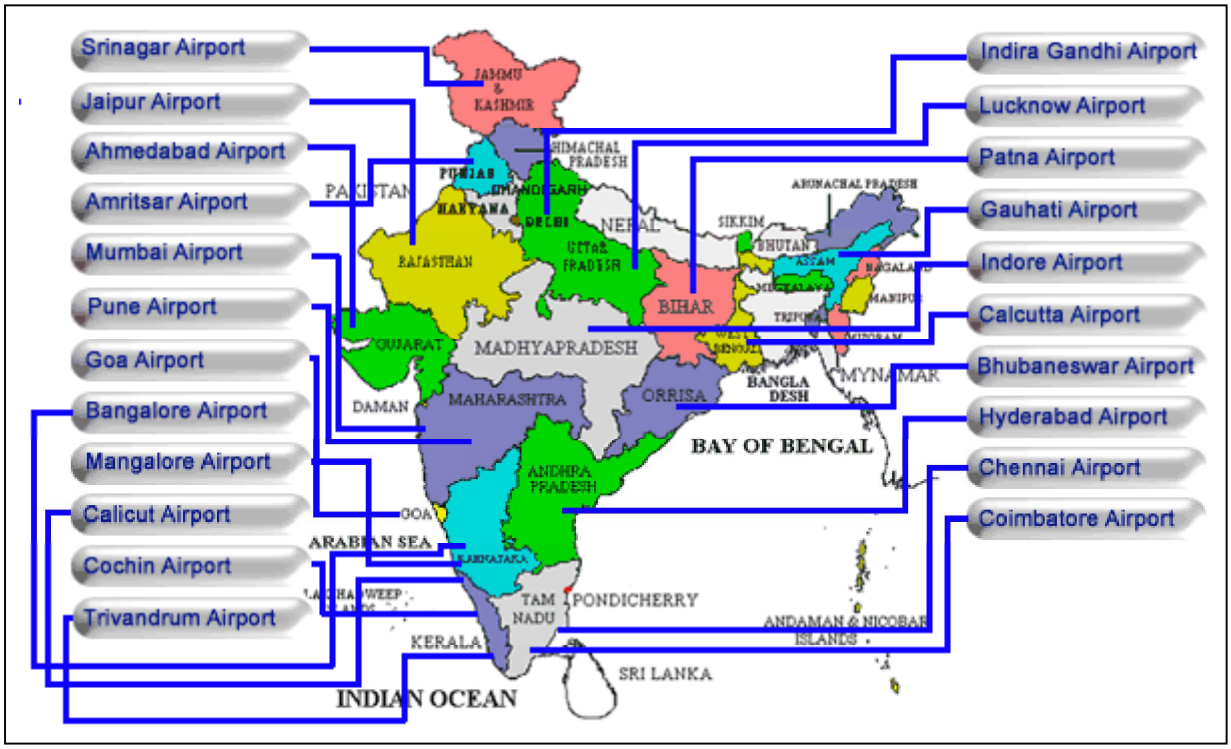


Figure 2.3: Indian airports
Source: http:///www.indianairports.com/

The total air cargo throughput for international and domestics freight in India is shown in Table 2.8. The total freight for 2002-03 depicts a remarkable growth of 15% compared to the previous year, with about 66% of the total cargo being international traffic and the reminder 34% of domestic traffic. Substantial increase in the traffic can be witnessed ever since the Cargo Open Skies Policy was formulated in 1990. The air cargo service was also the first to be liberalized. The increased participation of private operators, air express and other cargo movers, and the need for efficient and timely delivery of door-to-door cargo have further fuelled the aviation sector in India. The traffic at the major international airports in India is presented in Table 2.9 and Figure 2.4. The six major airports accounts for 88% of the total air cargo traffic in India. Delhi and Bombay are the two main airports in India and each is well connected with the rest of the country in a regional hub.

Year	International cargo (tonnes)	Domestic cargo (tonnes)	Total cargo (tonnes)
2001-02	560,226	294,051	854,277
2002-03	648,787	333,677	982,464

Table 2.8: Air cargo traffic in Indian airports (2001-02 and 2002-03)
Source: http:///www.airportsindia.org.in/aai

Major Airports	International cargo (tonnes)	Domestic cargo (tonnes)	Total cargo (tonnes)
Bombay	83,537	224,068	307,605
Delhi	78,610	197,432	276,042
Madras	29,824	106,836	136,660
Bangalore	41,496	44,182	85,678
Calcutta	31,234	27,026	58,260
Trivandrum	1,353	24,009	25,362
Total traffic	**264,701**	**599,544**	**864,245**

Table 2.9: Air cargo traffic (international and domestic) at Indian major international airports (2002-03)
Source: http:///www.airportsindia.org.in/aai

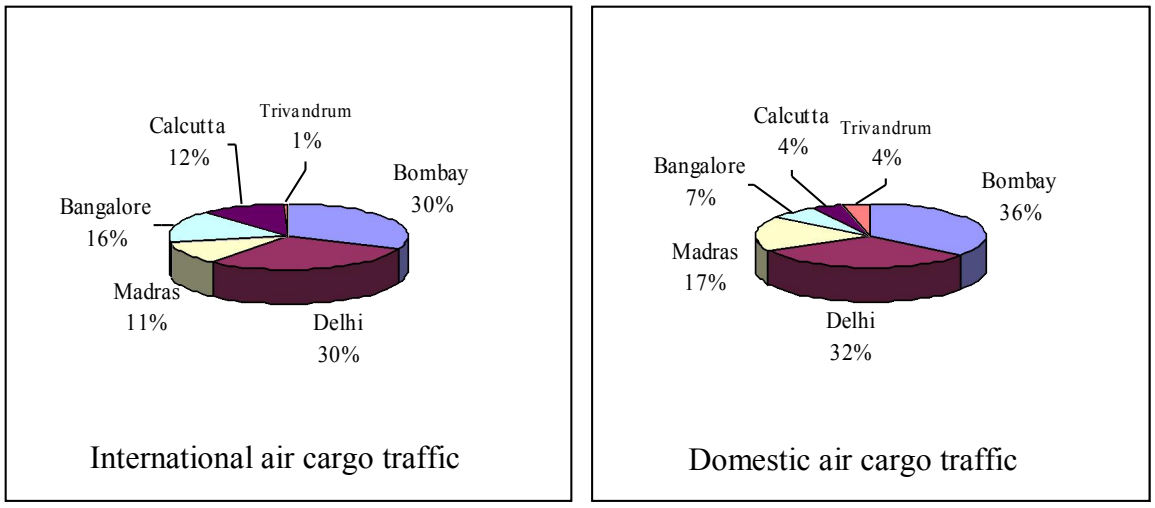


Figure 2.4: Air cargo traffic (international and domestic) at Indian major international airports (2002-03)

With the increasing movement of goods through air, there is a continued need for the upgrading and modernization of air traffic services in India. Currently, the quality of Indian airport is rated 40th among 59 countries[3]. Industry players note that only few airports have adequate facilities to handle goods requiring cold storage. Existing domestic airports requires critical infrastructure improvements, namely in the areas such as air traffic control, communication, navigation, ground handling and air terminal. It is also estimated that the present infrastructure can support the rise of only 10% growth in cargo, indicating a possible saturation of Indian airports.

In order to improve current situation, airports need to be upgraded to the level of world-class international airports, with state-of-the-art air traffic control systems to increase the runway capacity, and to minimize interruptions to air traffic during bad weather. As an effort, the

Indian government has announced its decision to upgrade the international airports at Delhi, Bombay, Madras and Calcutta. The government is also in the process of corporatizing the major airports and inviting the involvement of the private sector in their management. There are ongoing initiatives in privatization of two major carries in India - the Indian Airlines and Air India. There are also plans to upgrade and modernize other airports, particularly to upgrade its navigation and communication aids.

Chapter 3 Industry Segments

3.1 Overview of Industry Segments in India

India is emerging out to be a strong economy since reforms through liberalization programmes began in 1991. A series of "Second Generation Reforms" aimed at deregulating the country and stimulating foreign investment has moved India firmly into the front ranks of the rapidly growing Asia Pacific region. Today, the country is the 11th largest economy in terms of industrial output, with the GDP growth rate of 6.0% in 2003 and an estimated growth rate of 7.2% for 2004. The stable growth, together with the large diversified economy, the increasing world trade and the growing consumer market, India is set to be one of the largest and fastest growing markets in the world. (India's foreign trade statistics can be subscribed from the Centre for Monitoring Indian Economy at http://www.cmie.com/index.htm)

Most of the industry segments in India are highly fragmented with many organized and unorganized units. In this chapter, we discuss on some of the growing industries in India in which logistics plays significant role. Among the aspects discussed includes the size of the industry, growth, market share, location, major players (local and MNC), challenges and future outlook of these industries. The five selected industry sectors are automotive, retail, pharmaceutical, FMCG and electronics and IT hardware.

3.2 Automotive Industry

3.2.1 Industry Profile and Growth

Generally the automotive industry has two different sectors; the automobile industry, and the allied engineering industry (comprises largely of the auto components). These two sectors are termed together as automotive industry. Following liberalisation and opening up of the

domestic automobile industry in the early 1990s, the Indian automotive industry has witnessed tremendous growth for the past ten years. The Indian automobile industry is characterized by a very high percentage of production; India is the second largest two wheeler manufacturer and tractor manufacturer in the world and fifth largest manufacturer of commercial vehicles in the world. In the financial year 2001-02, the automobile industry recorded a growth of 13% over 2000-01. This substantial growth has also triggered growth of the auto component segment, which recorded a growth of 9% in 2001-02 against the previous year.

Formed in 1998 with a goal to promote sustainable development of the automobile industry, Society of Indian Automobile Manufacturers (SIAM) acts as an important channel of communication for the industry with Government and National and International organizations. While automobile manufacturing plants are located in all regions of the country, there have been certain concentrations in certain regions like Madras in Tamil Nadu, Pune in Maharashtra, outskirts of Delhi like Surajpur, Noida, Gurgaon and Faridabad, Jamshedpur in Bihar, Pithampur in Madhya Pradesh and Bangalore in Karnataka.

3.2.2 Market Size and Segmentation

The segmentation in the automobile sector comprises of all vehicles, namely;

a) Four wheelers - Medium and Heavy Commercial Vehicle (M&HCVs), Light Commercial Vehicles (LCVs), passenger cars and Multi-Utility Vehicles (MUVs)
b) Two wheelers – Scooters, Motorcycles, Mopeds and
c) Three Wheelers

The market size and development for each of the segmentation is presented in Table 3.1. The total automobile production has grown by a significant 34% from 1997-98 to 2001-02, with the increased production of motorcycles being the major fuel for the growth (Figure 3.1). This trend is expected to continue in the coming years as India becomes more mobile with improving infrastructure and more subsidiary of foreign manufacturers.

(in number of units)

Category	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
M&HCVs*	95854	80528	112,308	88,210	90,849
LCVs*	65040	55363	61,213	63,869	55,348
Passenger cars	401002	390709	577,243	504,654	564,126
MUVs*	134653	113328	124,307	125,938	123,748
Total Four Wheelers	**696,549**	**639,928**	**875,071**	**782,671**	**834,071**
Scooters	1279467	1315055	1,259,423	879,707	870,213
Motorcycles	1125958	1387286	1,794,078	2,183,785	2,961,906
Mopeds	667242	672167	724,510	694,974	491,525
Total Two Wheelers	**3,072,667**	**3,374,508**	**3,778,011**	**3,758,466**	**4,323,644**
Three Wheelers	**234867**	**209033**	**205,543**	**203,234**	**212,753**
GRAND TOTAL	**4,004,083**	**4,223,469**	**4,858,625**	**4,744,371**	**5,370,468**

Table 3.1: Market size and segmentation in Indian automobile industry (1997-98 to 2001-02)
Source: Indian Automotive Industry-2003

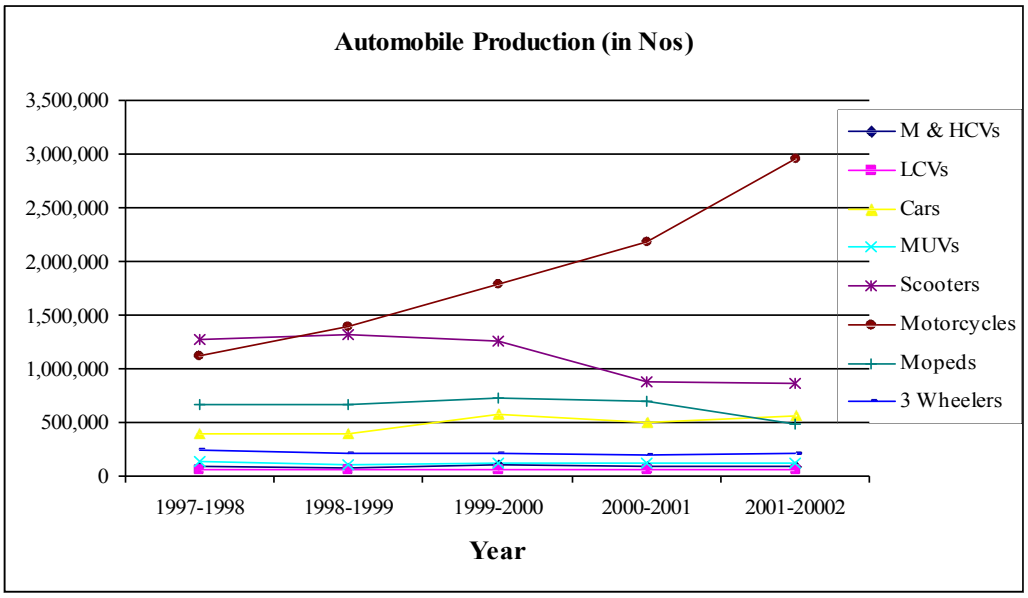


Figure 3.1: Growth of Indian automobile production (1997-98 to 2001-02)

3.2.3 Major Players

Besides the local manufacturers, a new 100% subsidiary of foreign manufacturers and several new joint ventures agreements with Indian companies have also been set up. Table 3.2 summarizes the major local and foreign vehicle manufacturers in India.

	Four wheelers		Two/Three wheelers	Tractors
	Passenger vehicles	**Commercial vehicles**		
Major local manufacturers	Maruthi, Tata/Telco, Mahindra & Mahindra, Hindustan Motor	Telco, Ashok Leyland, Bajaj Tempo, Eicher Motors, Swaraj Mazda	Bajaj Auto, Hero Honda, LML,TVS	Eicher Tractors, Escorts Farm Tractors, Mahindra & Mahindra, Punjab Tractors, Sonalika Tractors
Major foreign manufacturers/ collaborators	Hyundai, Ford, General Motors, Honda, Toyota	Volvo		

Table 3.2: Major players in Indian automotive industry (manufacturers from local and MNCs)

Maruthi is the dominant market leader in the passenger vehicles, controlling around 55% of the market share. However, new models from Telco (Indica), Hyundai (Santro) and Fiat (Palio) are imposing challenge on Maruti's long standing dominance in this segment. Accounting for around 44% of the market share, Mahindra & Mahindra is the market leader for the MUV segment. Currently, only one international company i.e. Volvo manufacturing commercial vehicles in India. The volumes are however not significant as compared to the other local players. As for the two/three wheelers, the main manufacturers of Bajaj Auto, Escorts Yamaha, Hero Honda, LML and TVS account for 86% of the total market.

3.2.4 Challenges and Future Outlook

Although many domestic manufacturers have already successfully entered into collaborations with foreign players, the automotive industry needs to continue to increase quality standards and to develop new products to compete globally.

With the increasing local demand due to higher standard of living of middle class Indian families and the Indian government's liberalization measures such as relaxation of the foreign exchange and equity regulations coupled with the entry of foreign players, India has emerging potential to become a global automotive giant in the long run.

3.3 Pharmaceutical Industry

3.3.1 Industry Profile and Growth

The highly organized pharmaceutical industry in India is in the front rank of the country's science-based industries, providing employment to approximately 2.9 million people. The market in India has seen a consistent growth CAGR of 5.81% in 2003. The industry has recorded a significant growth of 25% in value over the last four years (Figure 3.2).

Figure 3.2: Growth of Indian pharmaceutical industry (2000 to 2003)
Source: The Emerging Face of India Pharma Inc., KPMG consulting Pvt Ltd, 2003

The capital investment for the industry has increased by 80% from year 2000 to Rs. 45 billion (US 1 billion) in 2003, with Rs. 6.6 billion (US 145.6 million) (about 2% of sales) being invested on R&D expenditures. The country exported to over 65 countries for an export value of Rs. 141 billion (US 3 billion), and the imports stood at Rs. 40 billion (US 0.88 million). Meeting almost 95% of the country's pharmaceutical needs, the industry today gained global recognition as a producer of low cost pharmaceutical products.

3.3.2 Market Size and Segmentation

The size of the Indian pharmaceutical market in 2002 was approximately US 4.5 billion, a growth of 8 to 9%. In the global ranking, the industry ranks 4th or constitutes about 1.3%

share in the world pharma market in terms of volume, and it ranks 13th or accounts for about 8% of the world market in terms of value.

The Indian pharmaceutical industry comprises two basic segments; bulk drugs and formulations. Over 400 bulk drugs and 60,000 formulations are manufactured in India and distributed by 5 million chemists all over the country. About 60% of the bulk drugs production is exported and the balance is sold locally to other formulators. As for the formulations, more than 85% of the production is sold in domestic market.

3.3.3 Major Players

The pharmaceutical industry in India is highly fragmented with over 20,000 registered pharmaceutical manufacturers in the country. Historically, the industry was controlled by multinationals. However, their market share has declined steadily form 75% in 1971 to about 40% in recent years. The remaining 60% of the market share is controlled by the Indian companies. Among the key local players are Ranbaxy, Nicholas Piramal India, Dr. Reddy's Lab, Cipla, Lupin, Sun Pharmaceuticals and Wokhardt. Among the multinational companies operating in India include Glaxo, Pfizer, Novartis, Hoechst and Knoll Pharmaceuticals.

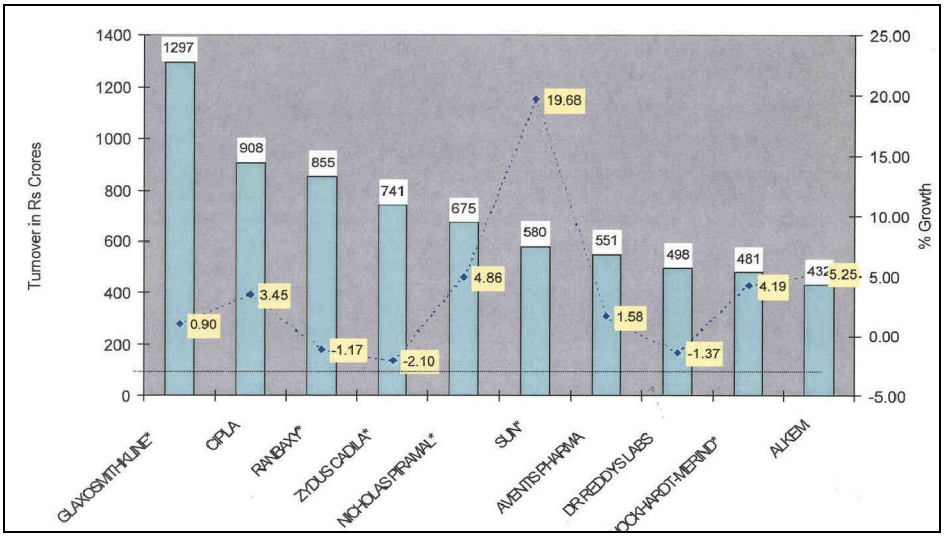


Figure 3.3: Major players in Indian pharmaceutical industry
Source: The Emerging Face of India Pharma Inc., KPMG consulting Pvt Ltd, 2003

The turnover and growth of the top 10 manufacturers are presented in Figure 3.3. These top 10 corporations contribute to 37% of the total market share, with eight of them being the local manufacturers (Glaxo and Aventis are multinational companies). Glaxo is the dominant player in India with its turnover recorded about Rs.1297 crores (US 286 million) (Figure 3.3).

3.3.4 Challenges and Future Outlook

The major challenges faced by the pharmaceutical industry in India involve their improvements in R&D efforts and improvement in distribution to penetrate markets. The industry also needs to stay vigilant and take advantage of the recent advances in biotechnology and information technology.

The future of the industry will be determined by its capability to market products and distribution risks, its R&D, its consolidation through mergers and acquisition, co-marketing and licensing agreements. Some of the Indian pharmaceutical companies have also entered into alliances to increase their geographical coverage, market reach and distribution network, given the fact that setting up a marketing and distribution network from scratch is an expensive proposition. With continued growth, the future market size for Indian pharmaceutical industry is projected to reach US 25 billion by 2010 (McKinsey Projection).

3.4 Retail Industry

3.4.1 Industry Profile and Growth

Accounting for about 8% employment of the national workforce, retailing is one of the largest industry in India. The increasing disposable incomes, discerning customers and the falling real estate prices are driving the growth of Indian retail industry. In addition to the growth of population and consumer spending, changes in spending habits of consumers also contribute to the industry's growth. Figure 3.4 shows that about half of the consumer

spending is on food and beverage (F&B), indicating that the industry is poised to surge ahead.

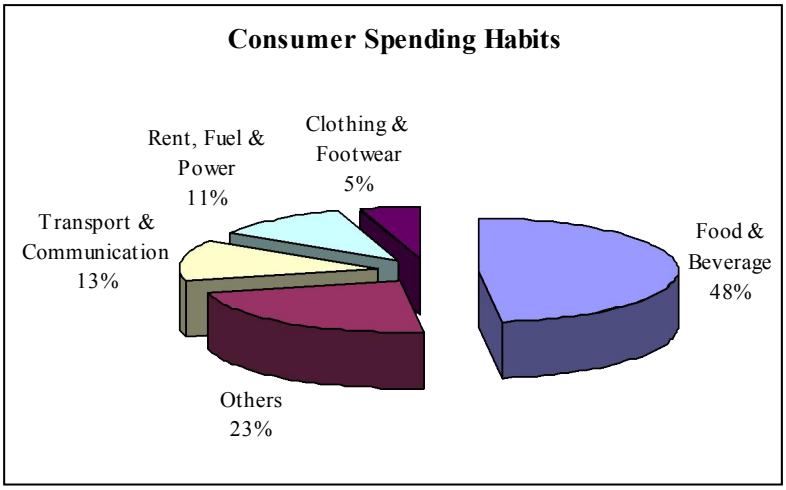


Figure 3.4: Customer spending habits in India
Source: India Retail Review, Knight Frank, 2003

Generally, the consumer spending has grown at an average rate of 11.5% per annum over the past decade. With the continued growth, India now ranks 5th amongst 30 emerging retail markets in developing countries. Over 4,000 new modern retail outlets were set up in the past recent years, and over 5 million sq ft of mall space is now under development. It is also estimated that about 400,000 shoppers visit retail shops every week and this number is expected to rise further. Bombay, Delhi, Banglore and Pune are amongst the top cities in India for the retail growth. Some of the smaller cities, in which the retail sector is now broadening include Nagpur, Indore, Jaipur, Chandigarh, Lucknow and Cochin.

3.4.2 Market Size and Segmentation

Retail industry in India accounts for about 13% of the country's GDP. The industry has a market share of around US 200 billion with apparel and F&B being the key drivers of the retail industry. The F&B segment has been driven primarily by coffee house chain with the participation of forerunners in the country. The grocery segment is another huge sector witnessing significant activity in Southern India. A notable trend in the market is the development of integrated retail-cum-entertainment centers. An increasing number of retailers are focusing on malls as opposed to stand-alone developments.

In 2002, the total retail market in India stood at US 180 billion, in which a majority 98% of them are dominated by the unorganized sector. The organized sector holds just 2% of the current retail market in India. Therefore, there is no real retail revolution in the country, and the industry is still in infancy stage. However, with the rapid growth of the organized retail sector (8.5% per annum), the sector is expected to grow from mere 2% to 20% of the total retail industry by the end of the decade.

3.4.3 Major Players

The Indian Retail industry is dominated by the local players. Foreign Direct Investment (FDI) has been actively discouraged by the Indian Government. However their entry into India's market is still possible through franchise agreements (e.g. Gold's Gym, McDonald's, Domino's), cash and carry wholesale trading (e.g. Scottish & Newcastle, Shoprite) and strategic license agreements (which involves the foreign involves the foreign company entering into a joint venture agreement with a domestic retailer, e.g. Mango with Pyramid, the departmental store in Mumbai). Among the major players in the retail industry is listed in Table 3.3.

Industry segments	**Food and Grocery**	**Fashion**	**Others**
Major players	Foodworld, Subhiksha, Nilgris, Apna Bazaar, Barista, Adani-Rajiv's Nirma-Radhey	Shoppers' Stop, Westside, Wills Lifestyle, Piramyd, Globus, Ebony, Pantaloon	Vivek's, Planet M, Music World, Crossword, Lifespring, Gautier

Table 3.3: Major players in Indian retail industry

3.4.4 Challenges and Future Outlook

The enormous unorganized nature of retailing in India has hindered its growth. One of the challenges faced by the industry today is the unavailability of good infrastructure. The lack of secondary infrastructure affects the logistics and supply chain management for retail companies. The high expenditure and availability of space for retail shops is another

challenge. For big retailers, the availability of trained personnel and retaining of the human resource is a massive problem. Absence of retailer friendly laws including tax issues especially relating to the movement of goods from one state to another and lack of technical know-how inputs also hold back the growth of the retail industry in India.

Despite these challenges, it is projected that by the year 2005, about 25 million sq ft of organized retail space will be set up across the country. F&B, groceries, consumer durables and home products are identified as the promising sector within the industry. Driven primarily by large domestic brands like Westside, Wills Lifestyle, Shoppers' Stop, Pantaloons, Ebony and Globus, the organized apparel segment is expected to grow at 9.5% per annum in the next three years. In the F&B segment, Barista and Café Coffee Day (forerunners in the segment) who have a total of 223 establishments across the country is expected to grow their business to 464 in this year and to include relatively smaller players like Amorettos and Qwiky's. Shopping malls, specialty stores (in new categories such as office products, specialty food, optical and travel), departmental stores and supermarket are the top four formats of retailing industry to emerge in the next few years (KSA Technopak). In spite of the current restriction on FDI in retail industry, more international players are also expected to enter and operate in Indian market in near future.

3.5 Fast Moving Consumer Goods (FMCG) Industry

3.5.1 Industry Profile and Growth

FMCG industry refers to consumer non-durable goods required for daily or frequent use. This industry touches every aspect of the human life, from looks to hygiene to palate, and typically, a consumer buys these goods at least once a month. Individual values of these products are small although if put together all the FMCG product accounts for a significant amount of the consumer’s budget. Consumer usually keep limited inventory of these products with little time spent on the purchase decision and brand switching is quiet often within the same product type.

Although FMCG industry has a long history, the Indian FMCG business began to crystallize only during the last fifty-odd years. Today, the industry is one of the largest industry in the country. However, in the last few years, the growth of the sector had slowed down (Figure 3.5) due to the general slowdown in the economy, lower disposable incomes and poor monsoon situation in the country. Nonetheless with the uptrend in economic growth indicators, along with the considerable improvements in consumer spending, especially in rural areas, positive growth is expected in this year in all segments of the industry.

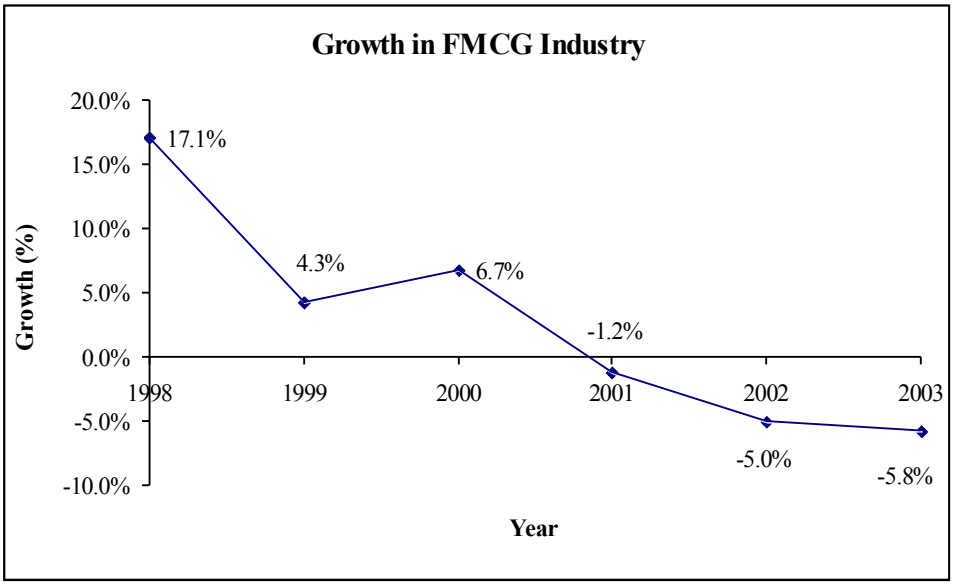


Figure 3.5: Growth in Indian FMCG industry (1998-2003)
Source: http://www.hll.com/HLL/findinformation/Presentations/ICICI-IndiaUnlimited2004-forweb.pdf

3.5.2 Market Size and Segmentation

The market size for the Indian FMCG industry in 2003 worth US 11.6 billion and it is projected that it will grow by 2.9 times higher to reach US 33.4 billion by the year 2015. The main segmentation in the FMCG products comprises a wide range of products including detergents, toilet soaps, toothpaste, shampoos, creams, powders, food products, confectionaries, beverages and cigarettes. For example, the size of the shampoo market in India is about US 0.2 billion, with major consumption (50%) being in the northern region. About 80% of shampoos are sold in the urban areas, and the remaining 20% are sold in the rural areas.

3.5.3 Major Players

Among the MNC players dominating the FMCG market in India are Hindustan Lever, Colgate Palmolive, Procter & Gamble and Nestle India. Marico Industries, Dabur, Vicco Laboratories, RDM Traders and Godrej Consumer Products are amongst the local players. These Indian companies are also going global by either directly exporting and by establishing subsidiaries in countries which have similar lifestyle and consumption habit and large number of Indian populations like Bangladesh, Middle East, Nepal and Pakistan.

3.5.4 Challenges and Future Outlook

One concern of the industry players is the logistics cost which is a significant component of end cost of the product. It has become a challenge to build efficient and lean supply chain to better service the customer demand. The lack of standardization, with each manufacturing having different carton and pallet sizes, results in failure of load optimization and transportation. As for new entrant, FMCG appears as a structurally unattractive industry to enter due to the several hindrances in converting the latent potential of Indian market. Besides the logistics issue, the limited mass media options available for brand building, and the intense competition from branded and unbranded goods make the industry difficult to venture and to remain as a competitive player.

Generally the future outlook of the industry will depend very much on the country's economic performance and government policies on tax issues. However, with good monsoon and improved macro outlook, together with the reduction of excise duty on a large number of semi-durable consumer goods is likely to enhance the spend on FMCG products. Of all the segments, soaps, toothpaste and other personal products, and beverages are believed to be the high-growth segments in the FMCG industry.

3.6 Electronics and IT Hardware Industry

3.6.1 Industry Profile and Growth

Along with other industries, the electronic and IT industry in India also witnessed a boom in the late 80s and 90s due to the liberalization and globalization experienced by the Indian economy. Although initially in the 1980s, the industry's growth was relentless and growing at the excess rate of 30%, by 2001-02, the industry growth declined to about 7% due to the economy crisis, saturation of demand in products and steep competition from cheaper imports resulted from the lower custom duties. In general however, the Indian electronics and IT hardware sector has grown at a CAGR of 11.6% during 1991-2002 reaching a production of Rs. 37,000 crores (US 8.1 billion) in 2002-03. The current trend of India's fast growing software industry is also expected to generate huge demand for its hardware industry. It is projected that by 2008, India would export software worth US 87 billion, which would generate a demand for IT hardware for approximately US 50 billion. For a same amount of investment, the employment generation in the hardware sector is also much higher than other industries. For example, for every Rs. 10 million (US 220.7 million) of sales, the employment generation is 10 people in the hardware industry, where as it accounts for only about 5 to 6 people in the engineering industry.

India's hardware industry is concentrated in three main regions of northern, western and southern India. The northern region (around New Delhi) accounts for 37% of the output, the western region (around Mumbai and Pune) accounts for 25%, and the southern region (mainly around Bangalore) account for 32% of the output.

3.6.2 Market Size and Segmentation

The market size for the Indian electronics and IT industry in 2002-03 was US 20.63 billion, and the electronics and IT hardware sector accounted for US 7.93 billion (about 38% of the market size). The reaming 62% were contributed by the software industry in India. Essentially, the electronics and IT hardware industry covers several segments; consumer electronics, electronics components, IT hardware, control instrument and industrial, communication and broadcasting, and strategic electronic segment.

The profile and growth rates vary between the segments of industries. With the consistent growth of 10% in the past five years, the consumer electronics segment has the lion share controlling about 30% of the total electronics market in India. This segment also observed 13% growth in production, from US 2.70 billion in 2001-03 to US 3.06 billion in 2002-03. The growth of the consumer electronic segment also influences the growth of component electrical components in India. In 2002-03, production of electrical component amounted to US 1.32 billion, up by 9% from the previous fiscal year. For the IT hardware segment, India has a low PC penetration of 6 per 1,000 people. The PC shipment grew persistently with an average growth of 35% every year from 1998-99 to 2000-01 before it declined to 1.6 million units in 2002-03 (Figure 3.6).

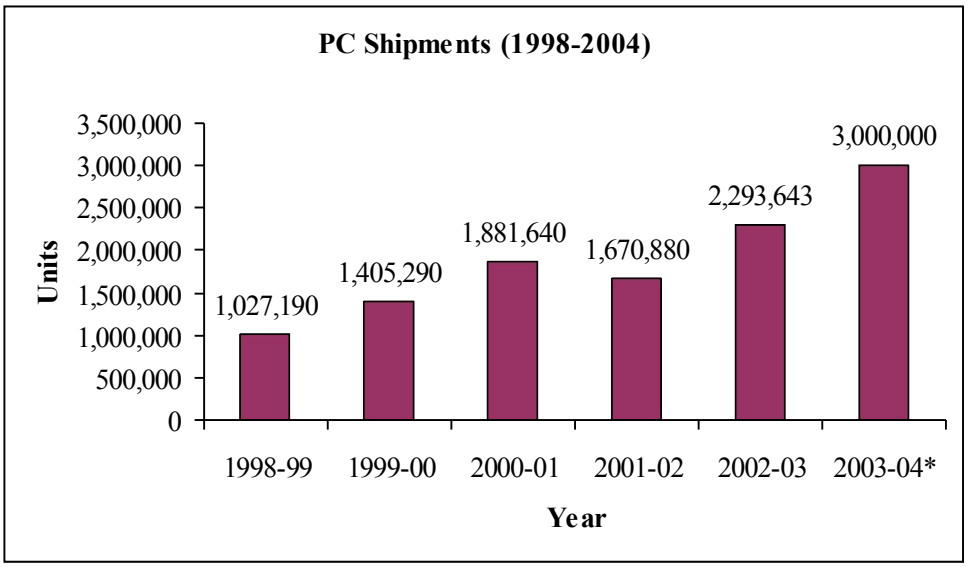


Figure 3.6: PC shipments in India (1998 to 2004)
Source: MAIT - IT Industry Performance: Mid Year Review 2003-04

The moderate recovery in the technology sector improved the sales in the following year and it is estimated that the PC sales would touch three million units in coming 2003-04. The control instrument and industrial segment is generally not performing well at time being but it is expected to pick up in the next few years. The advent of Internet Telephony and passage of the Convergence Bill 2001 has given a boost to communication and broadcasting segment, particularly in sectors such as IP Telephony, Digital Broadcasting, Cable Modems and Internet and recently the Broadband. Finally, the strategic electronics segment, which comprises the area of satellite based communication, navigation and surveillance, radar, navigational aids, sonar, underwater electronic systems, infra-red based detection and disaster management system has yield US 380 million in 2002-03.

3.6.3. Major Players

Table 3.4 summarizes the major players in each of the segments within the electronic and IT industry in India. The major players are described on some of the examples of the segment products.

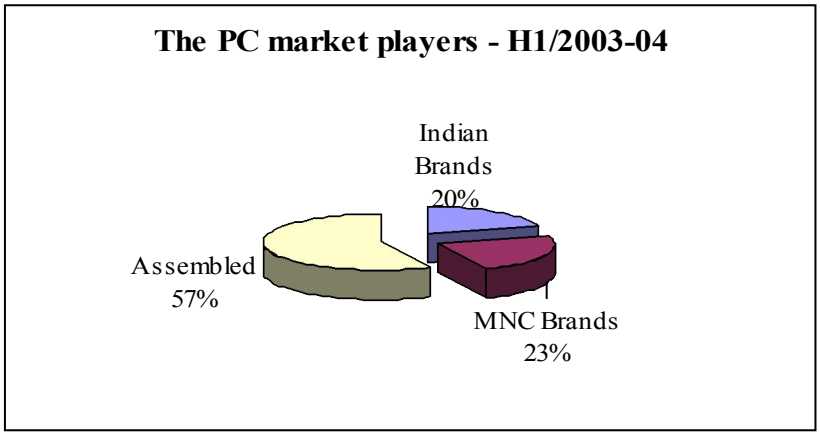
Segments	Major Players
Consumer Electronics	Market is dominated by MNCs. e.g. TV - LG, Samsung, Philips, Sony, Panasonic, etc.
Electronics Components	The demand for surface mount components, display devices, micro-electronic, opto-electronic devices etc continues to be met by imports due to non-existent manufacturing base in the country. There is little expansion in the manufacturing capacity of electronic components due to the increased import of sub-assemblies for telecom and IT sector.
IT Hardware	 *Source: MAIT - IT Industry Performance: Mid Year Review 2003-04* The PC market is dominated by assembled (unorganized) market who dominates with 60% market share. The rest of the market is shared between Indian manufacturers and MNCs. The share of the assembled sector however has been falling steadily with the fall in price of branded PCs.
Communication and Broadcasting	Indian Telephone Ind. Ltd., Corel Telecom
Strategic Electronics	Demands are met by either imports or from defence public sector units like Bharat Electronics Ltd.

Table 3.4: Major players in Indian electronic and IT hardware industry

3.6.4 Challenges and Future Outlook

Issues like lack of local availability of input raw material, ever changing government policies, inconsistent sales tax structures in different states, high interest rates, customs duties on capital goods, poor infrastructure, inordinately long and variable transit times all add to uncertainty, delays and increased costs in Indian hardware industry. As a result, India has failed to attract significant investments from MNCs in hardware manufacturing.

Realizing the India's potential to become a global player in the industry, the government has rationalized the issues on taxes and duties imposed. From the year 2004-05 onwards, about 50% income tax exemption will be extended to profits earned from electronics and IT hardware manufacturing activity. Moreover, income from export will also be exempted from income tax for ten years from the start date of commercial production. The government also encourages R&D and design by providing incentives for investments made in this area. Besides these concerns, other issues relating to creating conducive environment for manufacturing in India, including infrastructure, logistics and procedural hassles in imports and exports should also be taken care of to further improve the performance of the Indian electronics and IT hardware industry.

3.7. Foreign Direct Investment (FDI) in India

In order to boost the growth of different industry segments in India, the country welcomes Foreign Direct Investment (FDI) in virtually all the sectors, except in defense, railway transport and atomic energy (FDI is not permitted in these industrial sectors). FDI in India is permitted through financial collaborations, joint ventures and technical collaborations, and through private placements or preferential allotments. FDI provides opportunities to the different industries in India for technological upgradation, gaining access to global managerial skills and practices, optimizing utilization of human and natural resources and competing internationally with higher efficiency. In addition, FDI is central for India's integration into global production chains, which involve production by multinational corporations spread across locations all over the world.

The FDI policy in India has been liberalized further with FDI up to 100% is permitted under the automatic route (entry under automatic route only requires post-entry notification and no prior approval) in the most sectors. The sectors in which 100% FDI is permitted under the automatic route are shown in Table 3.5. The 100% FDI is however not allowed in retail industry in India, and the entry of foreign retailers is possible through three channels; Franchise agreements (the most widely used entry route by international retailers), Cash and carry wholesale trading and Strategic license agreements. Figure 3.7 shows the FDI inflows into India from 1997 to 2004. The FDI inflows have increased steadily since 1999 and peaked at US$ 4.74 billion in 2001-02. Despite the Indian government's effort in encouraging more foreign investments into the country, Figure 3.7 indicates that the FDI inflows have declined significantly to US$ 3.73 billion in 2002-03 and further to US$ 3.57 billion in 2003-2004.

Manufacturing sector	Infrastructure sector	Service sector
• Cars and motor vehicles • Refrigerator and fire fighting equipments • Food processing • Electronic Hardware • Iron and steel • Private Oil Refineries • Agriculture tools and implements • Fertilizers and pesticides • Pollution control equipments • Tyres and tubes • Packaging products • Construction Machinery • Domestic air conditioners • Electric motors, industrial electric furnaces • Mining and Querying Machinery • Steam engines and turbines • Non-metallic mineral products • Rice, oil mill machinery • Chemical machinery • Drugs and pharmaceuticals except those requiring industrial licensing • Medical equipments • Office computing and accounting machinery	• Electricity Generation (except Atomic energy) • Electricity Transmission • Electricity Distribution • Mass Rapid Transport System • Roads and Highways • Toll Roads • Vehicular Bridges • Ports and Harbors • Hotel and tourism	• Advertising and films • Computer related services • Research and development services • Construction and related engineering services • Pollution control and management services • Urban Planning and landscape services • Architectural services • Health related and social services • Travel related services • Maritime transport services • Internal waterways transport services • Road transport services

Table 3.5: Industries by sectors in which 100% FDI is permitted in India under the automatic route

Source: Adopted from http://dipp.nic.in/inv_opp_nw/inv_opp_sector.pdf

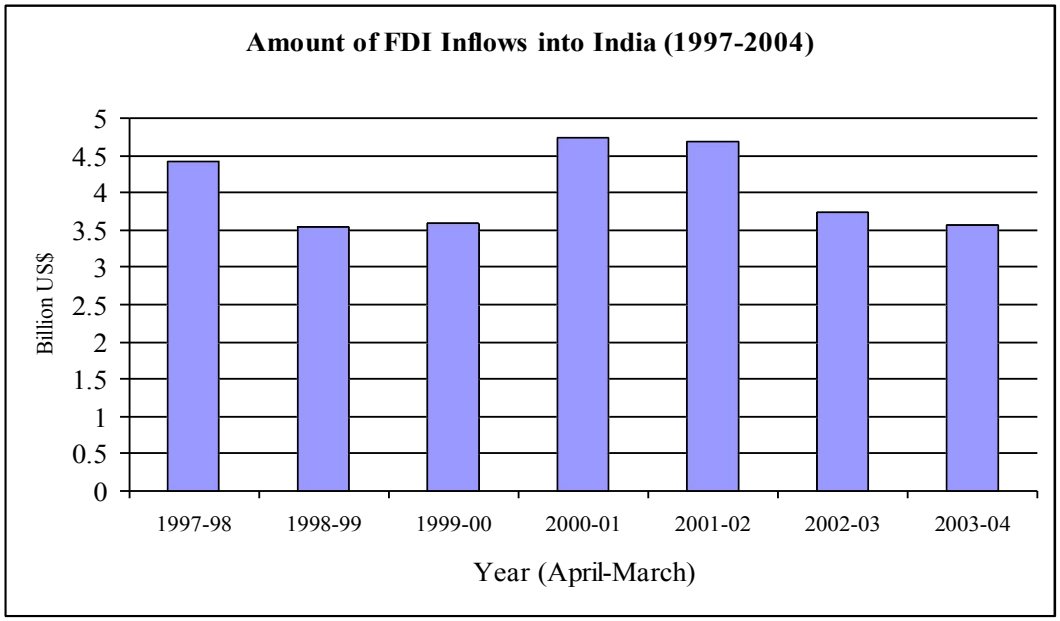


Figure 3.7: FDI inflows into India by year (1997-98 to 2003-04)
Source: Adopted from http://indiabudget.nic.in

When comparing the FDI performance between China and India, China does better than India. China's higher total and per capita GDP, higher literacy and education rate, larger natural resource endowments and more competitive infrastructure conditions makes it more attractive for market seeking FDI. In addition, other determinants related to FDI attitudes, policies and procedures and market opportunities also explain why China attracts more FDI. China has more business-oriented and more FDI-friendly policies than India. Moreover, China's FDI procedures are easier and allow rapid decision makings, with more flexible labor laws, better labor climate and better entry and exit procedures for business. Although India has advantage in technical manpower, particularly in IT and better English language skills, FDI has much less important in driving export growth (except in IT) in India. As a result, the FDI inflows into China grew from US$3.5 billion in 1990 to US$52.7 billion in 2002, where as in India the FDI inflow recorded a growth from US$0.4 billion to US$3.45 billion during the same period, which indicates that China attracted 15 times more FDI inflows in to the country as compared to India in 2002[29].

3.8. Free Trade Agreement(FTA) in India

One way to attract more FDI inflows into a country is through proliferation of Free Trade Agreements (FTA). The Indo-Sri Lanka FTA signed between India and Sri Lanka in 1998

has stimulated the FDI inflows into India by increasing the number of projects to 37, with a total investment of US$145 million. The FTA has increased the export and import transactions between these two countries and further influenced MNCs to invest in those regions. India and Thailand has recently finalised modalities for implementing the first phase of the FTA between the two countries from September this year under which they will start tariff reduction on 82 agreed items in three years. Under the first phase of the FTA agreement called the "Early Harvest Scheme", in the first year, tariffs would be reduced by 50% of the existing rates on the 82 items, second year by 75 % and from September 2006, both countries would have duty free regime on all these items. India is also trying to finalise the FTA talks with Singapore, and this effort is expected to speed up the development of economies through bilateral arrangements. India also has other trade agreements with countries like Nepal, Afghanistan, Bangladesh, Bhutan, Maldives and ASEAN.

Chapter 4 Logistics Market in India

4.1 General Characteristics of India Logistics Market

Generally, India's logistics market is huge but unexploited. With the increasing globalisation, logistics players in India have to face the challenges since worldwide sourcing and deliveries requires global logistics support. Figure 4.1 portrays the overview of Asia-Pacific logistics market and the position of India as compared to other countries within the region.

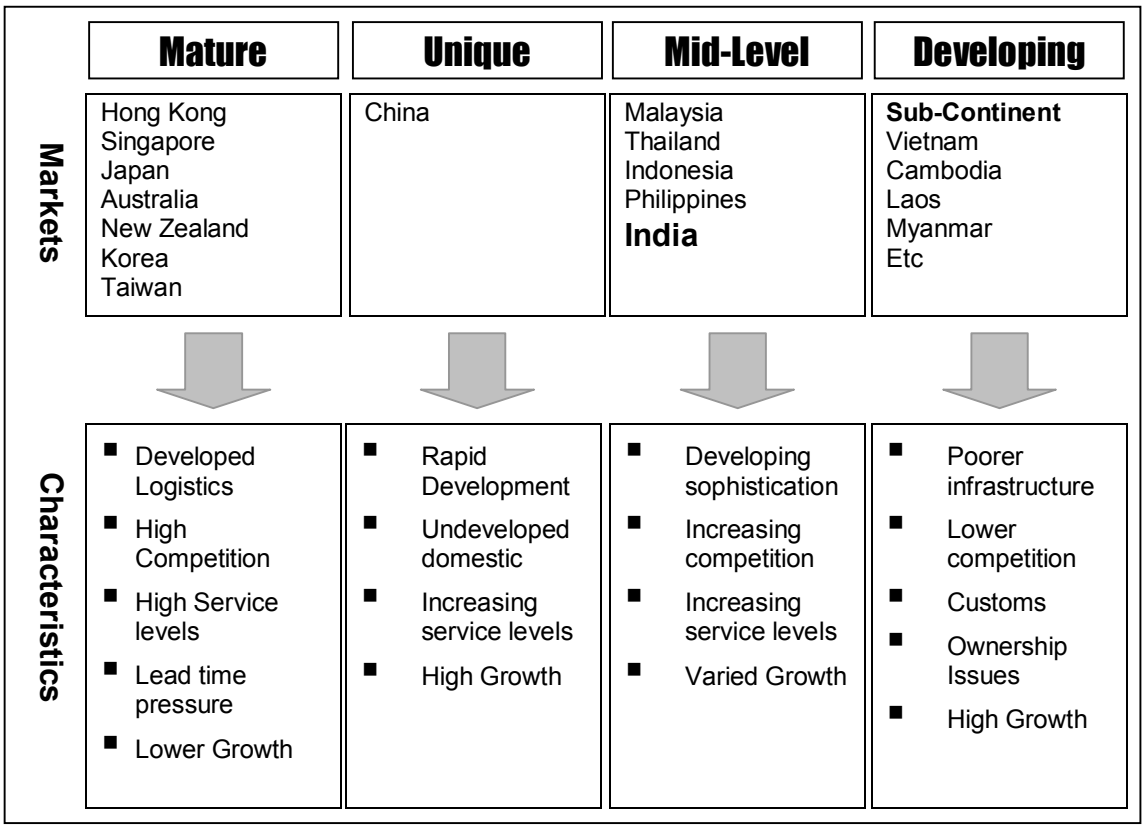


Figure 4.1: Asia-Pacific logistics overview
Source: The rise of India in World Trade, DHL

Unlike China, the development in the logistics market is relatively slow and still in the infancy stage in India. However with the entry of several foreign logistics companies into the country, domestic logistics players are realising the advantage of supply chain

management and trying to adopt them into their business to remain competitive. As a result, recent years has been witnessing increasing service levels in the industry. Growth is varied within different industry segments. Some industry segments are highly fragmented with many organized and unorganized units. In fact, about 85% of the logistics services are in unorganized sectors.

Apart from providing the prime logistics service functions such as transportation, warehousing and distribution, and freight forwarding, the logistics players in India have also started to handle other activities like inventory management, order processing, collection of bills, sales and excise duty documentation, among others. However most players offer only one or two services out of the gamut of service products comprising transportation, warehousing, freight forwarding, express cargo delivery, courier services, container services, shipping services and others. According to a survey [28] on the practices in logistics industry in India, it was revealed that warehousing, inbound and outbound transportation, custom clearing and forwarding are the most frequently outsourced activities in India, activities such as packaging, fleet management and consolidation are gaining attention and growing in popularity in the country and more and more companies are planning to use 3PL services in the future as an integrated set of services rather than for just movement of material. The state of the prime logistics functions in India is discussed in brief below:

Transportation:

Transportation is an essential and a major sub-function of logistics that creates time and place utility in the supply chain management. Transportation is also the largest component in the logistics cost. In India, about 40% of the logistics cost is due to transportation alone. The major infrastructure required for moving goods in India involve the active roles of roads, railways, ports and shipping, and airports all of which are either managed or regulated by the government. The current state of the transportation sector in India is discussed in detail in Chapter 2.

Multimodal transport is the movement of cargo from the point of origin to the final destination using two or more modes of transport. It facilitates international trade by ensuring the smooth flow of the containerised cargo under single contract and giving better control over the transport chain. In India, CONCOR is the major player in the multimodal logistics business in India. It provides logistics support for the country's international trade

by developing the necessary infrastructure such as rail and road services and containerised cargo movement within the country. Currently CONCOR provides the only means by which shippers may obtain containerised freight transportation by rail in India.

Warehousing:

Warehouse management is one of the critical components of supply chain that ensures the products are properly handled, stored and delivered. In India, warehousing industry is mostly dominated by state warehousing corporations and public sector undertakings such as Central Warehousing Corporation (CWC), Punjab State Warehousing Corporations (Conware) and others. The CWC is the largest warehouse operator in India which operates across the country through 444 warehouses and provides storage capacity of 7.3 million tonnes for a wide range of products. Foodgrain warehouses, custom bonded warehouses, container freight stations, inland clearance depots and aircargo complexes are among the warehousing activities provided by the CWC. Besides the warehousing corporations, most of the major ports of India also provide warehousing facilities through their own warehouses and also through privately-owned warehouses located within or outside the port area.

Material handling system is the fundamental part of warehouse management which accounts for the major portion of the warehousing cost. In India, there is a serious lack in this system in terms of equipment and technology, leading to improper staking and storage. Godrej & Boyce Mfg. Co. Ltd, among the few players in India in the material handling area offers a wide range of the equipment such as battery-powered rider, pedestrian pallet trucks, manual and powered stackers, among others. In terms of sophistication such as the Warehouse Management System (WMS) technology which is used abroad, the concept is still not very prevalent in the Indian market. However with the recent emergence of some software developers in India, such as the Eclipse Systems, there has been continuous effort to provide cutting edge technologies such as barcode scanning and RF technologies to automate the warehouse operations. Such system offers accuracy, flexibility and power that warehouse management demands by giving the customers total control of the warehouse from receiving, cross-docking, putaway, pulling, picking, replenishment, bulk order, cycle count, validation, shipping and customer returns. As such, the concept of WMS is gaining momentum in Indian logistics market.

Distribution:

The large distances, inhospitable terrain, poor highway infrastructure, an over-stretched railway network and a myriad of state and central excise laws are among the challenges faced by logistics players in India in the distribution of goods within the country. As a result, the delivery process at times takes longer period and is expensive and can be unreliable too. However there have been efforts in this area with some logistics players trying to set up complex distribution models using multimodal means of transportation to achieve which achieve right balance between cost and, efficiency and reliability.

Freight forwarding:

The freight forwarders in India are typically described as an agent who arrange the transportation and prepare shipping documents. However, today their role have changed and they are expanding their service port folios by offering more services including port handling, chartering, custom broking, project management, packing and moving, road and rail transportation, through bill of lading and air freight import and export services. Due to their ability to manage international freight movement through air and sea freight, there are increasing chances for freight forwarders to become full-fledged logistics service and solution providers.

Value added services:

Besides the prime logistics functions above, logistics players in India are also providing value added services as a strategy to stay competitive in the logistics industry. Among the value added services provided by many players today includes kitting, packing, repacking into various sizes, labelling, light assembly, consolidation and cross-docking, and among the value added services provided in the overall supply chain processes are order processing, inventory management, payment collection, insurance, tax management, reverse logistics and information management.

With the increasing trend of companies to outsource their logistics requirement such as the above, logistics market and the 3PL industry are also growing in the country.

4.2 Major Drivers of Logistics Industry in India

The concept of logistics is continuing to gain strength in India. There are several major drivers fuelling the growth of the industry.

1. Organizations are realizing the huge potential savings that efficient logistics can offer, and its impact on revenue growth and improved profitability. Moreover, the increasing complexity of supply networks, globalization of businesses, proliferation of product variety, and shortening of product lifecycles forcing them to realize that it is better to allow the experts to manage their logistics, and this results in acceptance of outsourcing as a business practice.

2. The increasingly demanding customers, coupled with the increasing cost pressure and competition, there is an urge for companies to differentiate themselves from their competitors through value added services and competitive prices. As such, price and time factors, for example on-time delivery, shorter lead time, improved service and better inventory management become important criteria in selection of suppliers. Availability of efficient logistics service providers become an important part of the sourcing equation.

3. The globalization trend in the complex business environment worldwide also poses great opportunities for the logistics industry in India. Worldwide companies have started adopting global sourcing and distribution strategies and have given higher priorities on efficient management of supply chain and logistics. Such global strategy has significant implication on the growth of Indian logistics industry.

4. Another major driver of the logistics industry is the internet. With the emerging e-commerce, there is a need for e-companies to offer an efficient distribution system that ensures fulfilment and timely delivery of goods ordered through the internet. Companies are on lookout for the strategic logistics players who can streamline the movement of their goods and ensure faster delivery. In addition, with EDI, bar coding and tracking of goods in transit used widely, many companies are depending on the logistics providers to provide the IT integration.

5. The Indian government's initiative in improving the infrastructure is a positive factor for boosting the logistics industry. The simplification of trade rules and regulations, allowing private sector participation in roads, seaports and airports, and the increase of public funding in upgrading the infrastructure will further support the growth the logistics industry in India.

4.3 Logistics Players in India and their Strategies

A major strategy currently being practiced by global logistics players in doing business is by providing integrated logistics solutions and by offering value added services to customers. The aim is to build a long-term relationship with the customers by providing one-stop solution. This improves the supply chain efficiency and also enables the OEMs to concentrate on their core activities. Some players in the industry have become partners of choice by providing high-tech infrastructure which includes excellent IT and communication system.

Although many of the 3PL players in India still offer the basic services like transportation and warehousing, large MNCs and some Indian companies have started adopting these strategies to show strong presence and remain competitive in the region. Transport Corporation of India Ltd (TCI) for example, offers integrated solutions such as consulting, transport management, warehousing, and IT and MIS (Material Information Systems) services and other valued added services such as reverse logistics, kitting services, custom clearance, e-logistics and tax and facilitating tax management. In response to e-commerce, apart from 3PL providers, many ocean carriers such as APL, Maersk and P&O are also adopting the integrated logistics services. Maersk India which already operates a logistics centre (container freight station) in Dronagiri Warehousing Complex in Navi Mumbai, is planning to set up another total logistics centre near Gugaron in Haryana to meet the growing demand from the northern states.

In response to the growing demand in the logistics industry worldwide, the Indian players have set globalization as their long-term vision. Thus another strategy adopted by them is to expand and establish themselves on an international level through alliances and partnering

agreements, and through joint ventures. Some recent developments in India using this strategy are discussed in detail in section 4.4.1.

4.4 3PL Market in India (A comparison with China)

Traditionally, most of the companies in India had their own logistics department to cater to in-house requirements. However, logistics "outsourcing" has been the business mantra in India today. Companies who were in logistics business are now becoming full-fledged 3PL services and solution providers. Though the 3PL market in India is in its early stage of development, it is expected that this sector will experience rapid growth, just as in China. In future, the usage of 3PL services is expected to increase significantly by 40% in India[28]. As China is moving ahead of India in their logistics industry, we present the current trends, opportunities, challenges and some ways to approach the logistics market based on the China logistics market survey, which we believe will also be applicable to India.

Generally there are different ways of operating a shipper's logistics activity by the 3PLs. Some information on the features and objectives of traditional transportation companies, emerging logistics companies, internal logistics department and the foreign logistics companies are shown in Figure 4.2. Generally, the extent of usage of the services from the 3PL service providers depends on the length of experience with the 3PL firms, level of commitment to the usage of 3PL services, percentage of the total logistics budget allocated to 3PL service providers and the specific logistics services being outsourced.

tation	Emerging logistics companies	Internal logistics departments	Foreign logistics companies
s with ion and n central cess ficiency ture and-	• Private and joint venture with more focused geographies, services and customers • Very high growth and relatively high productivity • Limited ownership of fixed assets • Lack strong financial support for market expansion • Lacking internal management mechanisms and effective organization to support high growth	• Provide services for some external customers, but internal customers still dominate • Expertise in certain sectors • Limited assets but good network coverage • Weak in sales and marketing • Strategy and future position strongly influenced by the parent company	• International providers with strong overseas network • Industry expertise and experienced operations • Good relationship with global accounts • Advanced IT systems • Strong financial support from headquarters • Limited presence in India and relatively high cost structure
twork owth and ntage o ess rships) e nics	• Maintain high growth with strategic partners or investors	• Either strengthen or spin off logistics departments	• Strengthen market position either through acquisition or partnership

Recently a survey was conducted involving 130 Indian organizations from various industries to study on the present extent of usage of 3PL services, reasons for outsourcing and impact of usage of 3PL services on business results[28]. According to the survey results, 55% of companies use 3PL services as compared to 75% globally and these seem to be more of the basic transportation and warehousing related activities. Many of organization have relatively little experience working with 3PL service providers and have fairly low total logistics budget allocated to 3PL service activities. These are some of the reasons why the concept of outsourcing logistics functions is still in its nascent stage in the country. When asked about the reasons for outsourcing, the major reasons sited were – logistics cost reduction (80.6%), focus on core competencies (76%), improved customer services (71.3%), improved return on assets (68.2%), increase inventory turnover (60.6%) and productivity improvement (56.6%). Very few of them believed that the reason to access or expansion to unfamiliar market (25.9%) and diverting capital investment (24.5%) as the least important motivations for outsourcing. Most of the respondents also indicated that the use of 3PL service providers had been a positive development, in terms of logistics system performance, customer satisfaction and employee morale in reaching their business objectives.

India's huge potential but unexploited logistics market has also attracted MNCs to venture into the industry. The entrance of the logistics MNCs into India is important since they bring with them global experiences and also provide the obvious economies of scale advantages. Among the major MNCs who have entered into the logistics market in India are TNT Logistics, BAX Global, Semblog, Geo Logistics, Panalpina and APL. Among the older and well established Indian players are Air Freight Ltd (AFL), Transport Corporation of India Ltd (TCIL), GATI Ltd and Blue Dart Express Ltd. The listing of logistics companies operating in India is presented sector wise in Figure 4.3 and service wise in Figure 4.4.

	Blue Dart	TVS Logistics	TNT India Pvt Ltd	Om Logistics Ltd	Geologistics	AFL Ltd	GATI Ltd	SemCorp Logistics (India) Pvt Ltd	Safexpress Pvt Ltd	P&O Nedlloyd (India) Pvt Ltd	UPS Jetair	Eagle Global Logistic	TAKE Solutions Pvt Ltd
IT	X		X	X				X				X	
Automotive/ Automobile		X	X	X	X	X	X		X	X	X	X	
Electronics			X		X	X							
FMCG			X			X	X	X					X
Consumer Durables				X				X					X
Office Automation					X								
Pharma-ceuticals				X	X	X	X		X			X	X
Retailing					X		X	X		X			X
Defence/ Aerospace					X								
Telecom-munications					X				X				
Food Processing						X							
Medical Equipment							X						
Hardware							X		X				
Engineering								X	X				X
Chemicals										X			X
Beer/wines/ spirits										X			
E-commerce											X		
Healthcare											X		
High-tech											X		X
Maquiladora											X		
Construction/ Equipment												X	
Government/ Military												X	
Perishables													X
Industrial Automation													X

Figure 4.3: Logistics companies in India - sector wise

Source: Adopted from Indian Logistics Industry, Scope Marketing and Information Solutions Pvt Ltd.

Services	Logistics Service Providers
Transporters	• GATI • TCI • Dynamic Logistics • Patel Roadways
Express cargo and courier operators	• DHL • FedEx • Elbee • Safe Express
Freight Forwarders	• AFL • Alpha Cargo Express Pvt Ltd • Air & Sea Cargo Systems • Container Carriers International Pvt Ltd • Countrywide Express (P) Ltd • Express Freight Forwarders
Container companies	• CONCOR • Maersk • Indian Container Leasing Company Ltd
Shipping Agents	• Maersk • P&O Nedlloyd • APL • Inter World Cargo Care Pte Ltd
Warehouse providers	• Central Warehousing Corporation • Associated container terminals Ltd (ACTL) • Dynamic Logistics
3PLs	• Geologistics • Excel • Bax Global • Panalpina • SembCorp

Figure 4.4: Logistics companies in India - service wise
Source: Indian Logistics Industry, Scope Marketing and Information Solutions Pvt Ltd.

Although there is wide range of logistics services available in the market, transportation and warehousing are the most widely outsourced logistics service by the Indian companies. This is also the case in China. According to Mercer China 3PL survey, shippers particularly MNCs would prefer to outsource to foreign 3PL providers, while local shippers would prefer the domestic 3PL providers.

The foreign players are preferred over domestic players due to reasons that they are ahead of domestic players in terms of IT and communication infrastructure and they have the expertise in the logistics operational issues. In addition, foreign 3PL service providers

follow standardized operations and have larger coverage of international network. Basically, the emergence of foreign logistics 3PL companies in India has made domestic logistics 3PL companies more competitive. However, some local shippers enjoy the lower price and local knowledge and the huge domestic network coverage offered by the local 3PL providers. Moreover it would seem that a good relationship with the central and local government helps to ensure smooth logistics process within the country.

4.4.1 Expansion Strategies for 3PL players

As we learned from the China market, there are three popular expansion strategies for 3PL local and MNCs players in the country; organic growth (organization expansion purely within the internal business structure - in-house development), acquisition and partnership or joint venture (Figure 4.5).

	Organic Growth	**Acquisition**	**Partnership/ Joint venture**
Chinese Providers	50%	42%	**83%**
Foreign Providers	43%	71%	**71%**
All Providers	47%	53%	**79%**

Figure 4.5: Expansion strategy of 3PL players in China (% of players of each type pursuing expansion strategy)
Source: The Third Party Logistics Market in China: Opportunities and Challenges, Mercer Management Consulting

In China, about 80% providers, domestics and foreign are looking for partnership and joint ventures to help achieve growth targets. Similar scenarios can be expected in India. Partnership and joint venture would be the most popular mode of expansion in India and thus we focus on this strategy in this section. Essentially local 3PL players would be looking for partners who can provide overseas network, financial support, management experience and complementary functions, while MNC players would be looking for partners who can provide customer relationships, resources, strategic assets, operational skills and domestic network coverage. As a result, industry experts believe that consolidations between local

and MNC players would continue to take place in India. Among the recent developments in organic growth and tie-ups that have taken place in India includes the following:

- UPS Logistics Group, a wholly owned subsidiary of United Parcel Service, formed a joint venture with Jetair Ltd. The UPS-Jetair Logistics, a 60:40 joint venture which is headquartered in Mumbai provides international express delivery services in India.

- GATI Ltd, an express logistics company tied up with Bhutan Post as part of its strategy to make a foray into all South Asian Association for Regional Cooperation (SAARC) countries. GATI latter tied up with Maldives Post as further expansion and door delivers all Maldives Post shipment in India.

- Elbee Services has entered into several strategic alliances with large players in the global express industry. For example, it has entered into a strategic partnership with Bax Global India, part of the US-based conglomerate Pittston Company to jointly provide logistics services to Indian firms. Elbee would take care of warehousing and distribution facilities requirement while Bax Global would provide technology and software needs. Elbee Services has also formed a 50:50 joint venture with UPS (UPS Elbee International). Other Elbee's international service associates include TNT India Ltd.

- Blue Dart, a leading player in the domestic market, has entered into a sales alliance with DHL India to provide Blue Dart customers the DHL advantages of size, reach, flexibility and infrastructure. Blue Dart will now be a wholesaler for DHL India.

- 3PL start-up companies like Dynamic Logistics Pvt Ltd are also growing rapidly in India. The Pune-based company has container freight stations that handles import and exports from across the globe and has developed warehouse infrastructure management and transport management systems to share information with customers, vendors, dealers and transporters.

- Emery Worldwide launched its express product for the Indian market. In order to better serve the rising demand by airfreight in the country, it has tied-up with Indian Airlines and Air Sahara for domestic airfreight express service in India.

- Indian Post is soon to venture into the logistics business. The "Logistics Post" aims to fill the gaps of the limited presence of the operators in rural and semi-urban areas that are growing and the lack of door to door service. It will start with the first phase on introducing services on short and medium distance haulage having higher margins and the second phase would have consolidations in the form of strategic partnerships and extension of services to long distance haul.

Besides the consolidations within the 3PL players, other players within the logistics industry in India are also witnessing the same trend. For example, Maersk India Pvt Ltd and CONCOR have entered into a 51:49 joint venture to set up a container freight station (CFS) at Concor's Dadri complex in Uttar Pradesh. On the national level, India, Iran and Russia have signed an agreement for operationalizing the North-South Transport Corridor that would reduce transit time in freight movement by 10-12 days. Further according to the Project Monitor, this new route which links with Western Europe and Central Asia will also reduce operational cost by about 20%.

Essentially the approach in the selection of partner in a joint venture in India has to be made very carefully. Generally there are two ways to structure joint venture when entering and doing business in India. First, the joint venture is formed as a new company and second, the joint venture is formed by taking a stake in the Indian partner. For the first case, the Indian partner contributes the business and the foreign partner contributes technology, cash, etc, and the net differential between the shareholding obtained in the joint venture and the assets contributed is settled in cash. In the second case, the Indian partner allows the foreign partner to take a stake in the existing company, and if it is through the issue of fresh shares, the foreign partner pays for the acquisition through cash, contribution of technology, etc.

Though both the cases have its advantages and disadvantages, experts advise that controlling stakes are usually better in the case of Indian joint ventures. The simple majority control is with 50% + 1 share while the absolute control with 75% + 1 share. The advantage of doing business this way is that for the foreign partner, there is lower risk of the Indian partner

squeezing out them out even if it is a significant contributor to the business as the ultimate control is in the their hands. There is also clear position on control of joint venture, thus avoiding jostling for control between partners which may result in negative effects on the performance of the joint venture. In addition, joint ventures formed by controlling stakes lower the chances of deadlock on operating issues. However, one drawback is that the insistence on control exists in such joint venture may rule out some potentially good partners.

While Indian companies are increasingly comfortable discussing joint venture opportunities, control always remains as a sensitive issue in the business. Based on the current practice in China, we learned some other challenges in forming logistics joint ventures. Forming a joint venture is essentially for a short term as foreign investors in many cases are likely to buy out their partner. This is what has happened to AFL Ltd in India. DHL earlier entered India through partnership with AFL Ltd, which was later bought out in 2002. Foreign investors are also more likely to seek a passive partner rather than to transfer skills to a local 3PL player. On the other hand, local players tend to be reluctant to share strong domestic market position with their foreign counterparts.

4.4.2 Opportunities for 3PL Players

As the logistics industry in poised for rapid growth, opportunities arise for both local and foreign investors in the industry in India. There are basically few broad areas of focus.

1. 3PL investors should look into ways to create an effective and well networked domestic transportation, warehousing and distribution systems in the country. There is niche opportunity for service providers to offer quality standards and higher service levels which are on par with the global standards.

2. There is room for investors in offering total supply chain optimization solutions to their customers. Local service providers can form partnership with foreign counterparts to provide value added services supported by the streamlined IT systems.

3. With the increasing use of RFID, GPS tracking-and-tracing and smart tags, there are vast opportunities for the service providers to invest in and provide such technological solutions. This would also aid in the development of security to protect freight and supply chain data, while still facilitating smooth trade across the country.

4.4.3 Challenges for 3PL Players

No matter how promising the opportunities may be, there is still a bumpy ride ahead for service providers in the logistics industry. When compared with developed countries, the Indian logistics industry is still considered to be underdeveloped primarily due to the myriads of restrictions in place. We discuss some source of the problems hindering the growth of logistics industry and 3PL service providers in India below.

Poor infrastructure and poor transport vehicles:

Poor infrastructure and transport vehicles are the major hindrance in offering logistics services in the country. Although freight movement in India increases at 10% a year, the infrastructure capacity is not augmented, or better managed to meet the growing demand. As a result, the performance declines and costs rise. In some cases, the capacity is more than adequate and even the available capacity demands maintenance. For example, a truck in India averages 250 km per day, while in the developed countries the average is closer to 600 km. The rail infrastructure in India has slow average speed of freight movement and low average wagon turnaround time. The average turnaround time at Indian major ports was 4.5 days in 2001-02 compared to international average of two days. This is due to the inefficient utilization if the berth capacities. The ill conditioned infrastructure may be one of the reasons for the absence of world-class logistics service providers in India.

Complex tax laws:

In India, Octroi (entry tax) is levied on goods entering their city limits. The complex tax laws on implementation of VAT (value added tax) that varies across states is another major concern for 3PL service providers in India. The current system of state entry taxes and differential sales taxes compel service providers to set up warehousing facilities in a number of states in an effort to avoid double taxation. In an ideal case, a uniform VAT across states will essentially enable consolidation of warehousing which in turn results in far greater

efficiencies. However, with the current conditions in the country which is still unable to form a consensus on VAT, companies are holding back investments in logistics. Another tax issue that is discouraging the logistics service providers in India is the service tax on warehousing. This tax implies that it may be cost effective for a company to keep warehousing as an in-house activity, as outsourcing this activity means factoring in the service tax and increased cost. More information on taxation in India can be found at http://siadipp.nic.in/publicat/invpub/taxation.htm.

Complexity of international trade documentation process and lack of IT infrastructure:

Another key contributing factors for the inefficiencies of the Indian logistics sector is the complexity of the international trade documentation process. Lead logistics countries such as Singapore and Hong Kong have implemented automated trade systems such as TradeNet and Digital Trade Transportation Network for trade documentation and customs permit applications. Such logistics systems capabilities could help save up to 3% of import value through efficiencies resulting from automated and standardized trade documentation [24].

Lack of professionally competent logisticians and insufficient technological aids:

Although India is an undisputable IT powerhouse in the world, there is lack of logistics domain specialists at engineering level. This translates to weak code implementation of IT development of logistics processes. As a result, the logistics processes and know-how for logistics IT capabilities in general are not matured in India as compared to Europe, US and Singapore, and there is no general awareness of standard logistics practices. For example, one needs to understand how to synchronize the process of freight booking and import-export documentation with international agents for fast and seamless transactions.

Industry readiness:

In terms of sophistication, the equipment and technologies available in the logistics industry in India do not compare very favourably with those abroad. For example in the warehousing sector, while the industry abroad are using warehouse with Automated Storage and Retrieval System (ASRS) and Warehouse Management System (WMS) to control the movement and storage of materials within an operation and to process the associated transactions, such as directed picking, directed replenishment, and directed putaway, there is a serious lack of material handling equipment in the Indian industry, leading to improper staking and storage.

In terms of execution, some other major challenge faced by the players is finding reliable subcontractors and having control over their service quality. Managing client's rigid and unrealistic expectations are another demanding issue since they are not experienced in using external logistics services. Although both the local and MNC service providers face similar challenges in practicing their logistics business in the country, the degree of these challenges may differ. For example, the main challenges for local providers are to find qualified logistics domain people who can design, implement and manage their logistics solutions. They too have problems in applying the advanced IT systems and its associated development costs. However, these are less challenging issues for the foreign service providers as they possess the industry expertise and experts, coupled with strong financial support from headquarters. For them, the most daunting challenge is the government restrictions on regulations and policies. The incompatible culture to which they have to adapt to is another challenge for them when practicing the logistics business at domestic level.

4.4.4 Some Suggestions to Approach the Logistics Market

While profiling India logistics industry, one has to keep in mind that the industry is less developed and is a relatively unexplored area as compared to the countries like America and Europe. However, with the increasing competitive pressure and with the rapid trend of logistics players changing their identities and expanding their service portfolios, there is increasing need for the industry service providers to gain supply chain advantage and improve their service offerings. Among the strategies recommended to players to improve chances of success in the logistics sector in India are as follows:

Think local, service global **:**

As India's logistics industry is in the infancy stage, setting up a nationwide distribution capabilities at the start-up stage would be difficult. Instead logistics players should consider comprehensive coverage of one part of India or one vertical before spreading out to the rest. This is because a successful business just in one part of the country can easily become dominant and attractive to cater both ends of supply and demand. On the other hand, the quality standards and service levels currently offered by Indian logistics players could be below expectations. With the emerging globalization and integration of Indian market with the global market, Indian companies are increasingly demanding services on par with global

standards. As such, local logistics providers have to focus on offering world-class services and solutions to enhance the satisfaction level of their customers.

***Focus on information and coordination in developing logistics solutions rather than asset ownership*:**

It is not wise to have hard assets in transportation, warehousing and logistics sector (which may not be considered high quality of international standards) be controlled by Indian companies. Instead, these assets should be utilized more effectively and in a networked fashion to achieve higher coordination, backed by the ability to provide logistics solutions that add value to their customers. Thus it is more optimizing for the service provider to create and sell solutions based on agreements that bind and control their assets, rather than fully owning them.

***Be industry specific and provide customized solution*:**

The logistics service need, expectation and specification of each industry and even companies within the same industry may differ, and in India it is a common sigh that service providers are not able to design, develop, provide and manage their customer-specific requirements. Therefore a critical success factor for the players is to reach an enhanced customer-centric market and to retain in a long term relationship is to offer the right service in the right quantity and right condition to the right customer at the right time and right cost.

***Pursue alliances aggressively*:**

One approach for the Indian service providers with strong asset position but low skills seeking global stature is to form alliances with the multinational players. It gives a competitive advantage in terms of meeting the demand for a one-stop, provide technical, engineering and supply chain solutions, and often cost effective alternative for extending existing service offerings and geographical coverage. At the same time, through alliance local players can provide world-class services in India and remain competitive in the domestic market. For the global players, forming strategic alliance with local market partners will help to gain access to local clients, high degree of penetration and better understanding of India's domestic logistics needs and expectations. Thus, the alliance gives customers of each organization access to integrated global supply chain management, analysis, re-engineering, freight payment and full seamless execution via a joint service offering.

***Focus on organization building as much as strategy or operations* :**

While transportation and logistics is necessarily a highly operational undertaking, the success of a logistics business will also be defined by the quality of its solutions and therefore the skills and commitment of its manpower. Their drive, knowledge, innovative and commitment will make the essential difference to service quality and impacts of solutions. This issue is doubly crucial in India as there are not much logistics domain experts in the area and the knowledge in providing optimized logistics solutions are relatively unexplored by conventional Indian service providers. As such, it is important to educate them to build talented personnel who know how to work efficiently within the constraints of the Indian market. On the other end, there is also need to educate the Indian organizations on the benefits of outsourcing to the logistics service providers for them in the short and long term.

***Provide technological solutions* :**

In today's global business practice, technological solution is in widespread usage and it has also become the mantra in the logistics business. This has in turn created a market for software vendors, who have responded with suites of Supply Chain Execution (SCE) applications. This includes order, warehouse and transportation management systems, online tracking of goods, real time information, Global Positioning Systems (GPS) and most recently the Radio Frequency Identification (RFID) systems RFID which improves the accuracy and distribution efficiencies.

India is a globally acknowledged IT powerhouse and this strength must be exploited by Indian companies to develop specific capabilities in IT-enabled Logistics such as the development and management of logistics planning and coordination systems. Leading Indian IT companies can complement their IT expertise with logistics domain knowledge to develop logistics capabilities for the different industries. Indian service providers should also quickly embrace the IT available and further develop the customized IT solution that suit the Indian requirement so as to enhance the quality and reliability of services provided. One option to do this is by forming alliance with independent software companies who can tailor-make the IT systems based on the local requirement. The IT solution offered should also be able to facilitate the increasing e-commerce activities across the country. Essentially, it is the players who can provide seamless e-logistics services that will emerge as successful logistics players in India.

Chapter 5 Emerging Trends in Logistics

Recent years have been witnessing continuous growth in the logistics area. Globalization and development in the IT arena, coupled with the need for supply chain optimization are reshaping the physical trade flow. The general current trends in the logistics industry worldwide are summarized in Figure 5.1.

SEGMENT	2003 TRENDS	2004 OUTLOOK
LOGISTICS	• Rapid growth in volume of product sourcing from China, requiring logistics providers to handle increasing international shipments with efficiency • Greater use of new technologies such as RFID, smart tags, GPS tracking and other new products. • Logistics providers offered clients an increased visibility into shipping information. • Greater utilization of installed supply chain technology to improve ROI and performance metrics. • Further integration of disparate IT systems. • Greater complexity of international shipping regulations since Sept.11 forces logistics providers to develop greater mastery of legal guidelines. • With greater sourcing from overseas, many companies sought efficiency in longer shipping routes.	• Continued development and adoption of wireless technologies such as RFID. Wal-Mart's implementation of RFID may cause many vendors, logistics providers and others to adopt this new technology. • Greater product sourcing from overseas, with a notable increase from China, will drive logistics suppliers to expand global operations. • Logistics providers continue to shift toward a one-stop model to offer comprehensive services and control more of the supply chain. • The Internet continues to enable faster supply chains and provide greater communication with oversees parties. • Greater focus on organizing, analyzing and sharing purchasing information. • Utilization of data mining and advanced analysis to make more informed decisions regarding inventory, production patterns, and other key processes, particularly with longer lead times from overseas sourcing. • Further development of security to protect freight and supply chain data, while still facilitating trade.
AIR	• International air freight saw the first signs of recovery in 2003 since 2000. • Many major air carriers added considerable China service to their routes • Trans-Atlantic market remained fiercely competitive with high capacity and not enough cargo.	• Despite fierce competition on rates, industry executives expect 2004 will be a better year for air carriers as the resurging U.S. economy drives higher demand for European and Asian products. • If the economy continues to improve, more product may temporarily switch from ocean to air freight as customers select improved product distribution and delivery times over low cost. • China will be the holy grail of volume in 2004 as the country's manufacturing base continues to expand. • Tighter U.S. security regulations could lead to sharply higher costs for air carriers in 2004.

SEGMENT	2003 TRENDS	2004 OUTLOOK
SEA	• Improved volumes and rates • Many carriers' profitability improved, however the negative effects of high fuel prices, high export container pricing and other costs kept some unprofitable. • More security to prevent intermodal smuggling of harmful products by terrorists • More capacity to rapidly growing routes, such as the booming Shanghai port and the Central China region	• Trans-Atlantic market remains stable, if not improve slightly, with a good balance of supply and demand. • Trans-Pacific trade continues to grow more rapidly than the more mature Trans-Atlantic market. • Eastbound shipments to the U.S. from Asia will outpace shipments westbound by a factor of 2x. • Greater technological advances at ports and real-time information systems will allow more proficient shipping and greater safety.
LAND/ TRUCKING	• State and local governments are encouraging seaports to shift more cargo from truck to rail to reduce pollution and relieve highway congestion. • Intermodal continues to suffer from a reputation as less reliable than trucking: rail quality metrics declined in 2003 for the first time since the late 1990's.	• Potential increase in trucking volumes, at the expense of intermodal, if an improved economy allows customers to focus on delivery performance and away from pricing. • New truck driver hours of service rules will lead to higher driver pay. The new trucking service rules could be the biggest change since the Motor Carrier Act deregulated the industry in the 1980's.
RAIL	• Scheduled railroading created a more precise, time-sensitive product for customers. • Focus on improving intermodal profitability. Rail companies are focused on improving asset utilization of intermodal. • Intermodal rail continues to suffer from a reputation as less reliable than trucking: rail quality metrics declined in 2003 for the first time since the late 1990's. • Greater security measures implemented throughout the rail market. • Rail continues to be more efficient than other transportation modes.	• More progress toward a coordinated and integrated scheduled railroad system across North America, enabled by technology to track shipments and select optimal routing, and monitoring workload in yards. • More cooperation among rail carriers to best serve the customer. Joint industry projects among various carriers are expanding services and reducing costs for the client. • Increasing conversion of freight movement from highway to rail if rail companies can prove more efficiencies and faster performance. • Continue working with state and local agencies to build out greater infrastructure to accommodate growing domestic and international freight volumes.

Figure 5.1: Logistics industry outlook
Source: 2004 Logistics & Distribution Industry Report (Volume 3, Issue 1), USBX Advisory Services LLC

In this chapter, we discuss the emerging trends in the logistics industry. These trends already have impact, or in some cases, will have an impact on the Indian industry in just matter of time. Firstly, we notice increasing government's involvement in supporting the logistics business and their players. In India, we see the government's initiates in upgrading infrastructure, corporatization of major ports and allowing more private sector participation in improving infrastructure in the country.

The second trend is the changing identities and service portfolios of many logistics players. As discussed earlier, this trend is also growing in India. Companies serving the express logistics, e.g. GATI and Blue Dart are now becoming full-fledged 3PL service providers and some even growing to the extension of logistics solution providers. Moreover, there have been some new ventures in the industries. More 3PL service providers will be gearing up to meet the growth demand and improve their service offerings by incorporating value-addition in their services and customizing their supply chain management solutions. They will redesign their operations by focussing on related services such as customer clearing and forwarding, inbound warehousing, labelling and packaging, fleet management, order picking and inventory management.

Thirdly, consolidation is being adapted widely in the industry as an expansion strategy to gain the strength of size and reach of operations and synergies in terms of offerings. It is also expected the industry consolidation will result in few large players. Logistics players in India are of no exception in this trend. The recent consolidation through partnership and alliance was discussed in section 4.4.1.

Technology is another keyword when comes to the emerging trend in the industry. Logistics players are increasingly using the GPS to track the movement of goods on real time basis. Besides the GPS system that was broadly mentioned in recent past years, a new buzzword among the global logistics players is the RFID. RFID technology uses tags or transponders (attached to the objects, including items, cartons, pallets and containers) to transmit Electronic Product Code (EPCs) and communicate wirelessly to readers over radio frequency waves. The benefit to customers include improved accuracy and distribution efficiencies, shorter order cycle times, elimination of unnecessary handling and expenses and enhanced customer satisfaction, for an overall competitive advantage. Sooner or later, the RFID-enabled supply chain execution solutions will be used extensively in India.

Among the other emerging trends that have been widely in use are the logistics postponement and modularization, Fourth-Party Logistics (4PL), reverse logistics and lean logistics. The presence of these trends however is not evident in India at the time being, but as the country's logistics sector becomes more developed, well planned and innovative, India will be more prepared to face and adapt them.

Chapter 6 The Future Trends in Logistics

Likewise China, experts believe many foreign companies will make India as the manufacturing centre for their Asia or global market, therefore changing logistics demand and shipper characteristics dramatically. As such, India's potential growth cannot be ignored by global manufacturers and logistics players. As an impact, changes will be apparent in the India's logistics industry.

Indian component manufacturers will move up the value chain as contract manufacturers and deliver quality components at the OEM factory floor. As such, it will become crucial to provide parts consolidation and transportation, and to manage the flow of critical part delivery to ensure high service levels, customer satisfaction and inventory visibility. Frost & Sullivan has estimated that the revenue of the logistics industry from the manufacturing sector alone was $13.46 billion in 2003, and the market is likely to grow at a CAGR of 6.2% during the next five years. Chemicals, metal, FMCG, cement and textiles are expected to be the top five contributors of the Indian logistics industry revenues. Besides that, India will be facing the issue of strategic location of industries and the major concern of the B2B connectivity to marketplaces in the future.

The growing technologies worldwide are expected to change the India logistics industry in future. At the time, the concept of e-commerce and open buying on the internet (OBI) are still in nascent stage in India due to the traditional mindset of the corporate and people, low awareness, absence of strong infrastructure and secure payment system and also due to the lack of privacy and safety on the net. However in the future, the growth of e-commerce and its logistics needs will become inevitable and India will overcome these barriers. The increasing online sales will force e-companies to forge strategic alliance with logistics service providers that can provide cost effective and seamless distribution solutions. As such, India can expect a shift in the retail logistics, B2B procurement practices and the way the distributions are handled. The adoption of new technologies such as GPS and RFID will take place rapidly in the future. The defence logistics will also emerge as an important area for new technologies in India.

As for the logistics infrastructures in India, improvement and further development can be expected in all the areas comprising roads, railways, seaports and airports. The air cargo industry for example, will continue to undergo huge transformation with more participation in freight business. It is estimated that the air cargo market will grow at 7% per annum for the next two years against global freight market's projected 5.3% growth for the same period. As part of global war against terrorism, India should also step up security at seaports, airports and trains. Tighter security measures including the implementation of The International Ship and Port Facility Security Code (ISPS), which requires ships and ports to implement a broad range of security measures covering communications, port and ship access control, monitoring people and cargo, and screening personnel, baggage, cargo and vehicles should be in operation at all ports in India. In addition, India should also participate in the Container Security Initiatives (CSI) with the United States to identify and eliminate potential terrorist threats from cargo ships.

Changes will also take place among the logistics players. It is expected that the market for 3PL services is likely to grow at a Compound Annual Growth Rate (CAGR) of 20.4% during the next five years, with the growth being fuelled by the entry of MNCs and the export focus of Indian companies. The industry consolidation will eventually result in a few large players. In the long term, Indian service providers will develop restructuring strategies and some will become strong players. However, it is the global service providers that will dominate the industry. They will play a larger role, strengthening their domestic capabilities to leverage global client resources. Both local and multinational service providers will become more specialized in industries served and provide more customized services. The existing customers, on the other hand will reduce the number of providers used and will begin to demand higher standards of reliability and quality which includes state-of-art technology. The logistics solution available in future will also be highly technology driven.

However, as India's logistics outsourcing and investments to improve logistics efficiencies are still at a nascent stage, these future trends will take place, but it will take longer time to materialize. The resources needed for wholesale development will also take enormous amounts of time and resources. However, India should recognize the extraordinary role logistics plays in economic development and in enhancing the competitiveness of all sectors of the economy. As such, India should move forward for an integrated strategy towards developing a world-class logistics industry.

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