



Business Opportunities in Rail Logistics Parks in India

Study of the Indian
context with a focus on
Vapi, Gujarat

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EXECUTIVE SUMMARY

Over the last 10 years India has witnessed continuous growth in her economy and has opened doors for international trade. The GDP has been growing between 7% and 9% over the last 6 years. According to a report compiled by the Confederation of Indian Industries (CII) the unprecedented growth is holistic and contributed by all sectors such as manufacturing, agriculture and services. The government of India has also identified requirements for infrastructural developments to remain competitive. One of the initiatives taken by the government through the Ministry of Railways is the construction of a dedicated freight corridor connecting the western and eastern hinterlands of northern India with the two major ports, namely the JNPT in Mumbai and the Kolkatta port. To augment the developments, logistics parks are being developed along the dedicated freight corridor facilitating multimodal transportation.

This study, by taking a specific case of a logistics park being developed at Vapi, outlines the investment opportunity in rail based multi-modal logistics parks created by the development of a dedicated rail freight corridor and the growth of the manufacturing sector in India.

The study identifies various other business opportunities in the value chain of multimodal logistics parks. There are three major steps in the MLP industry's value chain; infrastructure development, operations and value added services. The study focuses specifically on the investment opportunities in the infrastructure development stage of the value chain.

A horizon of three years - 2011-12, 2016-17 & 2021-22, was considered for the purpose of analyses. The investment involves fixed cost of about £85 million (including the cost of land and connecting rail sidings, during the initial period and fixed cost varying between £5-7 million for the latter horizon years. The revenue considered is the access charges and handling charges in the logistics park. Various scenarios of capacity utilization have been considered for assessing the return. In analysing the sensitivity of the capacity utilization, it was found that even in a worst case scenario, the project was delivering a return of 9.91% over a period of 15 years.

In a best case scenario the project will deliver a return of 10.8%. This relatively low return, even at a best case scenario is due to the high initial costs incurred in laying the rail sidings into the park.

However, the assumptions made are conservative and do not reflect the full potential for growth in the sector. By offering value added services, these parks can be made more attractive for the end customer. Our studies indicate that since India is growing as a manufacturing base, there are huge business opportunities for operators offering logistics services such as postponement in manufacturing, packaging, warehousing etc.

There is also huge business opportunity in developing ICT, software services, banking and in engineering and technological consulting services especially in implementing future environmental policies like carbon reduction which is strategically necessary for long term projects such as this.

However there are certain risks involved in the project, prominent among them is the competition from private rail operators and other multi-modal logistics parks operators who have already established themselves in the market. Changes in the pricing policies of the Indian Railways and regulatory changes in the JNPT (Bombay Port) can severely affect the bottom line for an investor developing the park.

With the growth in retail and manufacturing sectors, there is a need for organised logistics operators to fill the gap in providing cheaper, more efficient and value adding services to the customers. This can act as a major revenue stream to the logistics parks operators. As a result, an opportunity may exist for an investor who wants to play a significant role in the future of the industry.

Since the project is having enormous social benefits there is a justifiable viability gap funding needed from the government. This, coupled with freedom to independently operate the value adding services, can make the proposal more attractive to the investor.

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Glossary

CBA	Cost-Benefit Analysis
CFS	Container Freight Station
CII	Confederation of Indian Industries
Crore	Unit in Indian numbering system equivalent to ten million (10,000,000)
CST	Central Sales Tax. Tax collected in India for interstate transportation of goods
EXIM	Export – Import
FDI	Foreign Direct Investment
GoI	Government of India
ICD	Inland Container Depot
ICT	Information and communication technology
IRR	Internal Rate of Return. Financial term used to measure profitability of investments
JNPT	Jawaharlal Nehru Port Trust also called the Bombay Port
Lakh	Unit in Indian numbering system equivalent to one hundred thousand (100,000)
MMLP	Multi-modal logistics park
MoR	Ministry of Railways
PPP	Public- Private Partnership
SPV	Special Purpose Vehicle
Terminal Value	Financial term used to determine the present value of an asset at a future point of time
TEU	Twenty foot Equivalent Unit. Measure used in intermodal transport

OVERVIEW

India is still at a nascent stage when it comes to logistics and distribution. The logistics industry is largely fragmented in India. Nearly 94% of the logistics and distribution requirement is dominated by a large number of small fleet owners (5- 10 trucks) and these account for 80% of the revenues. (Datamonitor 2007) Even the freight forwarding segment of the industry is dominated by small time customs brokers and clearance agents. The logistics costs, which includes transportation, warehousing, packaging, holding and inventory accounts for nearly 13% of India's GDP which is very high when compared to developed countries such as Japan and USA. (Cushman & Wakefield 2008) A comparative study conducted by the World Bank on trade logistics performances among countries has ranked India in the 39th position for present and future capabilities in logistics. (Arvis et al. 2007).

Logistics cost across major markets		
Country	Logistics Cost as % of GDP	% of logistics activity by organized sector
USA	9%	57%
Europe	10%	30-40%
Japan	11%	80%
India	13%	Less than 6%
China	18%	10%

Table 1: Logistics Costs across various countries

Source: (Cushman & Wakefield 2008) adopted from Accenture Study

This poor logistics performance and lack of proper logistics infrastructure has affected the associated industries. High logistics costs in the manufacturing sector have seen a reduction in the FDI investments in this sector. The country is trying to

improve its logistics capabilities and the government is encouraging more investments in developing logistics infrastructure like roads, railways and ports.

One of the initiatives taken by the government through the Ministry of Railways is the construction of a dedicated freight corridor connecting the western and eastern hinterlands of northern India with the two major ports namely the JNPT in Mumbai and the Kolkatta port. Fig 1 gives the layout for the development of the DFC along the western corridor.

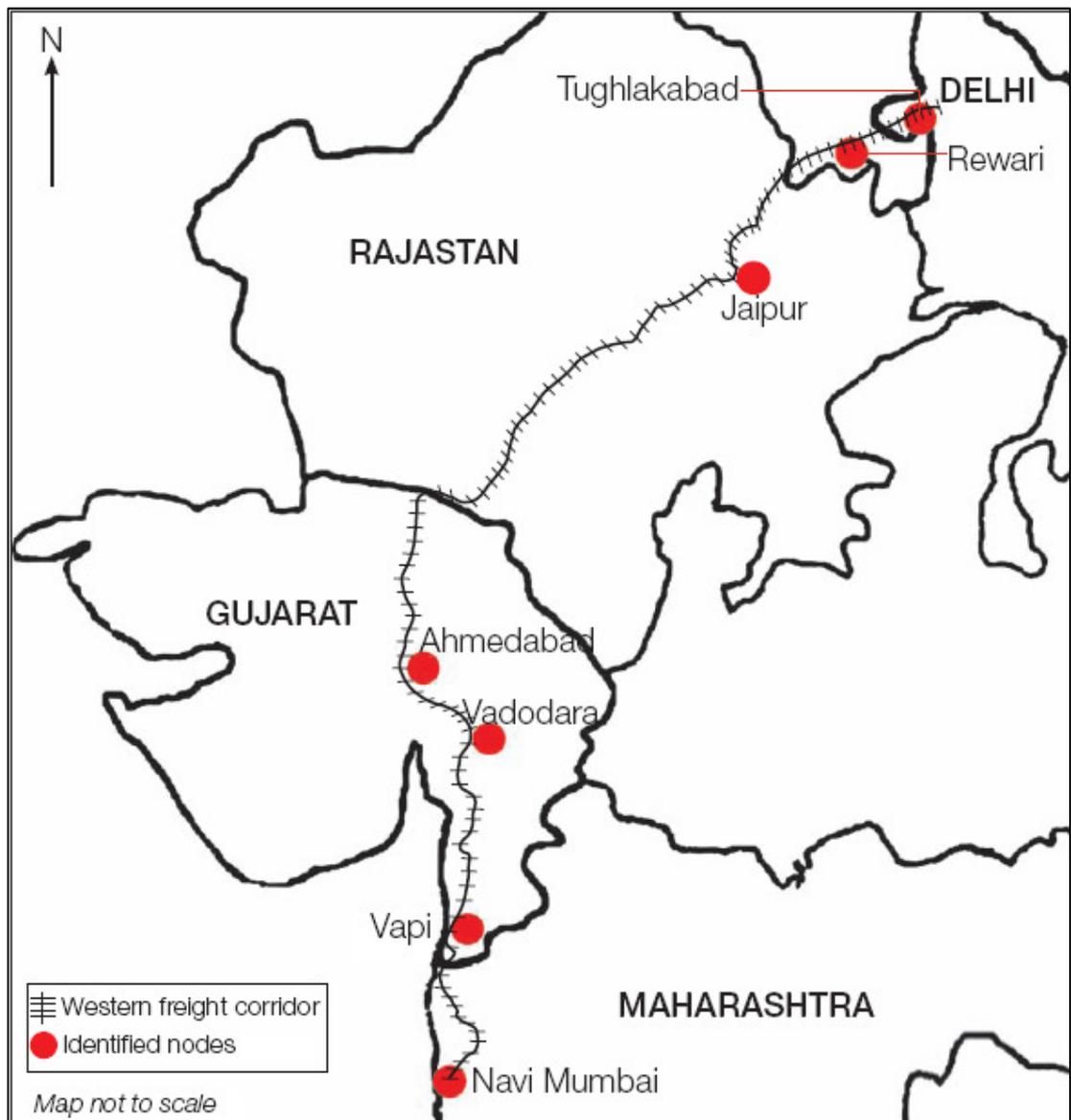


Figure 1: The Western Corridor Source: www.dfccil.org

The project which is already underway is being partially funded by the Japanese Infrastructure Bank will be carried out by a special purpose vehicle (SPV) called the Dedicated Freight Corridor Corporation of India (DFCCIL). This company set up under the administrative control of Ministry of Railways will undertake planning & development, mobilization of financial resources and construction, maintenance and operation of the Dedicated Freight Corridor (DFC). Freight trains along this corridor are designed to carry greater capacity of goods at twice the speed than its current capacity.

To take advantage of the rapid growth in the manufacturing sector and the availability of a freight corridor, the central government has involved five regional states to form an industrial corridor between Delhi and Mumbai along the DFC which will help promote manufacturing and other industries.

The government is aware of the necessity of modern logistics infrastructure as a result of the above developments. In order to develop technologically advanced logistics facilities and to liberalise the logistics sector, the central government has been giving impetus to the sector through a number of initiatives such as allowing 100% FDI, eliminating CST, introducing VAT, encouraging public private partnership (PPP), and 100% income tax exemption for port development projects. A research in this area has forecasted the Indian logistics industry to be valued at nearly \$385 billion with nearly 12% (fig. 2) in the organised sector by the year 2015.

Major drivers for demand for the organised logistics sector are the changes in India's regulatory framework, growth in manufacturing and organised retail sector

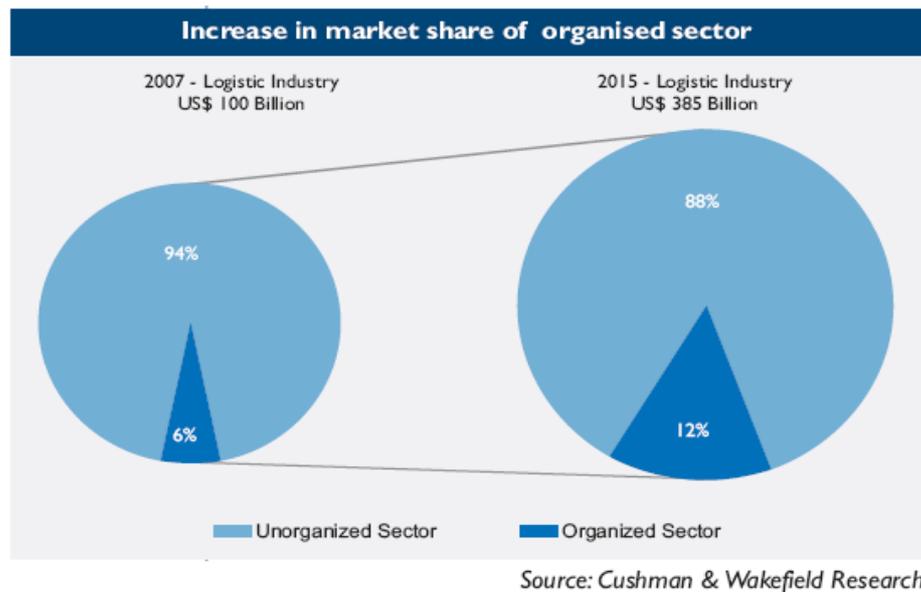


Figure 2: Projected increase in organised logistics market

The project will be executed under public private partnership (PPP) in which depending PPP model, the commercial developer will develop and maintenance the logistics facility for an agreed period with the partnership of the Indian Railways and/or the state governments. This presents with a business opportunity for commercial developers and logistics companies.

1.1 Definitions

Multi-modal logistics parks (MMLP)

A multimodal logistics park is a facility which provides a wide range of logistics services like integrated and accessible by multiple modes (rail, road, maritime, air) comprising container terminals, bulk/break- bulk cargo terminals, warehouses, 3rd Party Logistics players, Inland Container Depots (ICD)/Container Freight Stations(CFS), banking, packaging, office space and facilities for manufacturing, parking, mechanized handling, inter-modal transfers, sorting/grading, cold chain, aggregation/disaggregation to handle domestic and EXIM freight.

Figure 3 is an example of a large multi-modal logistics park. , we can see that the logistics park will enable collocation of key value added players through which they can improve supply chain efficiencies and help the logistics service providers to

better serve the trade flow between manufacturers and producers. This synergy will drive economies of scale, scope and co-location.

Third Party Logistics (3PL)

Third party logistics is a supply chain practice where one or more logistics function is contracted to a third party organisation and not carried out internally. This is typically done by companies to reduce the costs of managing such facility and to focus more on their domain. Generally, logistics functions such as inbound and outbound freight, warehousing, packaging, customs clearance are outsourced to 3PL providers.

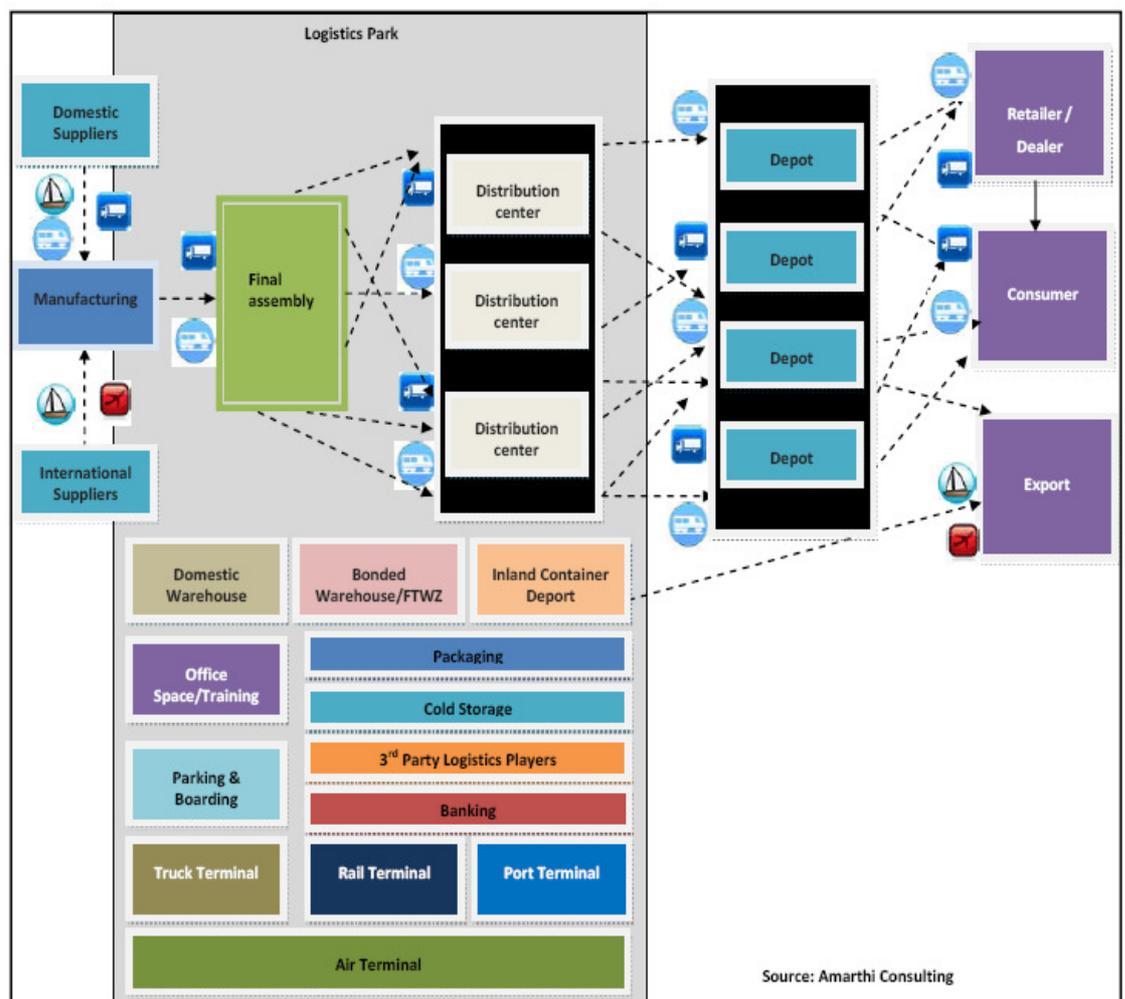


Figure 3: A typical layout of a large Multi-Modal Logistics Park

(Source: CII 2009)

Public- Private Partnerships

Public-Private Partnerships (PPP) generally refers to a government service or public business which is generally funded, managed and/or operated through private partnerships. PPP are generally carried out for large public projects through contractual agreement between a government agency and a private sector entity that allows for greater private sector participation.

The Canadian council for public private partnerships have highlighted in their website, the different types of PPP models that are undertaken for large infrastructure projects. (Canadian council for PPP n.d.)

1. Design-Build (DB): Here, the government contracts with a private partner to design and build a facility in accordance with the requirements set by the government. The government assumes responsibility after the completion of the facility.
2. Design-Build-Maintain (DBM): Here, the private sector also maintains the facility and is responsible for operations with a contractual agreement with the public organisation.
3. Design-Build-Operate (DBO)/ (BTO): Under this model, the private sector builds the facility is transferred to the public sector on completion. The private sector operates the facility for a specified period to generate revenue from this project.
4. Design-Build-Operate-Maintain (DBOM): In addition to the above, the private sector maintains the facility for a specified period.
5. Build-Own-Operate-Transfer (BOOT): The government grants a private partner to own the facility for a specific period in addition to the other requirements of the contract. Ownership is transferred back to the public sector at the end of that period. In some cases the new facilities are given on a long term lease to the private entity.
6. Service Contract: The government contracts with a private entity to provide services the government previously performed.
7. Management Contract: In this type of contract, the private entity is responsible for the management of the facility including all aspects of operations and maintenance.

8. Concession: It is similar to the BOOT except that the public sector will have the ownership of the original asset, while the private operator retains ownership over any improvements made during the concession period.
9. Divestiture: The government transfers an asset, either in part or in full, to the private sector. However, the government will ensure that the objectives of the facility i.e. the citizens of the country are served and improvements made to the facility.

POLICIES AND REGULATIONS

Accordingly the 11th five year plan of the country give provision for \$514 billion for infrastructure development which is more than 100% as compared to the \$222 billion realized against the 10th five year plan (source: planning commission report). Accordingly a number of initiatives have been taken by the government which includes creation of an institutional framework under the chairmanship of the prime minister and provision for viability gap funding up to 20% for commercially non viable projects, provision of subordinated loans through India Infrastructure finance company (up to 20% of the project cost).

Multimodal transportation of goods act:

Multimodal transportation of goods in India is governed by an Act called the Multimodal Transportation of, Goods Act; 1993. The Act primarily deals with the multimodal transportation of goods, from any place in India to a place outside India, on the basis of a multimodal transport contract and for matters connected therewith or incidental thereto. All parties carrying out business in multimodal transportation has to be registered under this act.

Foreign trade act

Since multimodal logistic park operators have to handle goods exporting from and importing to India the operators are covered under “Foreign Trade (Development and Regulation) Act, 1992”. The act deals with, apart from other issues, the licensing requirements of the foreign trade, Power of Central Government to make Orders and Announce Export and Import Policy, Director General of foreign trade and his functions, issue of Importer-Exporter Code Number and Licence, power of the central government to Search, Seizure, Penalty and Confiscation of items traded/ premises of the trader etc.

Free Trade and Warehousing Zone (FTWZ) policy

Chapter 7A of the foreign trade policy 2004-09 of the government of India (Ministry of Commerce & Industry) enlists the policy guidelines of Foreign Trade and Warehousing Zones (FTWZ). These Zones would be established in areas proximate to seaports, airports or dry ports so as to offer easy access by rail and road. As per the current policy of the Government of India, Foreign Direct Investment (FDI) of up to 100% in the development and establishment of the zones and their infrastructural facilities will be permitted. Government stipulate that the investment in the infrastructure outlay must be more than 1billion INR and should have a built up area of 500000 sq m. Government permits duty free import of all goods (except prohibited items, arms and ammunitions, hazardous wastes etc for ware housing.

Taxation policy

Companies operating in a FTWZ enjoy concessions such as Income Tax exemption as per 80 IA of the Income Tax Act, Exemption from Service Tax and free foreign exchange currency transactions

- Exemption of Income and service tax: The zone provides fiscal benefits like exemption of on income tax (as per section 80 1A of the IT act) and the exemption of payment of service tax to both the developer and the user of the park.

- Exemption of excise duty for the user and developer of the park (for use within the zones) for the consumption of all capital goods sourced from the domestic market.
- Income tax benefits to enterprises engaged in infrastructure development, in which the multi modal logistics parks will also be included.

From our research of the manufacturing facilities operating from Vapi, we found that a majority of the facilities will opt for a 3PL logistics provider if they are given a

Removal of CST is the most important factor for industries in the manufacturing sector to opt for a 3PL operator

tax incentive for their export goods as proposed in the FTWZ act. Many other respondents who cater only to the domestic markets felt that the removal of CST will be the most important factor for them to choose a 3PL provider.

OPPORTUNITY FOR MMLP AT VAPI

OVERVIEW

In order to study the sustainability of a rail based Multi-modal Park, it was decided to focus the research on one region, Vapi. Vapi is a tier 3 industrial town located in the Valsad district of Gujarat. The project area is surrounded by two other union territories of Daman and Dadra- Nagar Haveli which also have a high density of industrial setup.

Vapi is also at close proximity to the neighbouring districts of Nasik, Thane, Navsari etc which can be a source of additional traffic for the logistics park.

The demand estimates for the multi-modal logistics parks (MMLP) is determined from the data collected from the Indian Railways authorities and through surveys conducted in the area of nearly 16 manufacturing units, consisting of large multinational, export processing and those serving the domestic market.

Table 6 (Refer Appendix 6) outlines the breakup of traditional and non traditional goods traffic passing through Vapi for the year 2006 -2007. Here, traditional traffic is defined as those which are moved through traditional methods by road or rail. E.g. bulk commodity transportation. Non traditional traffic is those which are moved in a more modern form of storage and transportation. E.g. containerised transport, automobile car carriers, heavy machinery transportation etc.

Vapi is essentially a chemical producing area but the region also has textiles mills, electronic and electrical goods and cables, paper products and pharmaceutical industries. Daman is known for plastic products, electrical goods, engineering items and distilleries. Silvassa besides textiles and yarn has several industrial units for

Majority of the traffic at Vapi is containerised non traditional including the ones for the EXIM markets although there is a small quantity of bulk commodity movement

cables, FMCG, marble, plastic, oil and lubricant producing facilities. A majority of the products are for containerisation and EXIM but there is a sizable volume of traffic consisting of chemicals, yarn and raw materials which are of short distance movement between the MMLP and the industrial areas. This has to be moved through road. Likewise Alcohol produced in the distilleries in Silvassa cannot be moved through the MMLP at Vapi as the state of Gujarat has a prohibition for the product.

The EXIM traffic largely consists of containerised goods such as chemicals, finished metal products, FMCG, marble, textile and yarn, plastic products, pharmaceuticals, garments, electrical goods and cables etc. (Refer Appendix 6, Table 7)

Fig 4 shows the current modal preferences of survey participants. Most of the cargo is moved by road through trucks. This is largely because trucking companies offer them door-to door services. Large consignments like bulk shipment of optic fibre cables, etc are moved through rail as they are more suitable. Air transport, though expensive, is used for emergency shipment and for shipment of very small volumes of cargo. Transshipment cargo is moved through rail or road to the JNPT port and then through sea. Most cargo are containerised although there is a volume of traditional traffic in Vapi.

Road haulage, though expensive, is preferred as it offers door to door services of containerised goods and access to different locations

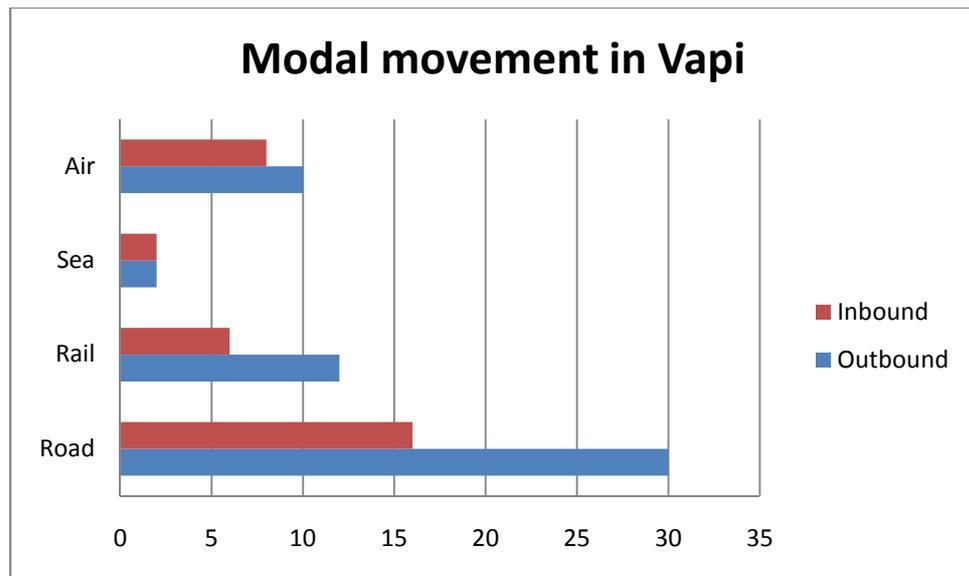
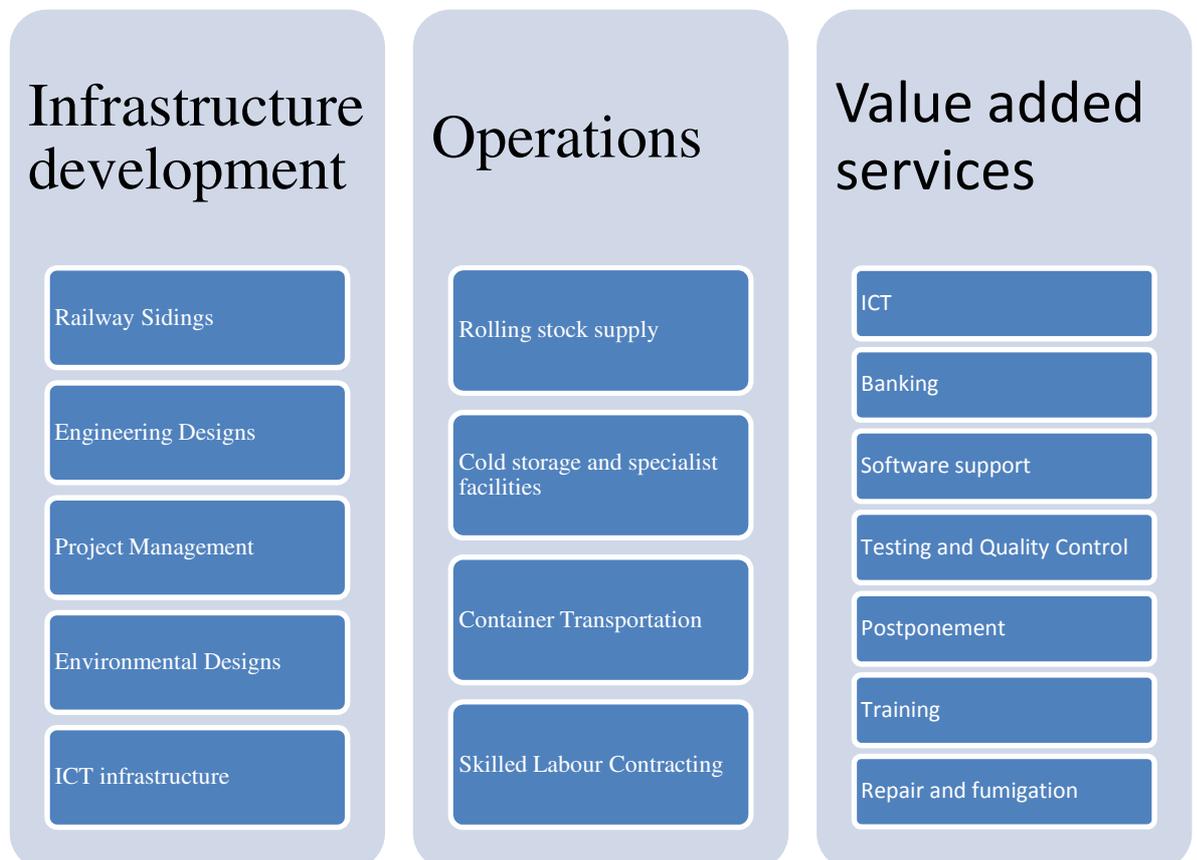


Figure 4: Modal preferences in Vapi

There are three major steps in the MLP industry’s value chain; Infrastructure development, Operations and Value added services. A number of stake holders are involved at each stage and there are business opportunities at each stage of the value chain.



Infrastructure Development

Contracting of Railway sidings:

Many of the logistics parks would be located away from the main line of DFC. For proper connectivity there would be requirements of yards and sidings. The construction and operation of these assets require specialized knowledge in civil engineering, Permanent way, signalling and train control communication etc. This would generate business opportunities not only for contracting but also for manufacturers such as railway signalling relays, point machines etc.

Engineering designs:

Engineering designs is another business opportunity in the value chain. The logistics parks with its connected railway yard require complex design skills. Opportunity exists for civil, signalling and telecom design companies.

Project management consultancy:

Project management consultancy was not very popular in India. However it is gaining popularity in recent times. For example Delhi Metro Rail Corporation (DMRC) has been extensively using project management consultancy. MLP would be opportunity for project management consultancy companies.

Environmental Designs

There is a need to develop environment friendly designs in civil structures and energy planning. Currently, there are opportunities in carbon reduction designs and technology along the DFC.

ICT infrastructure Development

Information and Communication Technology is a differentiator in logistics business. Logistics Park would give immense opportunity for the infrastructure development in ICT. There are opportunities in setting up ICT infrastructure in for connecting different setup within the MMLP

Operations

Rolling stock supply and train operations

Indian Railways face shortage of rolling stock. Hence investment in rolling stock could be a business opportunity. The scope for running goods train in the dedicated freight corridor also cannot be ruled out.

Need for Cold storage facilities

MMLPs would require cold storage facilities and reefer containers for the transport of chemical, pharmaceuticals and retail FMCG products as these containers and facilities are in short supply and logistics operators are currently importing it from other countries.

Container transportation

Without efficient container transportation the logistics parks cannot provide agility to the transportation system. Hence this would give good business opportunity. Having CFS/ ICD facilities along with value added services is a need for the clients operating in this area.

Skilled labour contracting

Skilled labour is considered as one of the most important aspects of logistics system. In one of the recent surveys conducted to prioritise the factors for logistics parks selection Indian manufacturers consider availability of skilled as the most important factor.

Free Trade Warehousing Zone

FTWZ would be a key Link in Logistic and Global Supply chains - servicing both India and the Globe. Each Zone would provide '**World Class**' Infrastructure to facilitate one stop clearance of Import and Export of goods. There are scope for such FTWZ associated with MLPs.

Value Added Services

ICT

Indian customers' rate communication as the most important value added service according to a survey conducted among the manufacturers falling in the catchment area of proposed logistics park in Vapi. ICT has been a core value added activity in major transport hubs such as Singapore and Rotterdam. A networked environment as in Keppel Logistics Park in Singapore could be a business opportunity in the logistics parks.

Software support

Use of modern technology and a highly integrated computer system to control the processes and procedures involved in the shipment and delivery of cargoes preferably twenty-four hours a day, seven days a week that provides the customers with on-line tracking of the container movement from the various points of their operations.

Packaging

The scope covers packaging labelling bar-coding security systems etc

Testing and Quality Control Facilities

Catchment areas of most of the logistics parks are expected to develop in to major manufacturing zones. Testing and quality control equipments and manpower, if provided individually, could be expensive. By MLP can provide shared facilities of high standard. Recent survey conducted among manufacturers of Vapi area shows keen interest among them toward testing and quality control outsourcing.

Postponement in manufacturing

Postponement in logistic systems are generally of three types i.e. Space postponement, time postponement or form postponement. Companies Logistic centres can act as a major postponement hub particularly for products required to meet localized needs of customers (example computer systems). This is good business opportunity for companies with global operations as standardised products can be manufactured in a central location and the final assembly can be done in the logistic centres emphasizing customization according to the requirements of local customers.

Training facilities for the industries

Opportunities for quality systems and other skill development training could be an option.

Partnership with universities is an option

Repair Centres

Repair centres including front end service to meet customer handling is an option

Fumigation

This is a major value added activity in developed logistic parks such as Singapore and Rotterdam

This study focuses specifically on the investment opportunities in the infrastructure development stage of the value chain. There are a number of reasons for focusing on this area, but most important is the opportunity to develop a network of logistic parks along DFC catering the needs of the whole country.

Banking

MLPs are huge business hubs. Banking opportunities consists of financial support in the developments of the logistics parks and industries in the catchment areas as well as in providing banking facilities for regular operations. Banking services in export orientd logistic parks can act as a differentiator in the fragmented logistics market in India. The logistics park operators can go beyond the role of a mere facilitator to banking to the role of partners by providing infrastructure support like ICT for coordinating the financial institutions.

FINANCIAL CASE OF MMLP INVESTMENT

Financial viability of the project will be adjudged from the point of view of a commercial developer/operator. The project for construction of MMLP can be implemented under various public private partnership (PPP) models. The costs and benefits for the MMLP have been assessed over the project life of 32 years which includes 2 years construction period. The project cost comprising of fixed and variable cost have been obtained from the forecast made by the Ministry of Railways. As the logistics park is expected to operational by 2011-12 the basic development has to take place by the first year of operation. Details of the fixed cost which includes cost for infrastructure development and handling equipment over different time periods are given below. The values are taken in pound sterling at a conversion rate of £1= Rs 80.

(In £ millions)

A. Infrastructure	2011-12	2016-17	2021-22
Cost of land	13.98	-	-
Cost of all types of paved and parking area	2.96	.73	1.45
Cost of rail infrastructure	36.88	0.63	0.00
Cost of approach road and internal roads	5.25	-	-
Cost of structures and buildings	8.8	0.89	1.42
Cost of electricity, water, drainage and IT	3.7	.13	.13
Others	8.03	.35	0.5
Total (A)	79.60	2.73	3.5
B. Cost of Handling Equipment	4.91	1.53	0.10
Total (A+B)	84.51	4.26	3.6

Table 2: Forecasted fixed costs (Source: Ministry of railways)

The variable cost component have been made taking into account the operating and maintaining the facilities and equipment provided in the MMLP along with other recurring expenditure on administration, security, electricity, utilities, etc. The operating and maintenance costs for different time period are shown as follows:

Variable cost (£ million)

Year	Infrastructure	Equipment	Other Recurring Costs	Total
2011-12	2.15	0.97	2.10	5.22
2016-17	2.24	1.29	2.23	5.77
2021-22	2.34	1.50	2.42	6.26

Table 3: Forecasted variable (Source: Ministry of Railways Report)

Revenue Source

Currently the Indian railways have identified the different revenue sources for an operator/ commercial developer depending on the different type of services provided at the MMLP.

The MMLP developer will earn revenues from the following

- Rail terminal/ access charges for the use of the terminal facilities by the logistics providers or container operators though they will not be able to directly claim this charge from the users. These tariffs will be collected by the Indian Railways and the railway board will compensate the MMLP developer from time to time.
- Rental Charges for the space which has been leased/ rented by various users of the MMLP
- Rental charges of the use of Warehousing facilities/ office space and other facilities that the MMLP developer will provide within the logistics park.

- Terminal handling charges for the use of handling equipments (cranes, forklifts and other heavy machinery) that the logistics provider will use at the park.
- There are other miscellaneous earnings that the MLP developer will earn as a result of advertisement, leasing/ rental of residential properties and other value added services provided in the
- Our research shows that value added services can act as a major business driver in the Indian logistics market. Development of logistics systems attached with ports in Singapore and Rotterdam are examples. Value added services that bring competitive advantages to the companies would be widely accepted and will be a strong revenue stream.

The forecasted revenue generated by the park is shown in table 4.

Revenue expected (£ million)

Year	Direct Revenues	Other Earnings	Total
2011-12	7.51	0.38	7.89
2016-17	11.11	0.56	11.67
2021-22	16.44	0.82	17.26

Table 4: Forecasted Revenues (Source: Ministry of Railways report)

Sensitivity Analysis

As the PPP model for the project is not specified, the authors have tried to analyse different scenarios with two common PPP models used for such projects.

1. Build-Operate-Transfer- Maintain (BOTM/ DOBM)

Under this model, the development of the project will be undertaken with the participation of state government and the Indian Railways along with the commercial developer.

Here we have assumed that the concession period given for the developer is 32 years including 2 years of infrastructure development period. The weighted average cost of

capital (WACC) for an existing similar project is at 11.1% (Goldman Sachs 2008). However, considering that the project is situated in a tier three city catering to an industrial traffic segment we will assume the WACC for this project at 10%.

Scenario 1: Assuming that the land is provided by the state, the capital expenditure for the commercial developer is reduced by £ 14 million. Even with this reduction in costs, a developer can expect an IRR of 9.58% only when the MMLP will grow at a rate of 3% every year from the year 2016-17 (The year when the Dedicated Freight Corridor is scheduled to be completed) (Appendix 1)

Scenario 2: The developer can receive better rate of return if the infrastructure costs for developing the rail sidings (44% of the fixed costs) are borne by the Indian Railways. Here the developer can expect an IRR of 12.7% considering that the MMLP grows at a rate of 3% from the year 2016-17. (Appendix 1)

However, from interviews with Indian Railway Officials, we found that this arrangement is highly optimistic and that the commercial developer should not expect the Indian Railways to bear the costs for the rail infrastructure leading to the logistics park.

2. Build-Own-Operate-Transfer (BOOT)

In the BOOT model, the commercial developer bears all the costs associated with the development of the MMLP and will have a full ownership of the facility with a provision to transfer the asset to the State after a certain period of time.

In analysing this type of model, the author has assumed the project period of 15 years after which the developer has an option to transfer ownership to the State. For the sake of the analysis, the terminal growth for the project after the 11th year of operation (2021-22) is assumed to be at 5% which is the industry average in India. (Goldman Sachs 2008)The terminal value for the project is calculated at £231 M. Three different scenarios have been considered in order to analyse the data.

Scenario 1: Best Case

In this scenario, the logistics park is expected to perform at 100% of the capacity and receive the forecasted traffic into the park from the very first year, 2011-12. The developer is set to gain a profit of £ 7 M from the project with the expected IRR of 10.8%

Scenario 2: Most Likely

In this scenario, it is assumed that the logistics park will run at 50% of the full capacity in the first year with a gradual growth of 10% every year for the next five years and a terminal growth of 5% from the 11th year onwards. This is assumed as the Dedicated Freight Corridor is still under construction and the MMLP may not be able to capture the forecasted traffic.

From the analysis, we can expect an IRR of 9.87% from the project at the end of a 15 year period. However, the developer can expect a negative cash flow for the first four years for which the developer will need other sources of revenue to sustain.

Scenario 3: Worst Case

Here we have assumed that the park will run at 30% of the capacity in the first year of operation followed by a 10% growth y-o-y till the year 2016-17 and a terminal growth rate of 5% from the 11th year onwards. This is assumed considering that the DFC has not been constructed further to Vapi region. The assumption is made through our findings that the first phase of the project has recently begun after a period of three years of gestation.

From the chart, we can see that the project will take 6 years before it will start generating profits. An IRR of 10% can be expected from the project.

In such conditions, there will be a certain amount of risks associated with the project, however, this type of PPP model seems to be more suitable for the developer or a logistics operator interested in an early exit from the project. A viability gap funding from the government can be negotiated in order to offset the risk of negative cash flow in the initial period which can occur due to the delay of the DFC and the DMIC projects on which the demand for logistics traffic is dependant.

Even in the worst case scenario, a commercial developer is set to gain a return of nearly 10% on his investment if he goes for the BOOT PPP model.

Caveat:

1. The revenue shown in the analysis is taken on a conservative basis. Considering that the logistics industry is currently growing at 25-30% y-o-y, a variation of 10-15% on the upper side can be assumed.
2. A 12.5% tax incentive given to the development of infrastructure projects has been taken into consideration during the calculations. Moreover, it is assumed that the developer decides to make this park a Free trade and warehousing zone (FTWZ) and hence he will also enjoy a tax holiday on the revenues generated.
3. Depreciation of equipments has been considered under costs.

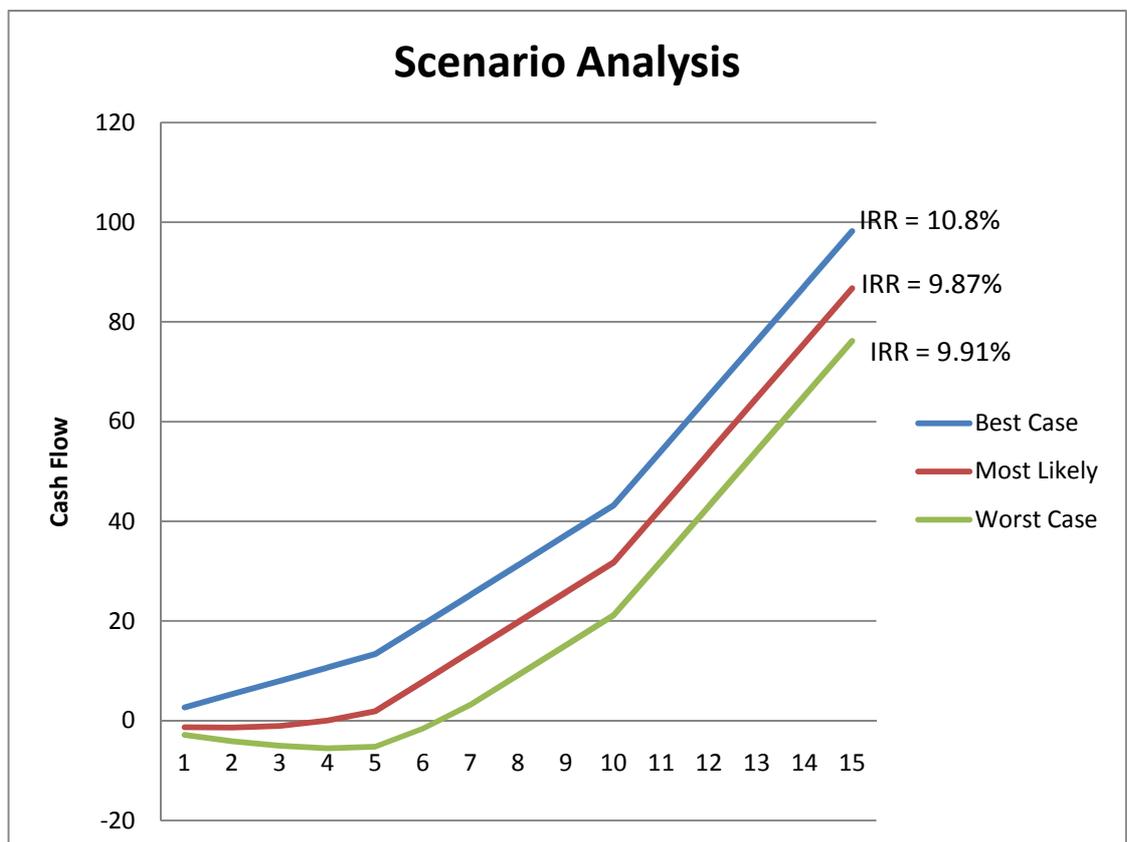


Figure 5: Scenario analysis of the project

PESTEL Analysis of Vapi MMLP

Political Analysis

India has stepped up its plans in developing its infrastructure requirements and to promote its manufacturing and industrial sectors. The central government has launched ambitious plans to develop these requirements through public private partnerships. Considering the fact that the present government is the only other government to be re- elected after the government of Jawaharlal Nehru, we can assume that there will be stability in the policies brought forward by the present government.

Changes in regulatory policies can impact the growth of an MMLP in Vapi

However, in a PPP, there is a level of control over the prices of services provided by the government. This might be problematic for a commercial developer in getting business to the park. For e.g. The Indian Railways which is under the administrative directive of the Ministry of Railways, heavily subsidise the passenger traffic on their services which they compensate by overpricing the freight traffic. The cost of transportation of steel (ton/km) is three times the one in China. As a result the movement of freight has increasingly shifted from rail to road. (Economic Intelligence Unit 2008)

There is also the issue of high pricing of the toll on expressways and national highways for road freight traffic which has added to the costs and/or prevented many truck owners from using these roads for quicker deliveries. Moreover, changes in regulatory policies at JNPT can affect the margins of logistics operators. These policies and pricings can have significant impact on the development of the logistics park and affect growth in the long term.

Socio - Economic Analysis

The road freight industry is growing at 6-8% every year and is currently worth about INR 1.42 trillion. The country's 4% of roadways carries 60% of the freight traffic. (Cushman & Wakefield 2008) This has not only increased the logistics costs, inefficiencies increase transport time, damage cargo and the increase the need to maintain large inventories.

The impact to the Government is that there is an increase in the congestion on the roads which leads to more wear and tear and damaged roads resulting in high maintenance costs to the government. (Pankaj & Nimit n.d.)

Manufacturers needing storage facilities and other services need to deal with separate agencies catering to these facilities. This has aided to the increase in the costs of logistics.

Gujarat has an unemployment rate of 13% (Government of Gujarat 2008) and we know that the development of transport infrastructure is highly labour intensive and the project will help provide employment to people in and around Vapi. (CII, KPMG 2007) Manpower spends amount to 4% of sales against the industry average of 8-10%. India has a very large population of young workforce, but there is skills shortage especially in trucking and warehousing segment which can be addressed by involving multinational players in the market who will bring their skills and expertise into the Indian business. However, India's labour regulations are complex and very restrictive which will hamper growth in the manufacturing sector on which the logistics parks are dependent. (Arvis et al. 2007)

An MMLP can affect the livelihood of many depending on the trucking industry. However, this will take a long time as organised logistics is forecasted at just 12% in the next 10 years. Skills development and training has to be imparted to these sections to reemploy them in other industry.

The inflation in India is very high at 11%. (Economy Watch 2008) MMLP and the DFC will help reduce the transportation costs. (CII, 2009) Moreover, the FTWZ and SEZ will help promote the free currency trading in the bonded area and aid in increasing the FDI in transportation and manufacturing sector.

Better logistics facilities can help in providing a competitive environment to all the parties involved. The Indian Railways is a monopolistic organisation with few competitors in the rail freight market (Refer Appendix 3). An opening of the rail freight business to private players can help in reducing costs; increase efficiency and increase competition between rail freight based MMLP and other private logistics parks operator thus benefiting the end customer and allow a wider reach and a greater choice of goods to customers.

Technological Analysis

The Indian logistics sector lacks technological advancement that will hamper the provision of value added services to the customers. Integrated IT systems are necessary to link ports, the customs, and various parks to track shipments. Currently, only a few thousand vehicles out of a total of several millions have tracking system.

Multinational logistics operators can bring their technological expertise into the market and will in turn benefit the local operators in optimising efficiency.

In privatizing the operations of container traffic through rails, there might be problems faced by new entrants to secure the rolling stock and specialised storage

containers e.g reefer containers because of limited manufacturing capacity and technical knowhow.

There is a need for modern ICT facilities for tracking of consignment,

This will result in firms to import wagons at high cost. All these factors will increase the entry barriers for the private operators.(Pankaj & Nimit n.d.)

smooth integration of inter modal transportation and optimising efficiency

Technology is constantly evolving and the sustainability of the social, economic and environmental factors is proportional to the technological advancement. Rail infrastructure is a long term investment, planned for a life of 30-40 years; therefore any changes in technology will be implemented only at a later stage. This might reduce the competitive advantage of rail freight.

In a survey conducted among different companies operating in India, It was found that 63.04% of the respondents felt the most important value added service is access to information about their consignment movement.

Legal Analysis

All operators and commercial developers of a MMLP are bound by the Indian legal framework mainly by two laws. They are

Multimodal transportation of goods act:

Multimodal transportation of goods in India is governed by an Act called the Multimodal Transportation of, Goods Act; 1993.

The Act primarily deals with the multimodal transportation of goods, from any place in India to a place outside India, on the basis of a multimodal transport contract and for matters connected therewith or incidental thereto. All parties carrying out business in multimodal transportation has to be registered under this act.

The act deals with regulations regarding the registration of the service, responsibilities of the consignor/ consignee and the liabilities involved in the service.

Foreign trade act

Since multimodal logistic park operators have to handle goods exporting from and importing to India the operators are covered under “Foreign Trade (Development and Regulation) Act, 1992”. The act deals with, apart from other issues, the licensing requirements of the foreign trade, Power of Central Government to make Orders and Announce Export and Import Policy, Director General of foreign trade and his functions, issue of Importer-Exporter Code Number and Licence, power of the central government to Search, Seizure, Penalty and Confiscation of items traded/ premises of the trader etc.

Though there is an exhaustive legal framework protecting the interests of the operators and the customers, the legal system is very slow and can be a barrier for an operator or developer in this field.

In an interview, one of the trading directors of a large UK multinational revealed that the Indian judiciary, in his experience was a legal maze and it would be difficult

to carry on with business as usual when the procedural framework makes it difficult for a project to kick start in the first instant.

Environmental Analysis

The Dedicated Freight corridor has an enhanced loading capacity in comparison to the existing facilities in the Indian railways. It has more width, height and an increased train length which will enable a load carrying capacity of 15,000 tons from the current capacity of 4000 tons. (Indian Railways 2007)

In an interview, one of the senior executives of UK's largest multi-modal logistics companies said that the market for CO₂ reduction transportation is limited, especially in the recession where everyone is trying to reduce costs and are not willing to pay a premium for the service. However, he said that there is a market of retail giants like ASDA and TESCO who are interested in rail based logistics transport as it is more carbon friendly.

With changes in environmental norms rail based operators have to be ahead of the times as rail infrastructures are long term investments. Companies need to plan for long term costs that will increase due to changes in environmental policies. An executive with a large multi-national engineering consultantancy company said that the market for reducing carbon footprint in rail based

Developers and promoters should be aware of the costs that will incur as a result of future changes made in environmental policies

MMLPs have increased with the private players taking the lead. This can affect the business for commercial developers who operate with partnership with the Indian Railway, if the Indian Railways do not keep up with emerging technologies.

In India, the customers showed similar behaviour to that in the UK. Most businesses surveyed were not willing to take up additional costs for benefits to the environment. They however expressed that encouragement from the government

like tax incentives for being more environmental friendly will shift them to a different practice of logistics movement.

In the UK, costs of rail transport are currently high and there is a stiff competition with trucking operators which is affecting the business. Rail operators are given various incentives by the government, e.g. an incentive of £100 on every container transported by rail. Similar policies can be adopted in India to promote rail freight.

OPERATIONAL RISKS OF INVESTMENT

From our findings and analysis, we have identified the following that could be of potential risk for the commercial developer.

- The development of the Dedicated Freight Corridor is in the initial stages of implementation with the expression of interest taken for some of the areas recently. There is a possibility that the project completion time might overrun the 2016 deadline. Similarly, the Delhi Mumbai industrial Corridor is still in its conceptual phase. The project is facing issues of land acquisition for development of the industrial and residential areas as well as concerns regarding the financing which is being done by Japan.
- The MMLP project was initiated in 2007 and has progressed very slowly since. One of the senior railway official stated in an interview that the project has been taken over midway from the administrative control of the DFCCIL to the Ministry of Railways where it has not progressed much over the past two years.
- Though the MMLP at Vapi will be developed by 2011-2012, the above two projects are critical as the revenue streams for the developer are also dependent on the movement of goods between the zones through the parks.
- The cost – benefit analysis being carried out is for the Vapi region only which has seen reasonable development as an industrial region. A logistics parks provider in this region will also benefit because the location is of close proximity to the city of Mumbai and other SEZ's in the state of Gujarat from where it can attract business. However a developer investing in this region should also assess the ability of public infrastructure like roadways to take the additional traffic created by the logistics park.
- The value stated for costs and revenue is assumed based on the current perception of the demand of these services. However a developer should also take into consideration the need for value engineering in developing the infrastructure and offering their services to their clients.
- If the PPP arrangement between the parties concerned will be through a Special Purpose Vehicle (SPV) in which the state government and railways will share a

controlling stake along with the private enterprise, there is a risk for the developer as he shares control over the management of the project with a state authority and a public enterprise.

A senior rail director of a multinational engineering consulting firm gave the example of the London underground project and stated the issues of control over development with the Transport for London (TfL) as a major deterrent in the timely progress of the project.

- The pricing of the rail freight is controlled by the Indian Railways which has made rail freight more expensive. This can affect the business for a developer as being price inelastic can mean that he will not be able to effectively compete with other logistics parks operators and trucking companies.
- GDP slowdown can affect freight. (Goldman Sachs 2008) states that 1% drop in world GDP could mean a 4% drop in freight as a result of reduced EXIM traffic.
- There are nearly 110 logistics parks coming up in India in the next five years. This can lead to over capacity and price competition which may affect the business for the commercial developer.
- The Bombay Port (JNPT) accounts for nearly 70% of all container freight coming to the western corridor. Regulatory changes in this Ministry of Shipping run port can affect the future of the business.
- A rise in fuel prices can increase the transportation costs adversely affecting margins.
- Operational efficiency is significantly lower at Indian ports compared to global standards. Average ship turnaround time is 3.5 days in India vs 13 hours in Hong Kong. Also, an increase in container traffic over and above capacity at the ports could lead to congestion at the ports leading to a decline/ delay in the throughput.
- The Indian Railways technology and maintenance system has not yet developed to the level of European Railway system leading to reduced reliability which might lead to customers shifting to private players.

CONCLUSION

As the Indian markets are getting more competitive in the coming years, demand for multi-modal logistics services including value added services is huge. Policy changes like the abolishment of the CST and opening of free trade and warehousing zones are deciding factors for more companies to outsource their logistics services to third party contractors.

Containerisation is gaining momentum in India and the market is good to open Container Freight Stations (CFS). The DFC will allow faster, cheaper and better connectivity from the ports to the hinterland. From the study of Vapi, we can see that the MMLP have higher reliasation from ICDs and CFSs than the other facilities.

There are different types of PPP models that can be chosen depending on the objective of the commercial developer/ logistics operator. From the scenario analysis it was found that the BOOT model would be most advantageous as it will be less capital intensive and offer better returns on investment in present value terms. The BOOT PPP model will also give the developer the flexibility for an early exit and shared risks depending on the type of contract that is signed with the public partners.

The traffic projection is for the Vapi project and does not reflect the overall demand of logistics parks in India. One the largest consumer for such service in the UK is the retail segment. Taking a cue from the UK market, we can assume that developing a logistics park in urban locations near to cities like Bangalore, Mumbai, and Chennai can capture greater traffic generated by both industrial as well as retail customers.

To make this an even more attractive business proposition, value added services like ICT, software support, packaging, testing and quality control, postponement in manufacturing, etc can be provided in the logistics parks.

Further there are huge business opportunities for the banking sector, in engineering consultancy especially for environmental designs such as carbon reduction designs which has become an increasingly important factor for transport infrastructure development and in filling the requirement for operational gaps which will be created as a result of the growth in the sector.

There are various direct and indirect risks that are associated with the project. Most prominent of them are the influx of a number of players in the market which will offer a tough competition and the issue of price inelasticity of the Indian Railways which can adversely affect the bottom line and development of the park.

Environment and social aspects of future transport policy must be taken into account. This may add to the present costs of the project, but if not considered, can impact on the future markets which will be more carbon-free friendly.

For a rail based logistics park to be sustainable, we have to take a broader look of railways along with other modes of transport which will help us find the best balance between the needs of the economy, society and environment. This involves efficient improvement of services and ensuring that the investments are targeted and sustained. If a project such as this has clear social benefits, then such projects should be encouraged by the public sector through schemes like a viability gap funding to offset some of the risks to the commercial developer and encourage more private involvement in developing such projects. For India to develop its transportation and logistics infrastructure, it is necessary that appraisal of the framework of transportation policies are continued to capture the economic, social and environmental impacts and enable attain long term objectives.

LIMITATIONS

Though the data for the traffic flows and demand have been taken in good faith, there are limitations to the figures and it is necessary to consider different factors influencing the data collection.

The traffic forecast is calculated by taking into consideration the shift of traditional traffic flows (road transport) into rail. This can be achieved only when there is a cost advantage for the customer.

The shift of traffic to the MMLP is dependent on the number of competitors in the area. The projections are forecast based on the assumption there will not be any other MMLP in this region. Though this might be a possibility in case of a rail based logistics park as the Indian Railways have a monopoly on the operation and development of this infrastructure, we have to take into consideration that other MMLP can be developed in the coming years depending on the demand. If a competitor can offer cost advantage with better service, this might directly affect the traffic flow to the Vapi MMLP.

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APPENDIX

Appendix 1: Scenario analysis of MMLP in Vapi

BCA Scenario	50%	65%	70%	80%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		7.89	7.89	7.89	7.89	7.89	11.67	11.67	11.67	11.67	11.67	17.26	17.26	17.26	17.26	17.26
Revenue		3.945	5.1285	5.523	6.312	7.101	11.67	11.67	11.67	11.67	11.67	17.26	17.26	17.26	17.26	17.26
Cost		5.22	5.22	5.22	5.22	5.22	5.7	5.7	5.7	5.7	5.7	6.26	6.26	6.26	6.26	6.26
Cash Inflow		-1.275	-.0915	0.303	1.092	1.881	5.97	5.97	5.97	5.97	5.97	11	11	11	11	11
Cape x							4.26					3.6				
CV																231
Cash flow	-84	-1.275	-.0915	0.303	1.092	1.881	1.71	5.97	5.97	5.97	5.97	7.4	11	11	11	242
DF	10.00%															
NPV	-£1														DF	0.217629
IRR	9.87%															
															PV	50.27233

Appendix 2: Existing rail based logistics service providers in India

Adani, Patli, Rail-Linked Logistics Park

Located at Patli, 20 km south of Gurgaon, this is a Private rail-linked Logistics Park. Ground facilities for aggregation, warehousing, holding, inspection, custom bonding, stuffing/de G stuffing of export import and Domestic cargo and loading/unloading onto railway wagons are available. It is the first private container train operator in India having its own Inland Container Depot (ICD).

With a planned capacity of handling up to 200,000 Twenty-foot Equivalent Units (TEU) annually, the park has following features:

- Total area - Over 750, 000 sq meters. (paved area - 160,000 sq meters)
- Bonded warehouse area - 5000 sq meter
- Multi-modal facilities for movement of goods in containers by train, road and sea
- Double stack container trains (DSC) from Durai/NCR to Mundra port
- Roll-on Roll-off (Ro Ro) vessels for automotive transportation
- Last mile connectivity to provide end-to-end solutions to a variety of goods
- Three electronic weigh bridges
- Two railway lines
- State of art IT system
- Container repair facilities
- Railway operating control tower
- Railway wagon examination facilities
- Rest room facilities for the truck operators
- Rest house / recreation centre for Custom House Agents (CHA)/customers
- High security zone area, separate buildings for rail operations, customs business, users, transporters, etc.

Rail services are available as follows:

- Daily service from NCR to Mundra/JNPT
- Four services a week from Rajasthan to Mundra
- Twice a week service from Ludhiana to Mundra/JNPT

- Weekly service from NCR to Nagpur and
- Weekly service from NCR to Chennai

The Gateway Rail Terminal, Ludhiana, Rail-linked Logistics Park

Located at Sanehwal near Dhandari Kalan in Ludhiana, this Private rail linked Logistics Park. It is a double stack container terminal which would connect the NCR to the western ports and has the following features:

- 50 acres of land and has a two-line rail siding to handle inter modal transportation of EXIM and domestic containers
- Rail connectivity for various CFSs in Ludhiana and connectivity to Dhandari, Mandi, Jalandhar, Barnala and Amritsar the major markets in Punjab
- Plans to provide regular services for the western ports of JNPT, Mundra and Pipavav. It also plans to operate regular services between the iron & steel producing states of West Bengal, Orissa, Jharkhand, Bihar and Punjab.
- Three terminals in India at Garhi Harsaru (near Gurgaon in NCR), Kalamboli (in Navi Mumbai) and Sanehwal
- GatewayRail operates 12 trains – the largest fleet amongst the private operators - and provides end-to-end service through its in-house fleet of 235 trailers.
- Rail services not only for EXIM cargo but is a major player in the Domestic field as well.
- The rail services are coupled with first and last mile connectivity with provisions for custom clearing, stuffing and de-stuffing of containers, bonded and non-bonded warehousing, and other terminal based value added services.
- In the domestic sector GRFL offers tailor made solution for the clients wherein they take responsibility of the entire range of activities starting from picking up the cargo from the point of production to delivering it to the point of consumption.

CGM Logistics Park, Dadri, CFS/ICD6

This CFS/ICD is spread over an area of 38,224 sq. metres and strategically located near CONCOR's railhead, and has the following features:

- A 5,200 sq. metre warehouse designed for cargo stacking so as to handle bagged, unitized, palletized and over-dimensional cargoes
- Well-illuminated paved container yard for stacking

- Latest modern equipment such as reach stackers, forklifts, hydraulic handcarts, etc.
- Round-the-clock security
- CCTV surveillance
- Fully computerized single-window services
- Provision for container survey and repair
- Cafeteria and business centre
- Office space for users
- 100 per cent power back-up

Concor, ICD Dadri

This Rail linked ICD & Warehouse is located at Dadri, and covers 110 hectares approximately. With a capacity to handle 500,000 TEUs, it has the potential for enhancing capacity up to 1 million TEUs per annum. This facility has the following:

- EDI/ICE-GATE facility implemented
- Full-fledged branch of Punjab National Bank operational
- Offices of major Shipping lines, CHAs, Surveyors & Transporters within the CONCOR

Administrative building

- Trade Tax Office of UP Govt. within the CONCOR Administrative Building
- Daily dispatch of 4 rakes to JNPT/NSICT/GTIL
- Regular committed dispatches to PIPAVAV & MUNDRA
- 46 hours of transit time to JNPT/NSICT/GTIL
- Dwell time of only 24 Hrs. of Loaded Export Container
- 11000 SQM. Warehouse including 5600 SQM Bonded Warehouse
- Lowest warehousing tariff in the entire NCR
- Stacking Area
- Inventory of empty containers of all major Shipping Lines
- Large parking area
- Congestion free road access with absolutely no traffic restrictions- 24 hours of unrestricted entry and exit
- Terminal notified as open to all goods traffic i.e., Cargo can be brought in

Railways rakes for stuffing / export

- State-of-the art handling equipments- 4 RTGs & 4 Reach Stackers
- 15 power packs to cater to the growing Reefer traffic and 2 more power packs to be

commissioned soon

- Capability to dispatch one full Reefer train per day
- Plugging points with ground capacity to hold up to 250 Reefer Containers
- Uninterrupted power supply with two 380 K.V.A D.G.Sets
- Central PDA Facility
- Commencement of construction of Rail Over Bridge across Dadri
- Railway Crossing

Arshiya Distripark

Arshiya Northern Distripark is strategically located at the confluence of the Eastern and Western dedicated freight corridors at Khurja, Uttar Pradesh and provides connectivity to ports and hinterland through a modern high capacity rail infrastructure. The company commenced operation of its rail transport services on February 1, 2009. Arishya has also received final approval from the ministry of commerce regarding operating free trade and warehousing zones (FTWZ) in this location.

The Distripark has the following facilities

- Dedicated container yard to process incoming cargo
- Customised warehousing facilities
- State-of-the-art cargo handling equipment
- Skilled manpower
- Integrated IT services for complete visibility
- Rail and road connectivity

Appendix 3: Ministry of Railways data on advantages of rail freight

Inland haulage charges from Delhi to various ports (Rs/TEU)			
	Distance (km)	Rail	Road
JNPT	1388	18000	30600
Mundra	1295	16500	20000
Pipavav	1333	17000	25000
Chennai	2100	30000	70000

Table 5: Cost of rail haulage of the Indian Railways (Source: Ministry of Railways)

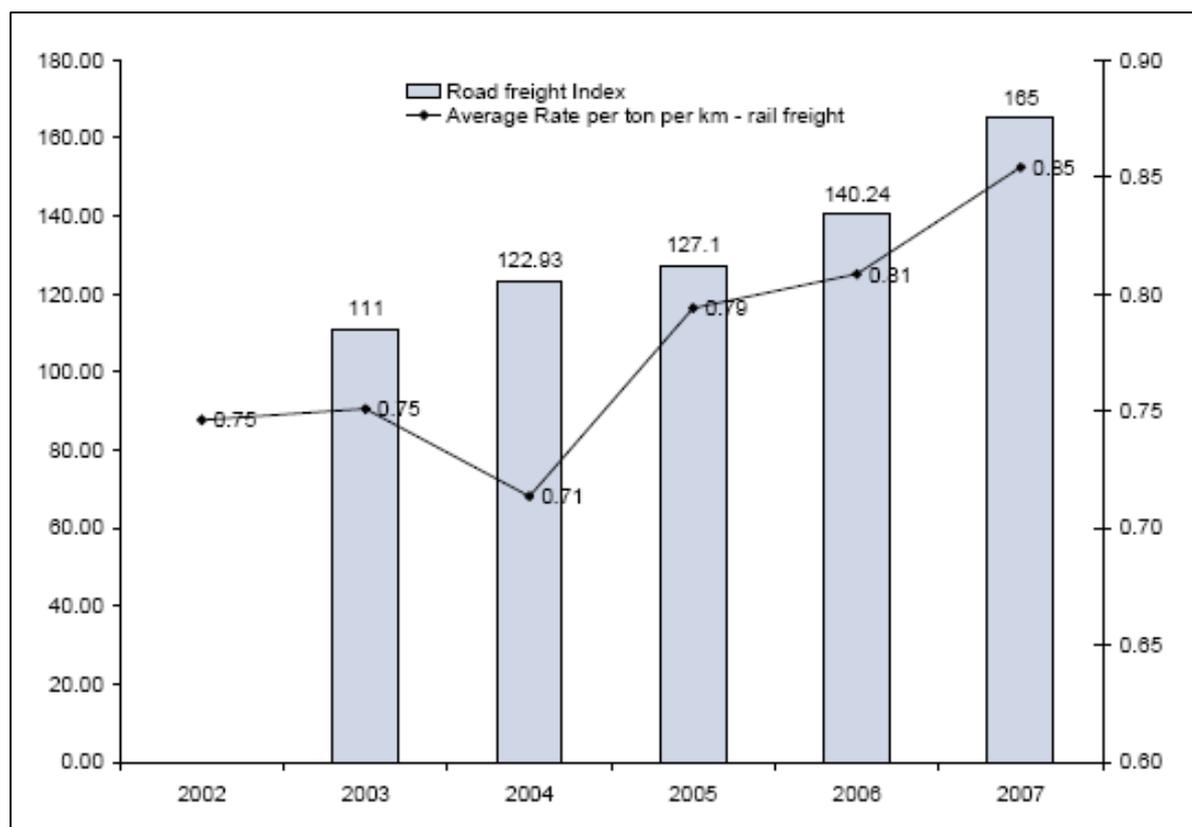


Figure 6: Comparison of road and rail freight in India (Source: Ministry of Railways)

Appendix 5: Industries reaction to tax policies

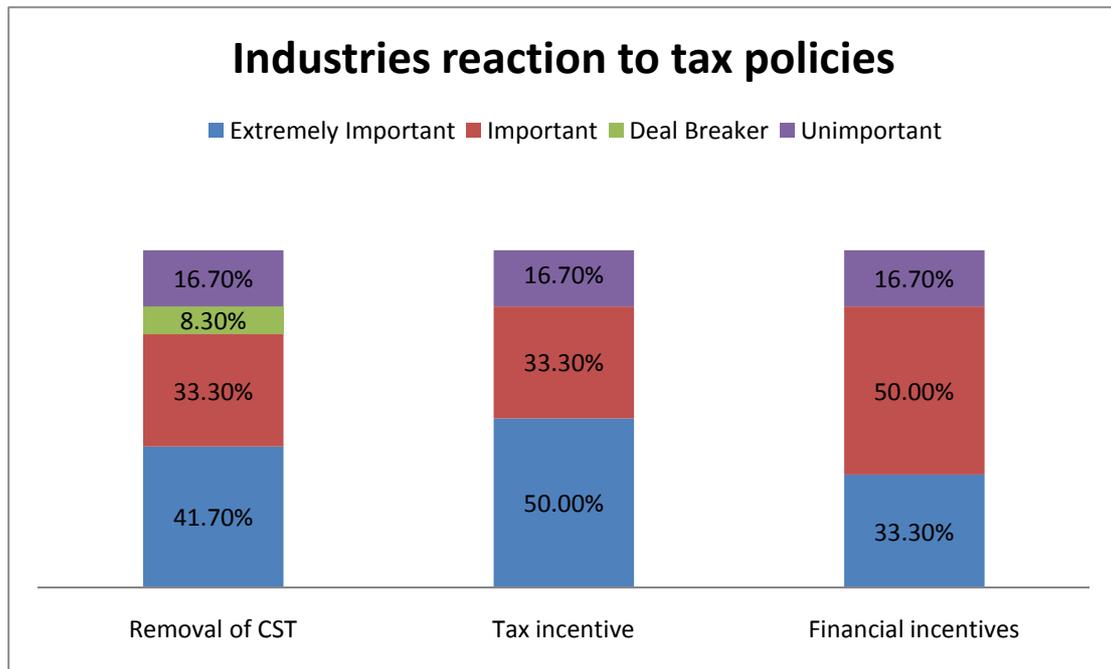


Figure 7: Customers reaction to tax incentives

Appendix 6: Forecasted Traffic Data at Vapi

Non Traditional Commodity Group	INWARD	OUTWARD	TOTAL
CHEMICALS (DRY & LIQUID)	1178.08	1083.4	2261.48
ELECTRICAL GOODS & CABLES	121.39	618.43	739.81
FMCG	223.25	276.5	499.75
FRUITS & VEGETABLES	140.86	163.4	304.26
GARMENTS	2.58	24.12	26.7
GLASSWARE	69.48	22.82	92.3
MACHINERY/ENGG. ITEMS	257.46	170.28	427.74
MISCELLANEOUS	844.94	704.42	1549.36
MOLASSES	105	-	105
OIL & LUBRICANTS	205	180	385
PAPER & PAPER PRODUCTS	440.44	470.16	910.6
PHARMACEUTICAL	3.05	12	15.05
PLASTIC & PLASTIC PRODUCTS (INC. RAW MATERIAL)	409.5	336.6	746.1
PROVISIONS & HOUSEHOLD GOODS	298.69	143.64	442.33
RAW COTTON	99.22		99.22
STONES & MARBLES	152	244.75	396.75
TEXTILE & YARN (INC. RAW MATERIAL & INTERMEDIATES)	227.59	402.19	629.78
WOOD & WOOD PRODUCTS	95.58	1.5	97.08
Total	4874.11	4854.21	9728.32
Traditional Commodity Group			
CEMENT	152	-	152
FOODGRAINS/PULSES & SUGAR	362.96	147.13	510.09
IRON & STEEL	550	277.23	827.23
Total	1064.96	424.36	1489.32
Grand Total	5939.07	5278.57	11217.64

Table 6: List of traditional and non traditional commodity (Source: Ministry of Railways)

The EXIM traffic flow for the year 2006-07

IMPORT	Base Year 2006- 07	EXPORT	Base Year 2006- 07
Waste Paper	26400	Chemical	120 00
Chemical	8000	Printing Ink	550 0
Metal & Metal Scrap	15652	Electrical Products	950 0
Textile & Yarn (Inc. Raw Material)	3500	Textile & Yarn	225 00
Granules	8824	Metal Products	150 0
Marble	6000	Plastic Products	500 0
FMCG	1500	Pharmaceuti cals	200 0
Others	5000	Garments	216 00
Total	74876	Others	800 0
		Total	876 00

Table 7: EXIM traffic at Vapi for 2006-07 (Source: Ministry of Railways)

TRAFFIC SEGMENT	INWARD			OUTWARD		
	2011- 12	2016- 17	2021- 22	2011- 12	2016 -17	2021 -22
Non- Traditional						
Domestic Container (in TEUs)	64626	94542	14409 0	6985 8	1032 28	1607 23
Exim Container (in TEUs)	21111	30567	46240	1829 1	2602 2	3965 8
AUTOMOBILE (in TEUs)	4362	6118	8346	1882	2640	3879
AUTOMOBILE In Autorack (in units)	10001	14027	20611	1000 1	1402 7	2061 1
Traditional						
Bulk/Break Bulk (in '000 tonnes)	339.3 4	536.7 68	870.1 24	-	-	-

Table 8: Forecasted demand for MMLP in Vapi (Source: Ministry of Railways)

No	Type of Value Added Service	Score
1	Information & Communication Technology	48
2	Labour Availability	48
3	Security of goods	47
4	Testing, Quality Control	47
5	Packaging facilities	46
6	Customs facilities	43
7	Warehousing	43
8	Office space facilities	40
9	Knowledge sharing & Training facilities	39
10	Assembly of final product	32

Table 9: Demand for the different value added services