# Squaring the supply chain

With the incentive of an established automotive supplier base plain to see, India is fast becoming an attractive proposition for carmakers the world over, but local sourcing initiatives are hampered by poor infrastructure and market fragmentation. **Maxine Elkin** looks at how the industry is aiming to overcome these problems and realise the full potential of this thriving region

India is a vast county, roughly one third the size of the US, with a $3.4 billion indigenous automotive industry that includes serious contenders such as Tata, Maruti and Mahindra & Mahindra. Automotive production in the region is booming and this is attracting Western manufacturers.

In the last few months Audi has announced its intention to join Volkswagen stablemate Skoda in the region, and VW is looking for a site to produce vehicles in volume. BMW is planning to start manufacturing in Chennai by early 2007, building the 3 and 5-series models for local consumption. In addition, Renault has just signed an agreement to build the Logan in India in a jointly owned plant with Mahindra & Mahindra, and plans to extend the product line beyond the Logan.

Many foreign carmakers are already there (see illustration on page 25). One example is Hyundai, which is producing substantial volumes (260,440 April 05-Mar 06) and is planning to increase volumes to 600,000 by the end of 2007. It is adding a second plant, which is scheduled for completion in October 2007, and half of its volume is earmarked for export.

The commercial vehicle sector is also growing. V.G. Ramakrishnan, Program Manager, Automotive & Transportation Practice, Frost & Sullivan, India says: "This year has been a very good year for the Indian automotive industry, we have seen approximately 35-37 per cent growth in the commercial vehicle market and 20-22 per cent growth in the passenger vehicle market – these are the sales figures. India exports around 180,000 units of passenger vehicles a year and about 15,000 units of commercial vehicles."

The growth in exports of passenger vehicles is thanks largely to Hyundai, which accounts for around 60 per cent of them. The Hyundai base in Chennai in the state of Tamil Nadu on the east coast of the country, is just one of the three big automotive production regions in India. The other two are Gurgaon, near Delhi and Pune, in the state of Maharashtra on the west coast. According to Ramakrishnan, Gurgaon accounts for 40-45 per cent of production output, while Pune and Chennai have nearly equal share of the rest.

## Local supply base

As far as suppliers are concerned there are many multinationals well established in the region. Ramakrishnan says: "When Maruti Suzuki came to India they brought along their key suppliers who set up a base next to the plant – a lot of companies that are current vendors to Suzuki have set up plants here. Delphi and Visteon are here because Ford and GM are here, Federal Mogul is here, Bosch has been here since 1942. There are a lot of global Tier Ones and Twos here. And now a lot of European suppliers are slowly getting into the Indian market. The Indian market for components is very sophisticated. There used to be a requirement for companies to source at least 70 per cent of components locally, so a lot of these companies convinced their suppliers to come to India."

Local sourcing is definitely the aim of the transplant carmakers. Dr John Chacko, Technical Project Leader of Logistics for the India project at Volkswagen, says: "The cost of importing material is so prohibitive that you will never be able to compete [with the local players] unless you localise. The costs are a combination of customs and logistics costs.

# Automotive India – the key players


**Northern India's main OEMs**

| | |
|---|---|
| Daewoo | Cars |
| Eicher | Tractors |
| Escorts | Tractors/mcycles |
| Hero Honda | Mcycles |
| HMT | Tractors |
| Honda | Cars |
| LTL | Tractors |
| LML | Scooters |
| Maruti | Cars/muvs |
| New Holland | Tractors |
| PTL | Tractors |
| Swaraj Mazda | LCVs |

**Western India's main OEMs**

| | |
|---|---|
| Bajaj Auto | Scooters/mcycles/3-wheelers |
| Bajaj Tempo | Muvs/tractors/lcvs/3 Wheelers |
| Eicher | Lcvs/tractors |
| Fiat | Cars |
| Gm | Cars |
| Greaves | 3 Wheelers |
| GTL | Tractors |
| Kinetic | Scooters/mcycles |
| M & M | Tractors/muvs |
| Mercedes Benz. | Cars |
| Skoda | Cars (Awaited) |
| Tata | Trucks/cars/muvs |

**Eastern India's main OEMs**

| | |
|---|---|
| HM | - Cars/muvs |
| Tata | - Trucks |

**Southern India's main OEMs**

| | |
|---|---|
| Ashok Leyland | Trucks |
| Ford | Cars |
| Hyundai | Cars |
| Mitsubishi | Cars |
| Royal Enfield | Mcycles |
| Tafe | Tractors |
| Tatra Udyog | Hcvs |
| Toyota | Muvs |
| Tvs-suzuki | Mcycles |
| Volvo | Trucks |

There is a 12-12.5 per cent duty and then you have to consider that the logistics costs are going to be at least that much again."

However, the demand for just-in-time services is still limited. Ramakrishnan continues: "Toyota is the only company that has come anywhere close to just-in-time – it is a very lean operation and they have Mitsui doing their logistics for them in a joint venture with TCI [Transport Corporation of India]. Toyota is based about 35km from Bangalore city."

That said, the demand for more sophisticated services from LSPs is beginning to change. Dr Chacko reveals that VW is planning to operate its facility with just-in-time and in-sequence requirements: "We are trying to follow the principles that are basic to our industry to be competitive, with less capital just standing around, which is absolutely useless. We plan to implement the just-in-time principles."

MV Raja Rao (left) and BB Parekh of Tata Motors in Pune are trialling the use of 3PLs to supply the passenger car lines

Tata Motors is also moving towards a model of production that will see supplier parks collocated around its news plants and in-sequence just-in-time delivery of modular assemblies direct to in the line.

## Demands on infrastructure

Across India, automotive manufacturers are ramping up their volumes, both for internal consumption and export. Current estimates of additional volumes are predicting that a million extra cars will be added in the next four years, and India will be exporting a million cars a year by 2010. So can the infrastructure cope?

"The straight answer is no," says Ramakrishnan. "India is drastically slow in terms of putting up the infrastructure compared to China. That is one of the key weaknesses that India has got. What is likely to happen is that the vehicles that are being added to the capacity will be primarily for the export market, similar to what Hyundai is doing."

Dr Chacko sees a serious shortfall in the infrastructure: "I think the government is going to have to do a lot of homework if the growth rate is going to be realistic as far as the auto industry is concerned. There is at the moment a big gap in infrastructure and it is not going to get any smaller, so the government

has to do something."

The primary means of transport in India is by road. According to Ramakrishnan 98 per cent of all the automotive logistics in India is on road. Rail freight has not really been developed. About 30-40 per cent of all road freight is carried on the four national highways. The government has various highway projects underway (see fact box page 28) but the main one is the Golden Quadrilateral Highway Project, which aims to join the major cities of Delhi, Chennai, Mumbai and Calcutta with four or six lane highways. The Delhi-Mumbai road is already complete and the whole project is supposed to be finished within the next year. However, the cost of transportation in India is high.

> "Diesel is heavily subsidised in India so fuel prices not as much of an issue. ... If you don't allow a [free] market economy then people have no incentive to upgrade to a more fuel efficient means of transport" – **V.G. Ramakrishnan, Frost and Sullivan**

According to Ramakrishnan 13-13.5 per cent of GDP is logistics cost: "In the UK that is 8.5-9 per cent. If you look at the logistics costs of the transportation market, road transport is significant for the auto industry. The average distance of a truck journey in India is approx 300km, that gives you an understanding of the inefficiency here. You will find trucks that are 50 years old chugging along at 50kmph. Diesel is heavily subsidised in India so fuel prices not as much of an issue. ... If you don't allow a [free] market economy then people have no incentive to upgrade to a more fuel efficient means of transport."

## Rail privatisation

The rail freight industry in India has recently been opened up to private investment. Since February this year private companies have been granted permission to move rail freight. APL is one of the LSPs that has secured the permission to operate this, but Joe Mustan, Director Logistics India – APL Logistics, doesn't see the uptake of rail services happening overnight: "The full impact will only be seen in 12 months' time. This is the time it will take the new operators to get equipment in place and for the new start-ups to begin achieving load-efficiency. Currently, passenger and bulk transport takes priority and the transport of goods is at the call of the rail operator. Generally, a 90 TEU volume is required for a rail move and, if the volume isn't available, the train won't leave. This is expected to continue although the Railway Administration is working to provide some level of transit guarantee,"

BB Parekh, Chief of Strategic Sourcing at Tata Motors explains the problems he faces when trying to utilise rail transport: "As far as inbound logistics is concerned rail transport is used very sparingly because the availability of the rails or the loading space is not guaranteed by the railways and time slots are not promised by them. At the same time there is a small amount of the space available on the mail train that we utilise at times to cope with urgencies."

Material transported on trucks can take up to three days to travel from Delhi to Pune, and in emergencies Tata uses space on the mail trains. "As far as outbound logistics is concerned, we are trying to use it for the movement of passenger vehicles in particular," says Parekh. "But that again depends on the availability of the rail trucks. Having said that, we are now talking to the railways and there are independent service agencies that are coming forward who will possibly design trailers that are specifically for carrying vehicles. As of today that is not really happening."

## Finished vehicles

The use of rail seems to make more sense for finished vehicle transport, particularly between Delhi and Mumbai. But the

### INDIAN AUTOMOBILE INDUSTRY PRODUCTION : 4 WHEELERS

**Total production for year 2005-6 (April to March)**

| | |
|---|---|
| **JAPANESE OEM** | |
| Maruti Udyog Ltd | 572,097 |
| Toyota Kirloskar Motor Pvt Ltd | 44,975 |
| Honda Siel Cars India Ltd | 41,361 |
| Swaraj Mazda Ltd | 11,946 |
| **Total** | **670,379** |
| **EUROPEN OEM** | |
| SkodaAuto India Pvt Ltd | 9,767 |
| Daimler Chrysler India Pvt. Ltd | 1,780 |
| Volvo India Pvt Ltd | 1,004 |
| Tatra Trucks India Ltd | 125 |
| Fiat India Pvt Ltd | 671 |
| **Total** | **13,347** |
| **AMERICAN OEM** | |
| General Motors India Pvt Ltd | 30,687 |
| Ford India Pvt Ltd | 26,946 |
| **Total** | **57,633** |
| **KOREAN OEM** | |
| Hyundai Motor India Ltd | 260,440 |
| **INDIAN OEM** | |
| Tata Motors Ltd | 449,878 |
| Mahindra & Mahindra Ltd | 128,601 |
| Ashok Leyland Ltd | 65,085 |
| Force Motors Ltd | 35,728 |
| Eicher Motors Ltd | 24,348 |
| Hindustan Motors Ltd | 15,458 |
| **Total** | **719,098** |
| **Overall total** | **1,720,897** |

data from ACMA

## India infrastructure

**65,000km** of national highway
**67,000km** railway lines

**7,000km** of coastline

Average speed of freight train **23km/h**

Average **economic growth rate** more than **7 per cent** 1994-2004 and **7.6 per cent** GDP growth in 2005

Government infrastructure initiatives:

① Initiative to create **dedicated rail freight corridor** – western from **Mumbai** to terminus north of **Delhi** and eastern from **Bihar state** to terminus north of **Delhi**.

② **Golden Quadrilateral Highway project** running **north-west-south-east-north** – project due for completion within a year, Delhi-Mumbai section already complete.

③ **North-south and west east highway schemes**

Sources: CIA World Factbook and CILT (Chartered Institute of Logistics and Transport)

use of rail for finished vehicle transport is limited.

Anupam Bhatnagar, Vertical Head of Internal business, Mahindra Logistics says: "The availability of railways needs to improve, but the ministry has plans to increase the strength of rail so we will see a migration from use of carriers to rail. Normally you find around a 20 per cent saving over carriers, by rail. When to use the trailer or rail is an interesting choice. It is a question of speed, of delivery versus inventory. To use rail I need to despatch around 100 vehicles, when I use a truck I despatch around six vehicles, so I have to do a cost-benefit analysis. So while rail may be useful for destinations that are far away, anything more than 1,000km is good by rail, anything less is better with carriers; you cannot activate it until you have the load."

According to Bhatnagar, the use of rail transport for finished vehicles should increase in the future, now it is less than 5 per cent for Mahindra.

NYK Logistics, based in Gurgaon, is not using rail transport for finished vehicles yet, but in January this year it signed an agreement with Concor, (Container Corporation of India) to develop an end-to-end car transport solution using rail. The company aims to market and offer services for transporting automobiles using containers on railway tracks. It has already designed special wagons for transporting vehicles and has acquired necessary clearance from the Lucknow-based Research Designs and Standards Organisation (RDSO). However, the Indian Railways needs to allocate the tracks for the project, so it is uncertain when this might be available.

## Does India need a dedicated ro-ro port?

With volumes of exports set to grow by staggering volumes, (more than one million cars by 2010) many operators in India see the need for a dedicated ro-ro port. The auto cluster of Chennai, Hangalore and Hosur is serviced by Chennai. The auto cluster of Mumbai, Pune, Nashik, Aurangabad, Delhi-Gurgaon and Peetampura are serviced by Mumbai-JNPT.

NYK's Clemens Kutzner says: "The conditions at the ports are very underdeveloped. They are not yet geared up for the export of cars, not in these volumes. We are talking about half a million cars exported in the next few years. The ports cannot meet the export demand and it is a problem already. I think that containers have been pushing the car carriers away. The increase in container volume has been dramatic and the space is really required for the export business. If India wants to develop its export business it definitely needs a port dedicated on the ro-ro side."

Hyundai India has recently asked for assistance from the State of Tamil Nadu to establish a dedicated ro-ro port.

### Market fragmentation

The infrastructure itself is not the only challenge in India. APL's Joe Mustan, says: "As an operating environment the road sector has some problems, but they are not infrastructure related. The market is fragmented – there are a lot of small operators who lease trucks to larger players. OEMs have access to those trucks, but no real control over them. There are efficiencies that you just can't get because there are too many small guys. Second, the interstate crossings are a big source of inefficiency with potential wait times of 30 minutes to six hours. The government is addressing this, the state and highway authorities and customs are trying to minimise the number of documents, but I don't know how fast we will see changes happen."

Companies in India have become more open to outsourcing and they are now focusing on their core competencies and higher-end activities

Mustan believes that as the demand for more sophisticated logistics grows, multinational LSPs will start to gain market share in India. Currently, APL Logistics acts as a 3PL for some large tractor manufacturers. He says: "The majority of them are asking for just-in-time services, some of them are also asking for vendor managed inventory. [This is] where we get the information on production from them and work with the suppliers to pick up the right quantity of supplies and bring them all the way into the plant. While it's the customer who appoints us as their 3PL provider, it's the supplier who actually pays us. This is akin to the VMI [Vendor Managed Inventory] model. We are finding that this is what more and more of the manufacturers are asking us to do. They are finding it difficult to deal with a large number of small suppliers."

India can be a difficult market for manufacturers. The

supplier base is characterised by many small players. Mustan says: "We have instances where we have to pull parts from a supplier's workshop using a hand cart. It can be difficult and complicated and more and more manufacturers who used to manage it themselves now prefer to give it to a 3PL service provider."

The OEMs are looking to large multinational corporations (MNCs) who operate such services in more developed markets to replicate these services in India.

Anupam Bhatnagar of Mahindra Logistics also sees the development of the VMI model: "Until now logistics has been run with a warehouse in each state, this is changing to VMI."

## Value Added Tax

The tax legislation in India is changing. In 2005 the government started rolling out the VAT regime across the states, and, although it is by no means universal, this simplification of taxes will significantly impact on the kind of logistics services that make sense. Bhatnagar says: "Once VAT is in place then vendors don't need to have inventory. All vendors will bring their inventory to an LSP and we invoice on behalf of the vendor for the plant only what is required in the plant. Plant inventory goes down by 20 per cent. The vendor is happy too because his product is kept in a proper warehouse. VMI warehouses in India are in a nascent stage right now."

> "We have instances where we have to pull parts from a supplier's workshop using a hand cart. It can be difficult and complicated and more and more manufacturers who used to manage it themselves now prefer to give it to a 3PL service provider" – **Joe Mustan, APL Logistics**

One of Mahindra & Mahindra's engine plants near Bombay is piloting a VMI system with Mahindra Logistics: "By creating a VMI warehouse we have created more space for manufacturing, production can go up – even the manpower required for production is being reduced. Mahindra Logistics manages the VMI warehouse. It also manages line-feed right on the assembly line," says Bhatnagar.

Tata Motors is considering using a 3PL to manage supply on its CV lines in Pune

Man Singh Chauhan of Menlo India also believes that the government initiatives of VAT implementation to have uniform tax structure across all states in India will have a significant impact on the way logistics is organised today. "This will help in free flow of goods across the state borders, removing the need for stores of inventory to safeguard against the costly delays at border crossings," he says. Menlo's automotive work in India is largely in the aftermarket sector, and Chauhan believes that the positioning of the warehouses at strategic locations will help the industry to cut logistics costs and improve service levels to the end customer: "That will be the biggest change," he says. "We are seeing this already."

The old model of positioning the warehouses in a particular state, considering the benefits from tax and levies, will gradually be replaced by a network of warehouses positioned strategically according to supply chain requirements.

"The changes to the tax regulations should ease the inter-state crossings," says Chauhan.

## Outsourcing initiatives

Mahindra Logistics is now operating as an independent 3PL, although it is wholly owned by Mahindra & Mahindra. But they have to compete for Manhindra business along with other 3PLs. This strategy of outsourcing the logistics function is also being adopted by Tata Motors, and will set the pattern in years to come. As Bhatnagar observes: "In the last three or four years the awareness of logistics management is increasing here. In the last five or six years companies have become more open to outsourcing and they are now focusing on their core competencies, particularly as costs are going up, fuel costs, interest rates, raw material costs such as steel."

APL's Mustan sees an increasing role for 3PLs in this landscape: "I think the multinational automotive 3PLs are going to play a huge role in the next three years. Right now there are a large number of local players serving the automotive industry in India, a multinational 3PL cannot be as efficient as a local player, simply because it may not be able to reach out to the right kind of 2PL partners. But as the operating environment and taxation changes, and road infrastructure improves and transport providers begin investing in better equipment – including bigger and more efficient trucks – the 3PL services will be more in demand and really start to add value. I think there will be a shift in emphasis from pure cost analysis to value creation coming from supply chain process engineering. Reducing inventory levels and transit time. Today, while everyone speaks about it, those things are still second in priority to cost."

At the moment, the automotive logistics landscape is still dominated by small local transport companies (or 2PLs). Mitsui joined forces with locally based TCI to support Toyota and Ramakrishnan explains why: "You really need an Indian partner to work the system over here. You will find many home-grown companies handling automotive work. On inbound logistics you will find a lot of the component companies using local transport and about 50-60 per cent of ownership of all trucks by single owners."

**Look out for the regional report on finished vehicle logistics in India in the next edition of the FVL supplement in your March/April magazine.**