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**AN EMPIRICAL STUDY ON THE PRACTICES OF
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An Empirical Study on the Practices of SCM in Automobile Companies

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Abstract – Automotive industry has hundreds of suppliers and thousands of spare parts units. Due to globalization, the automotive supply chain has been undergoing tremendous changes and the industry has been exploring innovative methods to reduce operating cost, lead time and inventory to sustain their growth in the market. With the expansion of sourcing partners, streamlining customer requirements, inventory management, accurate forecasting, better suppliers 'relation, coordination and co-operation across supply chain, better visibility and control over the process and reduction of lead time is being achieved by the organizations.

The Indian auto industry is small in size, compared to the world markets (\$ 6.73 billion compared to a world market of \$737 billion) but has experienced a growth rate of 20-25% in the past few years. Despite higher raw material costs, higher energy costs and poorer infrastructure in India, multinational OEMs that have entered the Indian market have managed to produce cars that have high local content and are sold at competitive retail prices, largely owing to efficient supply chain.

INTRODUCTION

India has begun to attract significant attention as a manufacturing destination, following the ascent of China's manufacturing industry. The next wave of off-shoring is likely to take place in the skill intensive industries and India has a clear advantage over other Asian countries in the manufacturing segment. The changing demographics of the developed and developing world are the other important factors in favor of India. Various demographic related studies have revealed that, while the ageing population in the developed world is driving the manufacturing jobs to the developing countries, amongst the low cost manufacturing destinations including countries like China, Brazil and Russia, India is expected to have the largest percentage of young working age population leading up to 2050. In this context, the current study focuses on the Indian automotive industry, which is termed as "sunrise sector", and which plays a pioneering role in the Indian industry and is contributing to more than 5% of the Indian GDP since 2005-06. Although the Indian auto component exports constitute approximately 20% of their sales, they are still very small compared to annual global auto component sales, which are in excess of \$750 billion. The economic reforms of 1990's. which relaxed many policy restrictions to induce competition and reduce inefficiencies, have played a very crucial role in bringing the auto sector to its current status. However, there is still a great potential for improvement through policy interventions, especially in terms of infrastructure, technological and financial support, customs and excise duties, through Free Trade

Agreements with regional markets etc. India's attraction as a sourcing hub has increased further due to the recent financial meltdown of global markets, especially in the developed economies. As a result, the multinational corporations (MNCs) from North America and Europe are looking towards India for synergies in terms of not only production related activities, but also development activities. Most of the global MNC Original Equipment Manufacturers (OEMs) and their follow sourcing Tier-1 suppliers have already established operations in India and are seriously exploring the options to increase the share of global sourcing from India in the near future.

The term supply chain management refers to cooperative management of materials and information flows between supply chain partners, to reach goals that cannot be achieved acting individually. The purpose of supply chain management is to improve trust and collaboration among supply chain partners, thus improving inventory visibility and the velocity of inventory movement. Emergence of new technologies and the ever-increasing intensity of competition are forcing organizations, firms and industries to reexamine how they do business, meet new customer driven challenges, companies are re-thinking, restructuring and re-investing their supply chains in order to survive, succeed, excel and even in some specific cases targeting to spearheading competitiveness. Indian Automotive industry has been facing major challenges due to fierce competition, increasing operational complexity, technology changes,

shortened product lifecycle and frequently changing customer needs. Despite high stocks, the performance of the supply chain has failed to meet customer expectations in terms of delivering the exact specification desired within an acceptable timescale. Today Indian automotive industry is completely capable of producing various kinds of vehicles and can be divided into three broad categories: two-wheelers, cars and heavy vehicles. Vast scope exists for Indian automobile and auto component manufacturers to reduce their logistics costs with the implementation of SCM solutions. As India is a developing country, and fascinatingly, there has been an upward trend of realization of supply chain optimization. SCM solution market has been making inroads in India and it is being established widely by many automobile industries in the country, particularly manufacturing ones where inventory carrying cost is very high.

Several automobile manufacturers in India have taken positive actions to manage their logistics cost and get better customer services and measures have been undertaken by Indian companies to develop their supply chain. Auto manufacturers in India and all tiers of the supply chain have immense opportunities to enhance their entire supply chain process with the successful implementation of SCM solution. At present there are 15 manufacturers of passenger cars & multi utility vehicles, 9 manufacturers of commercial vehicles, 16 of 2/3 wheelers and 14 of tractors besides 5 manufacturers of engines. Total turnover of the Indian automobile industry is expected to grow from USD 34 Billion in 2006 to USD 122 Billion in 2016. The automotive industry is today a key sector of the Indian economy and a major foreign exchange earner for the country. Today, India is the 2nd largest tractor and 5th largest commercial vehicle manufacturer in the world. Hero Honda with 3.9 million motorcycles a year is now the largest motorcycle manufacturer in the world. With the growth of transportation system the automotive industry of India is also growing at rapid speed, occupying a vital place on the 'canvases of Indian economy. By exploring Indian automobile sector, it has been found that uncertainties like demand and lead-time have direct impact on managing inventories and managers are facing great difficulties while controlling these parameters. Customer satisfaction and cost reduction are again the key issues to be handled effectively and efficiently. To improve profitability and efficiency, automotive players are seeking ways to achieve operational excellence, reduce operating cost and enhance customer service through efficient supply chain management. Efficient and effective supply chain management plays a very important role in the auto industry. The automotive industry is changing its business model with innovative supply chain to reduce cost, create customer buying experience and quality. Mahindra & Mahindra has implemented one of the most efficient supply chain systems in use by Dealers today, though it still stands room for improvement.

THE INDIAN AUTOMOBILE SECTOR

The Indian automotive components industry's annual turnover (for FY 2003) was US\$ 6.73 billion. When compared to the global automotive components industry of US \$737 billion, the Indian industry dwarfs in size. But, at a compounded growth rate of 20-25 %, the growth in India's auto components exports is much faster than that of the domestic market (10-14%). Many consider this growth in exports as just the tip of the iceberg similar to that witnessed by the information technology industry in the early 1990's. The auto ancillary industry caters to three broad categories of the market:

- 1) Original equipment manufacturers (OEM) or vehicle manufacturers, that comprises of 25% total demand
- 2) Replacement market that comprises 65% of the total demand
- 3) Export Market that comprises primarily of international Tier 1 suppliers and constitutes 10% of total demand

On the canvas of the Indian economy, auto industry occupies a prominent place. Due to its deep forward and backward linkages with several key segments of the economy, automotive industry has a strong multiplier effect and is capable of being the driver of economic growth. A sound transportation system plays an essential role in the country's speedy economic and industrial development. The well-developed Indian automotive industry skillfully fulfils this catalytic role by producing a broad variety of vehicles: passenger cars, light, medium and heavy commercial vehicles, multiutility vehicles such as jeeps, scooters, motorcycles, mopeds, three wheelers, tractors etc. India's quest to become a worldwide auto-manufacturing hub has made the world's top automakers increasingly turn to India for their vehicle components. Riding this achievement and capitalizing on the strengthening demand from domestic auto companies, the Indian auto industry is intensifying the demand and is emerging as one of fastest growing manufacturing sectors, and a worldwide competitive one. However, there is still a lack of noteworthy study of supply chain practices and its presentation in developing countries, in general and India, in particular. Many dominant factors affect decisions made in the automotive world. Consumer preferences decide the current styles, consistency, and presentation standards of vehicles. Government trade, safety, and environmental regulations found incentives and requirements for upgrading and change in design or production. Competitive rivalries and corporate strategies provide equally important momentum for research, design innovations, and changes in the manufacturing process. All automakers are continually under pressure to recognize consumer preferences, national biases, and new market segments where they can sell vehicles and gain market share. Their capability to be stretchy enough

to quickly react to all these pressures is determining their prospect in the industry. The implications of these factors are enormous and propagate along the supply chain of the automakers in India. The Indian Automotive industry is growing with pace domestically as well as internationally with remarkable milestones.

CHALLENGES

- Fluctuating market demand and rising customer requirements is a key challenge in the automotive industry.
- Lengthy demand planning cycles and lack of visibility to supplier, material, and production constraints cause scheduling delays and short-term production changes.
- The industry is faced with global financial crisis. This has led to increased pressure on the automotive competitive performance.
- Recent emphasis on global climate change is increasing pressure on automotive executives to make the right decisions in many areas, including R&D and manufacturing.
- High costs, low profit margins are constant challenges faced world auto-industry. Only a handful of established players are consistently delivering satisfactory profits, such as Toyota, Honda, Porsche, and BMW; leading tier-1 suppliers such as Bosch and Denso; and some specialized tier-2 and tier-3 companies such as ElringKlinger and BorgWarner.
- General macroeconomic and financial circumstances are not favorable, either.
- The cost of energy and raw materials continues to increase due to rising global demand.
- Strong fluctuations in exchange and interest rates pose another challenge and are difficult and costly against which to hedge.

In this dynamic business environment, a superior supply chain is one critical element to helping automakers differentiate themselves from the competition. In fact, many of trends in the auto industry are reinforcing the need to innovate and redefine supply chain strategies, layouts, and operations.

THE CHANGE OF THE INDIAN AUTO SECTORS

Traditionally, Indian commercial vehicle makers such as the Tata Motors and Mahindra & Mahindra have been following the strategy of vertical integration, in similar lines to the western automakers. However,

Suzuki, a Japanese company, which made an entry into the Indian automobile industry as a Joint Venture (JV) partner with the Indian public sector enterprise Mamti in the mid 80's garnered a majority share of passenger car segment, through government regulatory support and long term relation building with suppliers. Following Suzuki's tradition back home, the JV outsourced most of their component requirement to suppliers when they began operations in India. They bought some of their own suppliers from Japan, especially for safely critical parts and technology intensive parts. However, for standard parts, they began developing local suppliers, many a time as a JV with Suzuki or the follow sources of Suzuki. For example, out of a total of 500 odd companies in the organized auto component sector in India, around 110 firms were set up between 1983 and 1990 and out of 404 suppliers of Mamti, 58 depend on Mamti for more than 90% of their sales (Okada. 2004). Thus Mamti played a significant role in establishing a strong quality conscious component supply chain in India, which was very loyal to Mamti-Suzuki. Consequently, the Mamti-Suzuki partnership enjoyed

dominant market share in the compact car segment since its entry into the Indian auto market to till date, despite the entry of many global auto majors and domestic assemblers like Tata Motors into this segment (Parhi. 2005). Over time, even the more vertically integrated domestic assemblers saw the merits in outsourcing; took advantage of the more established vendor base and began outsourcing their component requirements.

India today has the maximum number of Deming award winning firms outside Japan, with 15 out of the total 19 Deming companies coming from the auto component industry. Out of these fifteen, two firms also received Japanese Quality Medal. These quality initiatives have significantly contributed to the growth of the industry, with global companies preferring to source component requirement from Indian companies rather than Chinese companies, due to the higher quality standards in India (interviews with MNC executives).

CONCLUSION

Indian automobile and auto components industry is on a roll and there is a massive scope for improvement and augmentation of supply chain in this sector. India has become a most sought after destination for foreign companies to establish their facilities and form alliances with domestic companies. The Indian economy is now gaining momentum in the world of free trade and liberal movements of goods and services between countries. Low cost of manufacturing and conducive government support have been the major drivers for foreign companies

investing in India. Therefore efficiency in supply chain will be critical for India's automobile success.

In a highly competitive environment, an effective and efficient global supply chain is a must for automotive manufacturers and their suppliers. The industry landscape is exposed to a set of critical challenges and trends that are leading, if not accelerating, the need to fine-tune supply chain strategies and operations even further.

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