
Logistics Management Systems in the Indian Automotive Component Industry

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Introduction:

The Indian automotive component industry has shown tremendous growth over the last decade. Today it has 480 companies, employees more than 2, 50,000 people and has an estimated turnover of approximately Rs 45,000 crore (US$ 10 billion). On export front also, the industry has grown by leaps and bounds, generating an overseas sales of to Rs. 8,190 Crores (US$ 1.8 billion) in 2005-06, which is nearly three times of what it exported in 2001-02 (US$ 578 million)[1]. The tremendous growth in the automotive component sector over the last few years is shown in table 1:

Table 1: Growth in Production and Exports in the Indian Automotive Component Industry (Rs. mn and %)

	Production	Y-O-Y change	Exports	Y-O-Y change
FY2004	120317		14935	
FY2005	129967	8.0	15685	5.0
FY2006	163559	25.8	18330	16.9
FY2007	178569	9.2	27065	47.7
FY2008	216021	21.0	28019	3.5
FY2009	255354	18.2	34965	24.8
FY 2010	306400	20.0	45000	28.7

Compiled by INGRES
Source: http://www.fadaweb.com/iaci.htm

The automotive industry manufactured components fall under six broad product categories according to Automotive Component Manufactures association (ACMA). These are given in table 2.

Table 2: Classification of Automotive Components according to ACMA

Product Group	Products	Share* (%)	Some of the Key Players
Engine Parts	Pistons, Piston Rings, Engine Valves, Carburetors, Fuel Injection Systems	23	Motor Industries Company, Ucal Fuel Systems, Shriram Pistons, India Pistons, Goetze, IP Rings,
Electrical Parts	Starter Motors and Generators	7	Motor Industries Company, Denso, India Nippon Electrical
Drive Transmission and Steering Parts	Gears, Clutches, Axles	14	Rico Auto Industries, Sona Koyo Steering Systems, Automotive Axles, GKN Driveshafts, Bharat Gears, Rane (Madras), Clutch Auto, Ceekay Daikin
Suspension and Braking Parts	Brakes, Leaf Springs, Shock Absorbers	11	Brakes India, Sundaram-Clayton, Munjal Showa, Gabriel India, Rane Brake Linings, Sundaram Brake Linings, Jamna Auto
Equipment	Headlights, Dashboard Instruments	8	Premier Instruments & Controls, Lumax, Motherson Sumi Systems
Others	Sheet Metal Parts, Pressure Die Castings, Tyre Tube Valves and Cores	36	Jay Bharat Maruti

Source: ACMA Segmental market shares of the organized sector in FY2003 in rupee terms Compiled by INGRES

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History of the Indian Automotive Component Industry[2]

The Indian Auto Component Industry had its small beginnings in the 1940s. If the evolution of this industry is traced in India, it can be classified into three distinct phases namely:

1. Period prior to the entry of Maruti Udyog Ltd (1940s to 1984).
2. Period after the entry of Maruti Udyog Ltd till economic liberalization (1984 to 1991).
3. Period post Liberalization (1991 onwards).

The period prior to the entry of Maruti Udyog Ltd was characterized by low technology and assured business for most of the auto-component manufacturers who used to supply to a handful of players in the Indian automobile market like Hindustan Motors, Premier Automobiles, Telco, Bajaj, Mahindra & Mahindra etc.

With the entry of Maruti in the 1980s, the auto ancillary industry in the country showed a spurt in growth. This period witnessed the emergence of a new generation of auto ancillary manufacturers who were required to meet the stringent quality standards of Maruti's collaborator Suzuki of Japan. The good performance of Maruti resulted in an upswing for the domestic auto ancillary industry. It was also during this period that auto components from India began to be exported.

With the liberalization of the Indian economy in 1991 and coming of many foreign automobile manufacturers like Hyundai, Daewoo etc., the auto ancillary industry witnessed huge capacity expansions and modernization initiatives in this period. This also led to a tough competitive scenario, which saw a lot of consolidation, technological collaborations and equity partnerships within the industry and with leading global players abroad.

Today, many international and local automotive players are increasingly sourcing components from Indian automotive component manufacturers. As the demand for manufactured automotive components with the tag "made in India" increases, the automotive companies have to further enhance the quality of their products and operations as global players require quality components at reasonable prices and at precise time durations. This has made the automotive component manufacturers in India to be under severe pressure to meet such onerous demands. Hence, to meet such demands, today all the major players in this industry are having one or the other logistics management system.

Understanding Logistics Management:

Logistics is the organized movement of materials and, sometimes, people. The term was first associated with the military but gradually spread to cover business activities. *Logistics Management* is defined as a business planning framework for the management of material, service, information and capital flows. It includes the increasingly complex information, communication and control systems required in today's business environment[3]. Logistics management includes a whole gamut of processes like planning, procurement, transportation, maintenance, distribution and replacement of personnel and material.

The process of logistics management differs from one firm to another. In some firms, all these activities are placed within a single logistics department; in others, they are shared among the departments. The firm may also go in for what is called *third-party logistics*, which is a contract with an outside party to perform specific logistics services.

The following indicative list gives some of the functions that a firm's logistics management system is supposed to perform[4]:

1. Customer Service: All the activities that are done to keep the existing customers satisfied come under the gamut of customer service.

***2. Demand Forecasting*:** This process includes various statistical measures that enable the firm to estimate the demand in the future, which in turn helps in proper demand management.

3. Documentation Flow: This process covers the movement of the paperwork that accompanies the movement of physical product.

4. Interplant Movements: This is only applicable to those firms where production process is accomplished in more than one plant, requiring the movement of semi-finished products from one plant to another.

***5. Inventory Management*:** Inventory management requires a cost effective maintenance of stocks of goods and materials.
6. Order Processing: Order processing starts with the receipt of an order from a customer and ends when the order is ready for packaging.
7. Packaging: Packaging is done mainly to protect the product when it is being transported from the source to the destination. It can also be used for promotional purposes.
8. Parts and Service Support: This covers the whole after-sales service process.
9. Plant and Warehouse Site Selection: This function is carried to determine where the plant and the warehouse are going to be located, keeping cost-benefit analysis in mind.
10. Production Scheduling: This function's task is to balance demand for products with the existing plant capacity and availability of inputs.
11. Purchasing: This is a very important function in the logistics management as the quality of inputs that are purchased determines the quality of the finished product. Vendor selection is an important sub-process of this function.
12. Returned Products: There are many categories of returned products. A few are subjects of product recalls, meaning that a safety defect or hazard has been discovered. E.g. laptop battery recall by Dell. These products are removed from the shelves, and both retailers and consumers attempt to return them to the manufacturer. This is a form of reverse distribution, with goods moving in the opposite direction of their usual flow.
13. Salvage Scrap Disposal: How a firm takes care of its waste material is covered in this function. The firm might recycle its waste or sell the waste to various processors who specialize in recycling it.
***14. Traffic Management*:** All the transport requirements needed to move a firm's freight is known as traffic management.
15. Warehouse and Distribution Centre Management: This logistics activity involves management of the locations where the firm's inventories are stored.
Logistics Management practices in leading Indian Automotive Component Manufacturers:

*** *Sundaram Clayton Limited (SCL):*** Sundaram Clayton uses comprehensive TQM (Total Quality Management) practices that enable it in being a competitive world-class manufacturer in terms of quality, cost and timely delivery of products. SCL uses cellular manufacturing, which gives it the flexibility to respond in tune to customer needs. It does comprehensive integration of the supply chain through implementation of ERP (Enterprise-Wide Resource Planning) programme[5].

*** *Bharat Forge Limited (BFL)*[6] :** Bharat Forge has been effectively leveraging information technology as an important tool for reducing costs in the field of logistics management. In 2000-01, the company implemented SAP enterprise resource planning package. Bharat Forge is moving at full speed to build e-commerce applications with SAP as a backbone for BFL legacy systems and other collaborative software's like SCM (Supply Chain Management), PLM (Product Lifecycle Management), etc.

At Bharat Forge, SAP also provides in-built capabilities like CRP (Capacity Resource Planning), BPR (Business Process Re-engineering) and thus offers a powerful link between the entire value chain extending from the customers to the suppliers.
The company has also set up an integrated supply chain management system, which enables real-time visibility of material requirement and inventory throughout the value chain, and provides decision support at all stages of operations. It also assists the company in awarding contracts to vendors on current and competitive terms and ensures better execution of contracts. Majority of the company's suppliers have been logged into its supply chain and with Bharat Forge e-enabled with its customers, the company has a real time total demand management system in place.
A virtual private marketplace has been created for Bharat Forge through which the company engages in e-procurement and reverse auctions. The company has already started selling scrap online.

*** *Exide Industries Limited*:** Exide has eight manufacturing plants producing world class products. Exide factories are located strategically around the country to provide logistic support for its production of over

five million batteries per annum[7]. Exide's R&D is engaged in projects embracing process technology aimed at improving the product quality & consistency, production efficiency and material utilization[8].Exide employees Total Quality Management programme in its office and factories to set higher standards for itself at every step of its "customer-service route". "Zero-error" benchmarking, and delivering quality orientation throughout operations has led Exide to get the coveted DIN ISO 9001 certification by RWTUV of Germany[9].

*** *Sundaram Fasteners Ltd. (SFL):*** SFL makes just-in-time (JIT) supplies for various Original equipment manufacturers (OEMs) through out the country[10]. It has an effective Inventory Management system. Currently, in order to enhance its logistics management; and with the aim of achieving high quality and low cost in its operations, it is using Total Productive Maintenance program (TPM), which was initiated in 1995 in consultation with JIPM (Japan Institute of Plant Maintenance)[11].

*** *Shriram Automotive Products Ltd:*** This Company has tried to improve its logistics management by establishing, implementing and maintaining a quality system in accordance with the requirements of ISO 9002. It tries to adhere to customer delivery schedules through adequate planning and monitoring and tries to bring down non-conformities by strictly monitoring the effectiveness of corrective and preventive measures[12].

*** *India Pistons Ltd (IPL):*** India Pistons Limited strives to maintain a comprehensive system of professional logistics management designed to identify possible defects right from the initial phases of development, hence, preventing problems that could potentially cost the organization dear. In all IPL locations, systems & procedures based on TPM, TQM and Lean Manufacturing are used to ensure that Quality levels are on par with the best in the world. All its plants are QS 9000 certified[13].

*** *Premier Instruments & Controls Limited (Pricol):*** As a part of its logistics management policy, Pricol gives lot of emphasis on procurement quality through systematic vendor development, quality plan, and vendor up gradation through Vendor Center of Excellence, process capability, vendor quality audit, inspection and training[14].

*** *Lumax Industries:*** Lumax became an ISO 9002 certified company in 1995, attained its QS 9000 certification in the year 1998 and achieved the ISO/TS 16949: 2002 and ISO 14001 in 2003. Lumax is aiming for continual improvement of manufacturing processes with emphasis on consistent quality and cost effectiveness[15].

*** *Sona Koyo:*** Sona Koyo is moving on the path of Total Quality Management (TQM) by developing its core competence and aligning objectives at all levels to realize synergy in its operations. It has adopted Total Productive Maintenance (TPM) to improve performance through the philosophy of prevention of accidents[16]. All these measures help it to have a robust logistics management system.

*** *Munjal Showa*:** Munjal Showa is a TS-16949 & ISO 14001 company which aims at providing highest customer satisfaction, cost competitiveness, continuous improvement, on-time delivery of products and direct on-line system by having an enviable logistics management system[17].

Besides the firms that have been mentioned above, other major automotive component manufacturers like Rico Auto, Sumi Motherson, Cluth Auto etc. too realize the importance of stringent inventory management and delivery requirement and hence have their own state of the art logistics management systems in place.

Suggestions for Further Improvement in the Logistics Management Systems in the Indian Automotive Component Industry:

The Indian Automotive Component Industry can further improve its competitiveness, but the Association of Indian Automotive Component Manufacturers and the Indian government have to work hand in had to address some of the problems that are being faced by this industry – like inefficient infrastructure in terms

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of ports, roads, etc; unutilized capital equipment available in the industry, government led bureaucratic hurdles and many more such speed breakers that can curtail the speed of growth that this industry is witnessing today.

Some of the steps that can further improve the logistics management system being used by various firms in the Indian Automotive Component Industry are:

* Improving productivity of suppliers by technology transfer and funding.
* Further reducing inventory buffers and supply chain bottlenecks.
* Using latest technological initiatives to enhance the existing quality levels and streamlining the processes further.
* Using software's like Supply Chain Event Management or SCEM that monitor forecasts, orders, manufacturing schedules, inventories, and shipments etc.

Conclusion:

The more competitive the Indian automotive component industry becomes in the global arena, the more inseparable will the principals of logistics management become to its success and future growth. Though many of the leading automotive component manufacturers in India are having some sort of logistics management system in place, there are still a number of problems that the automotive component industry is facing on the logistics management front. In order to make a bigger mark in the global arena of automotive components, these problems have to be addressed and solutions implemented at the earliest.

References:-

1. According to information provided in the following sites accessed on 24th Aug. '06:
   http://www.equitymaster.com/research-it/sector-info/autoc/
   http://www.thehindubusinessline.com/2006/04/18/stories/2006041803390800.htm
   http://www.ibef.org/industry/autocomponents.aspx
2. Reference: Khisty, Vasant (2000), "Globalization and Competitiveness of Indian Auto Component Industry",
   http://kabulpress.org/World5.htm accessed on 24th Aug. 2006.
3. Ref: http://www.logisticsworld.com/logistics.htm
4. This content is a modified version of the original content given in the following site:
   http://www.britannica.com/eb/article-64295 accessed on 24th Aug. 2006.
5. Ref: http://www.sundaram-clayton.com/scl/ourforte.htm
6. Ref: http://www.bharatforge.com/insidepages/eInitiative/e_Initiative.asp
10. Ref: http://www.sundram.com/logistics.htm
13. Ref: http://www.indiapistons.com/
14.Sarwade, Walmik Kachru. "A Study of History of Buddhism and its Contribution to Indian Culture." Journal of International Buddhist Studies (JIBS) 6.1 (2015): 35-44
15.Sarwade, D. W. (2015). Industrialization, Vision 2020 and Economic Development of Aurangabad Region of Maharashtra State.
16.Sarwade, W. K., & SB, M. G. (2013). A Study Green Marketing Initiatives by Corporate Sector. Excel Journal of Engineering Technology and Management Science, 1(3).
17.M.A.Raffey (2010)"Interest free banking windows in India in global economic downturn" 'Interest Free banking as a means of inclusive finance in India',.
18.M.A.Raffey (2010) "Positive Impact of the Global Economic Crisis on the Indian Economy" "Global Economic Crisis and India's Economic Stability":346-349
19.Dr.M.A.Raffey & Manjari Hiranya (2010) "Marketing in Microfinance Institutions" "Micro Finance for Socio Economic Development" :142-145

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