ISSN 2277 - 5730

AN INTERNATIONAL MULTIDISCIPLINARY
QUARTERLY RESEARCH JOURNAL

AJANTA

Volume - VII Issue - III English Part - III July - September - 2018

Peer Reviewed Referred and UGC Listed Journal

Journal No. 40776

ज्ञान-विज्ञान विमुक्तये

IMPACT FACTOR / INDEXING
2018 - 5.5
www.sjifactor.com

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26. Contemporary Supply Chain Management Strategies: A Case Study of Automobile Sector

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Abstract

This paper helps to understand the contemporary supply chain management strategies of Toyota Kirloskar and Ford Motor India. These world class manufacturers needs to develop contemporary supply chain management strategies and required actions in order to improve the design, development and management process of supply chain system. In order to compete in an existing global environment MNCs like Toyota and Ford India have studied Indian scenario and modified their SC practices. The philosophy of contemporary supply chain management strategies requires a company to give importance to various parties which are involved in supply chain in order to optimize supply chain.

It is important to plan and implement firm's logistical operations which ultimately improve supply chain efficiency through decreasing lead time and supply chain cost. Contemporary supply chain management strategies can help the design and administration of systems to control the flow of spare parts, WIP and finished assemblies etc. It has helped Toyota Kirloskar and Ford India to enhance their capability to provide superior customer service at the lowest possible cost which has helped to manage supply chain efficiently. The purpose of this paper is to understand the supply chain strategies adopted by world class players like Toyota Kirloskar and Ford Motor India in an Indian environment.

Keywords: Supply Chain Management, World class, Customer Service and WIP.

Introduction

Contemporary supply chain management strategies always focus on supply chain process improvement. It involves strategic purchasing from suppliers. It is not department oriented but it concentrates proactively improving processes with long term goal of upgrading the competitive capability of firm. Toyota Kirloskar Motor India and Ford Motor India have studied Indian

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environment in order to improve supply chain efficiency. their senior management have recognized supply chain managements' critical nature and support required for transformation.

Benchmarking best in class practices and delivering metrics enables Toyota Kirloskar Motor India and Ford Motor India to establish their progress towards world class SC management. In order to have the highest service level contemporary supply chain strategies are topping boardroom agendas in these automobile companies. Professor Charles H. Fine of M.I.T. writes that supply chain design is the meta core competency for any organization. These contemporary supply chain management strategies allow supply chain managers to manage their supply chains collaboratively and to synchronize their operations. The results are reduced cost, better time management. improved competitiveness and profitability for all members of the chain.

Methodology

This paper has used Secondary data for analysis. Secondary type of data is used to understand the supply chain practices adopted by Toyota Kirloskar Motor India and Ford Motor India. Qualitative data from various supply chain journals and supply chain magazines is taken to understand their practices. Data from various supply Chain Management reference books and internet based website was also considered.

Objectives of the Paper

1. This paper examines supply chain strategies of selected Automobile companies like Toyota Kirloskar Motor India and Ford Motor India.
2. To bring forth the unique characteristics of the Supply Chain practices in Auto industry specifically in Indian context.
3. To understand the role of flexible production planning system in managing Auto Supply Chain.

Contemporary Supply Chain management Strategies: Practices adopted by Toyota Kirloskar Motor India and Ford Motor India

Toyota Kirloskar Motor India is a joint venture between Toyota Motor Corporation (TMC) and Kirloskar group. It has adopted practices of Toyota Production System (TPS) in India. Toyota Kirloskar has more than 2800 parts suppliers, 56 component suppliers and about 10 direct material suppliers from the local market. Its raw material inventory in case of local steel is about 1 month in case of imported steel 1.5 months, 2 days inventory for parts and for other consumables, a maximum of 10 days. The JIT delivery period rates vary according to the destination form where materials are received. Toyota runs its *chorokyo* from Delhi, Chennai, Pune and Mumbai where suppliers are once in a day. For Banglore suppliers, it is twice in a day.

For Banglore it is twice in a day and for local suppliers every 2 hours. For Sourcing its inbound materials, Toyota is using Logistics, a third party provider (3PL) - a JV between Mitsui of Japan and TCI of India. Toyota has developed an exclusive dealer network with 29 dealers in 24 major cities.

In-plant operations

At present, the number of components for assembling the vehicle is 925 local parts and 850 imported parts from Japan, Thailand, Taiwan, Philippines and Indonesia. The production area is controlled by the central control room and daily plans are monitored. flow charts are made by the production department themselves as per product information from the TMC. Continuous improvement (Kaizen) activities are done throughout the plant at all levels.

Inventory Management

JIT inventory management is only a part of TPS. They have built local factors into the system and vendors are located between 1 to 100 Km from Banglore follow TPS practices such as *Kanban*, Milk Run and *Jumbiki*. Toyota has introduced *Kanban* system to produce materials from suppliers. The system works on the Pull basis and the inventory is controlled as per material usage. safety stocks and also being maintained as these are considered while designing the system. The material flow using Kanban is showing in the figure.

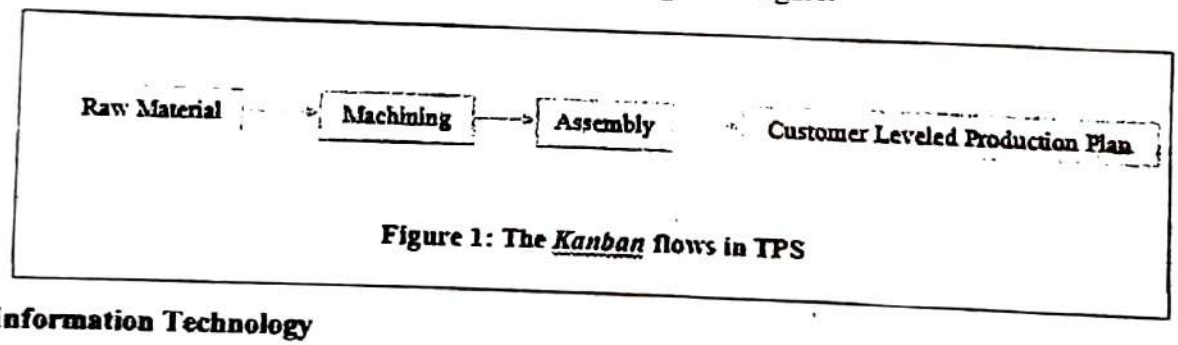

Figure 1: The *Kanban* flows in TPS

Information Technology

Toyota has a system of Coma Board the tracks the vehicles right from the chassis to the final product. It is used as visual control board for controlling the production of the vehicle and the live status of the shop floor. It follows the basic production line layout and the major communication points. Each vehicle is represented through a rectangular block or 'coma' on the board based on online information received from production about the position of vehicle in the line. All abnormalities and delays are relayed to the controlling person. The production stock volume has been brought down from 18 hours to 8 hours. The target is 4 hours. Inventory of tyres kept for 3 days while shipment of engines is 3-5 days. The effective inventory buildup of

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to the line performs the function of two-bin card. The system supplies materials to the line perform the function of two bin card. This system supplies. materials to the line. Ford has computerized vehicle scheduling system (VSS) that ensures that the right parts are ordered at the right place at the right time. The results are reduced cost, better time management, improved competitiveness and profitability for all members of the chain.

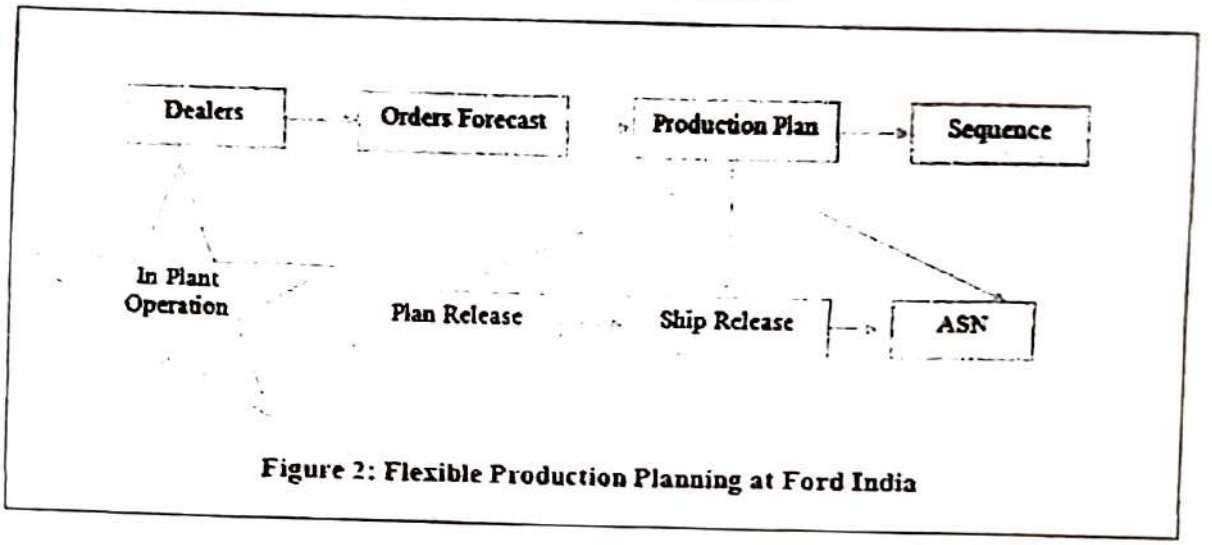

Figure 2: Flexible Production Planning at Ford India

The future of supply management

A supply chain composed of many different companies or stages each with their own objectives. For a supply chain to be very highly competitive it is critical that its members engage in activities of coordination and information sharing. A Flexible Production Planning model represents local and overseas supplier which are connected with suppliers through internet. Data exchange becomes very easy due to use of internet to perform various transactions like sourcing, transportation, tracking assignments and receiving customer's timely feedback.

It has been observed that fluctuations and distortion of information in between manufacturers and customers increases as supply chain moves up from dealers, manufacturers and suppliers. This effect is called the Bullwhip effect as inaccurate and distorted information travels up the chain like a bullwhip uncoiling. In response it is possible that each chain in supply chain carries progressively more inventory to compensate for the lack of information so it is very essential that each party in supply chain should be well connected with each other. So information flow will become very easy to access for each and every party in supply chain. The Bullwhip effect has been well documented by the most of global players in many industries and is costly for all supply chain members.

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the plant is worth only 1 day of production. The vendors are located between 1 Km to 1000 Km from Banglore and these follow TPS practices such as *Kanban*, milk run and *Jumbiki*.

Ford Motor India

Ford has a combination of international experience with extensive study of the local environment to implement SCM practices according to Indian scenario. Ford has a plant in India at Chengalpattu, Tamil Nadu installed for the manufacturing of Ford Ikon. Factors affected for plant location at Chengalpattu were proximity to air and sea port, highway network and telecom facilities.

Ford works on the concept of Suppliers' Park like Hyundai around its factory to ensure regular and quicker supplies. Most of the conventional parts like tyres, seats and wheels are purchased from local suppliers. But critical parts like diesel engine assembly are imported from South Africa. Ford has its own benchmark in setting Supplier Quality Assurance (SQA) department. A Supplier Technical Assistance (STA) group has been formed to develop a practice of partnership with suppliers . Around 75 percent of the parts are supplied by the suppliers within 50 Km of the plant.

Table 1: Key features in the Suppliers' Park

Sr. No.	Particulars	Key Figures
1	Total parts required	1400
2	Locally Sourced parts	770
3	Park suppliers contribution	21%
4	% of suppliers within 5 Km	25%
5	% of Suppliers within 50 Km	75%
6	Lead Time for an Australian supplier	2 Hr
7	Lead Time for an Indian supplier	5 Hr

Ford has a weekly production plan schedule which helps in meeting any increase in production volumes at short notices. It gives the flexibility to meet changes in the production mix in line with market conditions and demand. It also helps in exercising better control on inventories and communicating production schedule at frequent intervals which in turn facilitates suppliers to fine tune their raw material procuring and production planning in line with the production plans. A large part of the equipment components such as the bumpers and seats arrive in sequence directly onto the line from suppliers' park. The line stocks keeps to a maximum of 2 hours to minimize the inventory on the shop floor. The SMART system which supplies material

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In contemporary supply chain management strategies a manufacturer can have to deal with local as well as overseas customers and they are well connected with each other through internet. Material flow, Cash flow and Information flow are seen in supply chain.

Findings

Toyota follows TPS practices such as *Kanban*, Milk Run and *Jumbiki* to minimize inventory.

SQA and STA had helped Ford Motor India to manage its raw material holding period from 31 days to 21 days in one year. Flexible Production Planning at Ford Motor India facilitates fine tune their raw material procuring and production planning with the latest production plan.

Conclusion

This paper concludes that MNCs have modified their supply chain management strategies according to local environment. Contemporary supply chain management strategies have helped not only to reduce inventory level but also increase in service level. In future more use of sophisticated supply chain management software and e-Commerce will become integral part to manage supply chain efficiently.

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