



Reducing production cost and conservation of resources: Perspective to automobile industry

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Abstract

The three major aspects for creating in India requirements are:

1. The existence of goal
2. The search for improvement
3. Long-run success

Two important criteria of long-run success are (a) the probability of survival, and (b) the long-run average rate of growth of performance. One obstacle for the development of industry is resource allocation. Developing in an uncertain environment, and applying methods to the analysis of cost-reduction and conservation of raw material.

An additional theme is that the allocation of resources in an organization is significantly influenced by the growth and development of industry along with progress of society.

Keywords: Scalar Chain, Reverse loop, Forward loop, closed loop supply chain, motivation, growth

1. Introduction

The automobile industry is one of the largest and most important industries in the world. The Indian Auto mobile industry has remained underdevelopment even after four decades of its inception. The number of cars produced in USA or Japan is nearly 100 times much as in India, the number of all vehicles produced in these countries is about 60 times as much as those produced in India.

RL has become more and more important to the automobile industries owning to various reasons including unavoidable products recall legislative policies regarding environmental and sustainable issues.

It involves a series of supply chain activities in order to produce and deliver a vehicle, including sourcing and procurement, production and all logistic management activities. This is especially obvious in the automobile industry as its supply chains involve a large number of parties.

1.1 Forward Logistic

That part of supply chain process that plans, implements, and controls the efficient, effective flow and storage of goods, services, and related information from the point of origin to the point of consumption in order to meet customer's requirements.

1.2 Reverse Logistics

It is for all operations related to reuse of products and materials. It is the process of moving goods from their typical final destination for the purpose of capturing value, or proper disposal.

This complex structure triggers the needs for managing not only the forward logistic well, but also the reverse logistic (RL). On the other hand the need of RL has been change, not only restricted to economical factor, but also environmental or sustainable factor. Therefore, it is interesting to investigate the role of RL in the automobile industry.

1.3 Objective and Scope

The major objective of present study is to find different ways for profitability and growth of automobile industries through reducing production cost and conservation of raw material.

The solution is being presented for the backwardness of our Indian automobile industries by linking it to the most current issue in India – “Make in India Campaign”.

1.4 Make in India Campaign

The issues of Scalar Chain will be discussed here i.e. proper management in transport of automobiles from firm to consumers and their flow back to firm as well and Growth i.e. how diversification of product, positive response towards government policies and proper export methods.

This paper covers the dimensions of business environment, marketing management and export.

1.5 Production Cost Components of an Auto-Mobile Industry

• Materials	-	47%
• Direct Labour	-	21%
• R&D	-	06%
• Logistics	-	03%
• Administration	-	10%
• Depreciation	-	06%
• Others (including Advt.)	-	07%

1.6 Problem Definition

RL in the automobile industry involves a huge amount of resources and values in real terms. After manufacturing final products motor vehicles would be passed on to authorized national or global leaders from where consumers can buy a motor vehicle. The RL started from consumers due to various reasons the dismantlers would sale the useful components to the manufactures if they form a partnership with manufactures. The components may not flow back to the

manufacturer directly from the dismantler but be sold to the secondary markets. Consumers can pass may use the used vehicle to the collectors authorized or unauthorized. After retrieving useful materials from the vehicles collectors would transport those parts and components to independent companies.

Turning to the determination of growth the literature on the theory of firm, particularly in the framework of Robin Marris model, suggest that growth depends mainly on diversification.

1.7 Successful diversification

1. Advertisement
2. Import of technology
3. In house research and development activities
4. Foreign equity participation

All these factors will contribute to a higher rate of growth of the firm.

1.8 Management Barriers

1. Closed Loop Supply Chain

It is the design, control, and operation of a system to maximize value creation over the entire life cycle of a product with dynamic recovery of value from different types and volumes of returns over time. A management barrier refers to the difficulties and problems in managing the RL activities in a closed loop supply chain, caused by nature of supply chains of automobile industry.

This is because there are so many parties involved in this industry. In addition the closed loop system for service or maintenance.



2. Suggestions

Paul H. Nystrom- Efforts to reduce the costs of distribution in the retail field have followed four general lines, viz.:

1. Attempts to reduce expenses by more efficient operation.
2. Changing ownership of retail stores from private to co-operative.
3. Changing from independently owned retail stores to chain stores, mail order houses, and other newer types of retail institutions.
4. Organizing retailing for co-operative purchasing direct from producers.

3. Scalar Chain

By utilizing the framework proposed in this study, barriers of implementing RL for the automobile industry outline in the beginning of this paper can be improved the main reason for the management barrier is lack of supply chain coordination

and integration due to its complexity. The frame work clearly identifies the role of different components of a vehicle. Automobile companies build a stronger partnership amongst the supply chain members pin pointing to the nature of different parts from RL point of view.

An option is the involvement of third party logistics companies for different groups of comments or parts. Also because of the clarity of the role of different components automobile companies may find it easier to control reverse flow of products by developing an information system dedicating to keeping track of the useful components the system may provide information about the coding of individual parts that are feasible to be return, the no. of products to be return, the states of recovered parts or materials and so on. In addition the system could enhance the communication between the parties involved in the reserve flow Finally, specific training pin point to the frame work can be designed for staff so that the benefits on RL activities can be visualized this can certainly help the customers to understand more about the impact of the RL initiative and would not restrain them from using returned materials.

4. Reverse Logistics

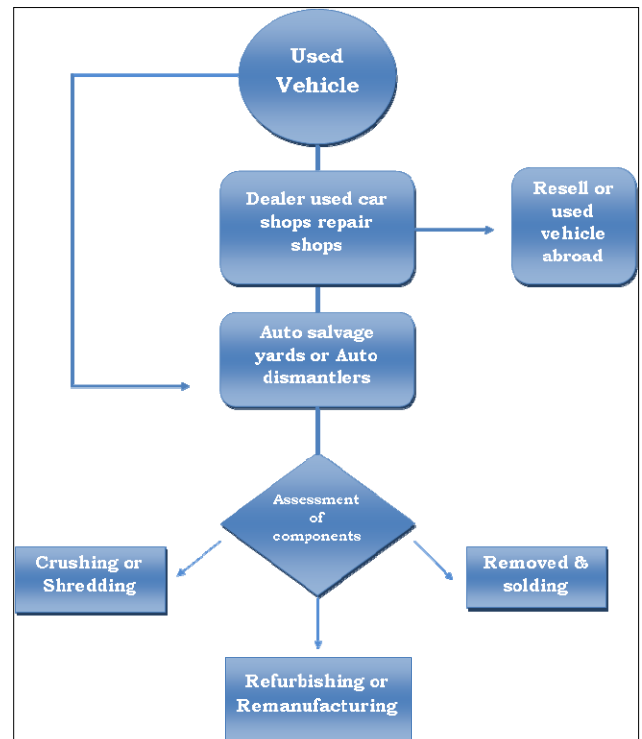


Fig 1: Closed Loop Supply Chain

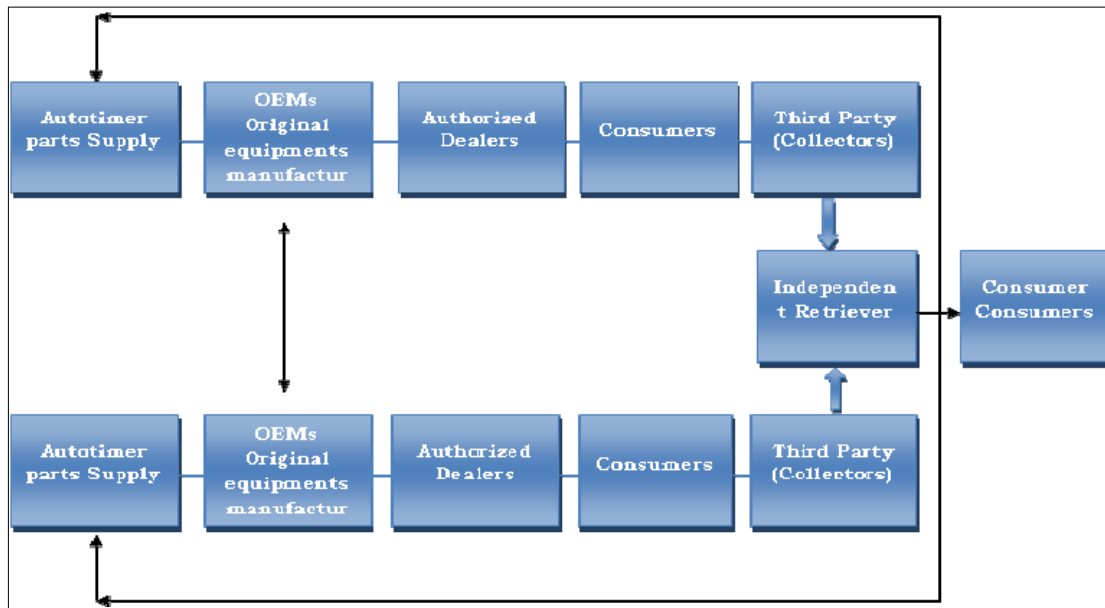


Fig 2: Closed loop supply chain

1.9 Motivation for RI in Automobile Industry

*RL = RESERVES LOGISTICS

*LANDFILL SITE = It is a site for disposal of waste treatment.

* REFURBISHING = renovate or rehabilitate

The reason for engaging RL may vary from industry to industry. They are named as product recalls, laws of disposal and value of returned parts and components.

Automobile companies usually provide warranty to new vehicles for three years. Companies must prepare for vehicle returns and provide repair services for customers in order to maintain a high customer service level.

The directive was enforced since the disposal of vehicles could be significantly harmful to the environment. Tyres being disposed of in landfills will cause the long term settlement problem of land because the tyres' volume is so great that it increases and raises the surface of the landfill site.

Many researches advocate that returned vehicles have the value of recycling. The automotive industry substantially

drives and relies on recycled steel.

Companies can have the choice to strengthen the RL for remanufacturing the product of refurbishing the products through the establishment of a network of authorized recovery. Refurbishment or remanufacturing can be done by the dismantlers or the automobile manufacturers.

And computer the remainder of vehicle would be crushed or shredded by a shredding company. Shredded metal would be recycled and the non-metal parts would eventually be disposed of in a landfill.

1. Growth

Analysis of growth behavior reveals that Diversification into other product lines, changes. in installed capacity , and availability of internal funds were the main engines of growth in both the sectors of industry, import of technology, exports, age, and tax incentives do not on the other hand seems to be statistically significant to contribute to growth.

Table 1

Year	Growth
1980s	The liberalization and modernization policies of the Government encouraged the growth of industry but car sector suffered due to slump in demand mainly due to stiff competition from Maruti Udyog Limited which grew very fast.
1983-87	From a mere production of 12000 vehicles in 1983-84 to 91000 in 1986-87.
1967-68 to 1974-75	The Automobile industries possessed a positive change as expected. This is attributed to the removal of price control on light commercial vehicles in 1967 and them priority given to this sector for development by the government.
1981-82 onwards	Representing industrial policy liberalization period was found to possess a negative change which was unexpected. This may be attributed to slump in demand for commercial vehicles in the domestic market mainly due to competition from railways resulting in underutilization of capacity. Demand for Automobiles in the export market also declined mainly due to poor quality of products and lack of after sale service network.

Exports might also contribute to the growth of firm by providing foreign exchanges required for importing technology, equipments, raw materials and components.

- A study by Kumar 1984 has found exports to be significant determinant of growth of the firm.
- 1. At the same time enlarging the size of the market for the products.

- 2. Government policies will affect the growth of industry, if the manufacturers are well informs about the dynamism in the rapidly changing business environment: legal environment.

- It is claimed by manufacturers in their annual report that price control policy of the government has affected the profit and growth of the company.

1.10 Collaboration of Small Firms with Large One

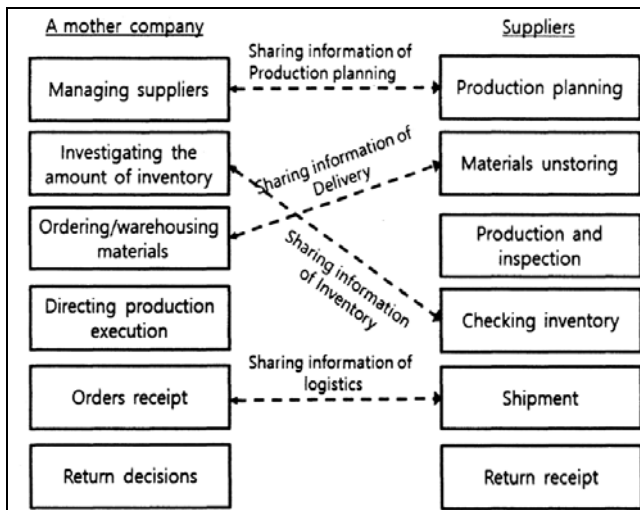


Fig 3

1.11 Summing Up

The main findings and conclusions may be summed up as follows:

The industries in which we had review literature, has two sectors which show a marked difference in their performance. Industry characteristics such as diversification, vertical integration and age of the firm have been important determinants of profitability especially in the car sector. Important determinants of growth are found to be product diversification, capacity expansion and gross retained profits. Thus older firms need to be encouraged.

1. Diversification

Diversification into other product lines and internalizes production process through vertical integration to improve profitability and growth of the firms in the industry.

2. Fund Management

Again since growth of the industry is dependent on internally generated funds which may not be sufficient to support a higher rate of growth, availability of credit at reasonable rates of interest will boost investment and growth in this industry.

3. Several Variables

- a) Export intensity
- b) Tax incentives

The automobile industry is transforming towards green manufacturing and green supply chain. The importance of handling disposed waste and reusing end-of-life vehicles has been increasing these years.

To revise and provide a more precious view on the feasibility of reusing vehicle materials, parts and components, a framework consisting of the suggested form of reuse of vehicle parts and components was constructed. The review on literature shows that most of the parts and components are feasible for reversing back into the supply chain.

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