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Supply Chain Challenges for Indian Automotive Industries

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Abstract*: Proper flow of materials and information is essential within an automobile industry. Supply chain of an automotive industry has many challenges because it has a lot of variables and dependent on other supply chain partners. Indian automotive industries are going through an evolutionary phase and supply chain has to play a crucial role in this evolution. But, there are certain supply chain challenges such as; competition, technology changes, shortened product life cycle, cost, market volatility, operational complexity, risk management, globalization etc. for Indian automotive industries. This research paper reveals the challenges of supply chain in context of Indian automotive industries.

Keywords*: Supply chain challenges, supply chain management, automotive industry, Indian automotive

I. INTRODUCTION

Supply chain management (SCM) is defined as the 'cooperative management of materials and information flows between the partners of supply chain' [1]. The aim of SCM is to boost collaboration and faith among supply chain partners thus increase the movement of inventory and improving inventory visibility [2]. Automobile is one of biggest sector in India and automotive supply chain play a crucial role for long-term growth. An automobile consist so many parts; which manufactured in different automobile ancillaries firms. Assembling unit of automotive industry requires all the components of automobile at one place and it needs coordination between manufacturers, suppliers and assembling unit etc. Several automotive manufacturers in India have taken positive measures to reduce their logistics cost and get improved customer services [3]. To enhance the profitability and operational efficiency, automotive industries are focusing on operational cost reduction, achieve excellence in operation management and enhance customer service through efficient SCM.

II. PRESENT SCENARIO OF INDIAN AUTOMOTIVE INDUSTRIES

Automobile sector is one of the growing sectors in India. Automobile industries are a main driver of economy. Currently, it provides employment (directly and indirectly) to more than 32 millions peoples. At present turnover of auto industries is estimated, 7.1% of overall GDP. Automobile industries produced 14.7 million vehicles (commercial, passenger. 3-wheeler and 2-wheelers) during Apr-Sept. 2017 against 13.4 million vehicles during Apr-Sept. 2016 with growth rate of 9.81% and also, showed good export growth rate 10.71% (export during Apr-Sept. 2016 was 1.76 million and 1.95 million during Apr-Sept. 2017). Domestic automobile production in India is growing year by year [4]. As per Auto Components Manufacturers Association (ACMA) 700+ companies, which contributing more than 85% of the total auto component output in the organized sector and showed very healthy growth rate of 14.3% in FY2016-17 [4]. Therefore, automobile sector is key of Indian economy and one of the major foreign exchange earner for country.

III. SUPPLY CHAIN CHALLENGES

There are many supply chain challenges for Indian automobile industries such as competition between the automobile industries, technology changes, uneven customer demands, risk management, globalization etc. To maintain continuous growth of automotive industries is very essential to conquer supply chain challenges.

A. Fierce Competition

Many automobile companies are coming with new models day by day to compete with their competitor at many aspects such as design, features, price, durability etc. In India, at present there are many car segment companies are trying to capture middle class people and two wheeler manufacturing companies concentrating on lower class and villagers to increase their volume of sell. Commercial vehicle companies is targeting to business for logistics. Due to huge potential and big market of automobile sector in India, many global automotive companies are expanding and diversifying their business. Already many automobile industries are

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well established in India. The several reasons due to which; competition between automotive industries is increasing. This fierce competition is challenge for supply chain for automotive industries.

B. Increasing Operational Complexity

Automotive industries needs changes day by day due to number of reasons like change in customers demand, sudden demand, technology changes, competitor's prospective etc. impact on supply chain. It increases operational complexity of supply chain. There are two source of complexity; internal and external. The flow of information, materials and money are illustrated by block diagram in fig. 1.

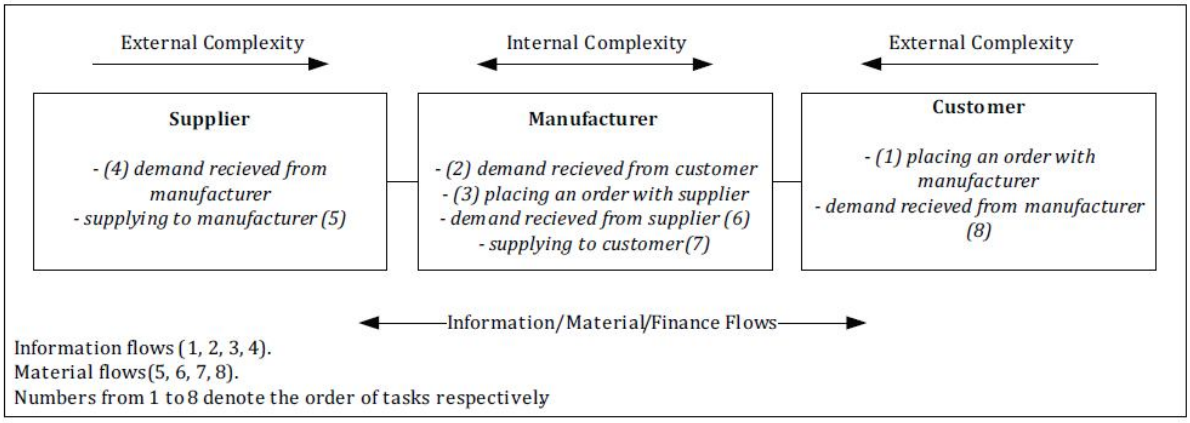

Fig. 1 Supply Chain Block diagram [5]

C. Technology Changes

Now a day's automobile is not pure mechanical system; now it is hybrid. Due to new technology; it has incorporated many electronic sensors and actuators and replacing or changing mechanical assemblies, braking system, power transmission system, on drive test equipment, entertainment, navigation system, steering systems etc. with design change and advancements in materials [6].

D. Shortened Product Life-cycle

Product life-cycle is very important for any product. In automobile sector, the life of automotive product is very short because of wide range competitors, change in taste of customers, technology changes etc. The shortened product lifecycle affects the automobile manufacturing firms and supply chain. It creates lot of challenges for automobile manufactures to survive in the market. If the products specification/technology changes, it also create manufacturing complexity. Profit and loss can be maximize and minimized respectively by proper managing of variables at each stage of life cycle.

E. Frequently Changing Customer Needs

Each customer requirement is different during the buying of automobile. Customers have different needs as per millage, capacity, price, aesthetic, durability, fuel (diesel/petrol), aesthetic, durability, re-sell value, controlling, safety etc. The changing need of customer is big issue for automobile sector. Automotive industry has to pay continuous attention on customer feedback and their changing tastes. Also, continuous product improvements or modifications required as per their needs/demands.

F. Uneven Customer Demand

Uneven customer demand raises implications for supply chain. In changing demand, there are lot of problems for supply chain management such as managing optimum material, optimum production, effective use of logistic facilities, change in marketing strategies etc. To manage, all these it requires correct information well in advance. But, the demand also depends on many factors like global economy, local economy etc.

G. Cost Containment

Automobile sector is one of the growing sectors in India. In India, many global and local automotive companies are selling their products in India. It creates competitive environment between the automotive companies. In this competitive environment, it is very difficult to beat competitor by producing automobile with competitors feature along with affordable cost. It is big challenge for supply chain management. Thus, in this competitive market, automotive industries require quality data and information for cost controlling [7]. Therefore, supply chain process needs an optimal solution for cost reduction.

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H. Risk Management

In present economical environment, there are many risk factors for Indian automotive industries such as competition, economical instability, demand volatility, raw material price etc. It is very difficult to manage all the risks by automotive supply chain. Supply chain challenges only can overcome by indentifying existing and threatening risks and their impacts. Proper risk assessment procedure must be adopted and appropriate actions taken for effective supply chain.

I. Globalization

At present due to globalization, supply chain management is become more difficult; to sustain growth in market. Automotive supply chain must focus on reducing operating cost, lead time and proper inventory management by new and innovative techniques. Globalization is fostering the industrial growth by variety of standard product at variable cost. Automotive companies have to pay their attention on optimization of all operations to sustain their growth in future.

IV. STRATEGY TO OVERCOME CHALLENGES

The future of automotive supply chain will be more challenging; therefore adoption of smarter and effective supply chain strategy will be effective tool for automotive industry to sustain remarkable growth. Proper risk management technique and integration of all supply chain operations will only the solution to survive in competitive environment, volatile market and globalization. Also, supply chain management activities must be extend upto level of product development process. i.e as in Toyota [8].

V. CONCLUSION

Indian automotive industries not met the standards of supply chain till as the developed nations. Indian automotive industries are faced/facing many challenges for management of supply chain. There is massive scope for improvement in supply chain for Indian automotive industries. Some of Indian automotive companies improving their supply chain process/operations at remarkable stage to fulfil the demand at optimal cost. India will be world's third largest automobile manufacturer in next three to five years. The challenge for supply chain professionals will be develop the supply chain as it sustain long term growth but enable flexibility and enough to bear short term volatility. Cost of supply chain operations is also an issue for Indian automotive industries and need to reduce supply chain cost. Indian automotive industries have sustained growth over last decade but sustain this growth in future automotive supply chain must be capable to overcome all challenges.

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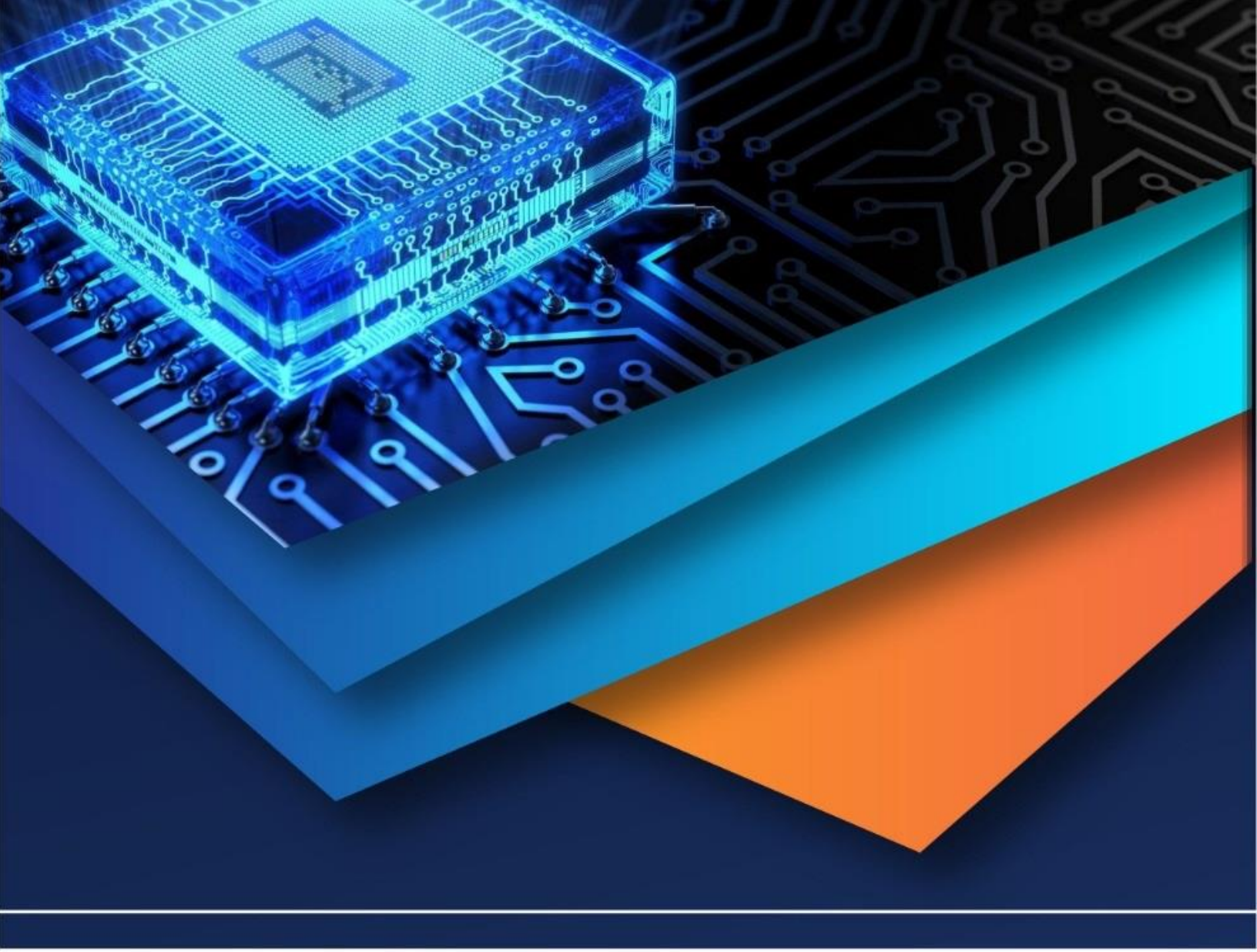

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