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## Vendor Development Process in Automobile Industry in India: A Comparative Study

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*Abstract: In post globalization scenario, the competitiveness in automobile industry has essentially thrown a challenge to auto O.E.Ms for making supply of automobile at an affordable price with tagged quality. Most of the auto O.E.Ms is brand ambassadors having assembly lines for the components procured from their vendors. The findings show that vendor developments have been highly influenced by the support from parent Customer Company which has been continuously changing towards perfection over a period of a decade and half. The study bridges the various gaps seen in vendor selection criteria from 1999 to 2013. An immense work has been done by customer companies over this period, on vendor perspective which not only have enhanced the quality of automobile but also curtailed the cost of automobile so as to make it reach to a common man. The factors falling against Vendor Support Service Quality (VSSQ) were identified and plugged and vendors were developed for Q-C-D-MM (Quality, Cost, Delivery, Development, and Management (manufacturing)) From 1999 till 2013, Customer Companies have put their continuous effort to an average quantum of 47% additional, is true in case of vendor development by automobile giants and Tier-1 companies in automotive sector in India which still is an on-going process. The new VSSQ framework and its propositions can be seen as new aspect of futuristic studies on vendor development derives.*

### I. INTRODUCTION

Selection of suppliers and evaluation has become a critical aspect in today's automotive industry undergoing highly competitive environment. The spiraling cost of input materials, the procurement costs constitute a huge share of the total cost of final automobile. Thus, O.E.Ms and Tier-1 companies need to get the best and consistent deal from their vendors. Thus, vendors play a crucial role in achieving the objectives of supply chain management in automobile industry. Historically the automobile sector has been dependent on the OEM segment for product design and did not develop the engineering capability on its own in India. Indian automobile industry has grown leaps and bounds since 1898 Indian automobile industry has grown multifariously after globalization in early nineties. Punia, B.K. & Sadhna (2013), such an industry deals in a complex phenomena comprising of varied skill manufacturing activities. Most of the O.E.M's are not producers of all auto components within its boundary rather such components are being procured by specialized suppliers mostly within the vicinity and some across the Indian continent. Thus, the quality of final automobile is also is replica of the quality of the product supplied by auto-component manufacturers. It becomes essential for the O.E.M companies that its suppliers need to be technologically as well as technically sound, must have capable manufacturing facility and must be using quality management techniques at par with global standard. Over a period of 15 years, O.E.M companies as well Tier-1 companies have put their best efforts in analyzing the vendor and upgrading those by all suitable means. This primary research pertains to auto component manufacturers in NCR with special reference to Faridabad-Gurgaon cluster.

For automobile makers, there is a global trend of passing more and more responsibility into vendor's basket with apex quality standards of auto components, sub-assemblies and assemblies. Such products are being asked to reach the assembly lines of O.E.Ms, just in time. Thus, giant O.E.Ms/Tier-1 companies are restricting to be brand endorsers. O.E.Ms are redefining the vendor relations and transferring to modular assembly system. For registering new vendor, there is high expectation on Q-C-D (Quality, Cost and Delivery). There is a huge amount of interference of Customer Company to the sub-vendors of existing vendor and such sub-vendors are bound to undergo the periodic audit clearances from parent company. Punia, B.K. & Garg, N. (2013), Research has shown that small and medium sized enterprises developed as vendors (SMEs) play an important role in the economic development of countries worldwide

This paper has been targeted to make a comparative study regarding the quantum of change in role over a period of one and half decade by customer companies have played in nurturing vendors' skills and capabilities. The author has studied various aspects of vendor registration during her doctoral study research in 1999 pertaining to thesis submitted at Department of Business Management, GJU- Hisar and is further evaluating the quantum of this change in 2013.

## II. LITERATURE REVIEW

Soon after globalization, India was made open to the global village and was a preferred market, especially in automobile manufacture as well as auto component manufacturing. There exists a scope of new vendors for new markets. For meeting this multifarious challenge of technology transfers, collaborations and JV's took place which was capital intensive. This, alternatively, generated a huge scope of new vendor development for the economics of auto component manufacture. MNC's placed certain criteria for Vendor analysis, evaluation, selection and ranking is the process of finding the appropriate vendors who are able to provide the buyer with the right quality products and/or services at the right price, in the right quantities and at the right time, Mandal and Deshmukh (1994); Sarkis and Talluri (2002). Razmi et al (2009) established the essence of various types of discount schedules based on total quantity/incremental quantity may be offered by each vendor in each period simultaneously.

Watts and Hahn (1993) refers to supplier development as "A long-term cooperative effort between a buying firm and its suppliers to upgrade the supplier's technical, quality, delivery and cost capabilities and to foster ongoing improvements". C Muralidharan, A Anantharaman, S.G. Deshmukh (2002) hypothesised that in automobile industry, quality, cost and on-time delivery were considered as most important. Some researchers have emphasized the consistency in control by project managers on project integration, scope, schedule, cost, quality, resources, communications, risks, and procurement. As a rule, if the manager fails to effectively manage any of these areas, the others will be negatively affected, Punia, B.K. & Kumar, A. (2012). It has been popularly recognised that the vendor selection decision has become a strategic decision which determines the viability of the company in the long run (Thompson, 1990). A growing body of literature suggests that a company will perform well if it collaborates with suppliers in new product development (NPD) and Suppliers Development Programme. Cormican and Cunningham (2007) worked on performance evaluation in a large multinational organization and evaluated suppliers based on parameters like on time delivery, quality and total cost. Kadir et al. (2011) found that supplier development programs support the development of a supplier's capabilities usually with the assistance of a buyer. Study of Sanders et al. (2011) indicate that buyer-to-supplier information sharing, buyer-to-supplier performance feedback and buyer investment in inter-organizational information technology are key enablers of buyer-to-supplier communication openness.

Amindoust et al (2010) considered six prime evaluating factors pertaining to supplier capability and performance i.e. technical capability, capacity, production facilities, price, quality and delivery which are most relevant to Indian automobile Industry.. Similar work was done by M.N. Kasirian, R M Yusuff (2009) for the Automobile industry and identified a selection model which includes price, quality, delivery, reliability, flexibility, responsiveness, professionalism and long term relationships. Due to such additional responsibilities suppliers are now considered an extension of the buying firm's organization. Such a changing role of supplier is probably the reason why Laugen et al. (2005) identify supplier strategy as one

of the emerging best practices of buying firm [6]. Wagner (2010) found that indirect supplier development improves suppliers' product and delivery performance and that direct supplier development improves supplier capabilities. Wan et al. (2011) found that responsibility of all parties that are involved in the Post Vendor Development (PVD) is a key success factor to avoid misunderstanding and delay in decision-making process especially by the PVD team.

Hald and Ellegaard (2011) in their study of Supplier evaluation processes found that there should be shaping and reshaping of supplier performance to raise quality and to remain competitive. The importance of supply chain coordination among the partners has been stressed by many authors in the recent past (Cachon, 2003 and Dudek, 2004). Other discounting models such as Monahan (1984), Banerjee (1986) and Lee and Rosenblatt (1986) present the vendor's perspective to determine the vendor's quantity discount pricing schedule that will maximize his resulting economic gains without adding any further costs to the buyer. (Esmaeilli et al., 2009) inferred that the dominant supplier with high cost of setting up of production; it is the vendor who decides on the lot sizes is quite common in many large industries like automotive industry);

As inferred by P. Haspeslagh and D. Jemison. (1991), Technology acquisition for Tier-1 vendor development and its integration in the receiving firm often faces a number of problems such as a lack of sufficient leadership after acquisition, Punia, B.K. & Kant, Saurabh (2013) or resistance to the acquisition from employees .M. Jones and R. Jain. (2002). Research has shown that small and medium sized vendor enterprises (SMEs) play an important role in the economic development of countries worldwide. The literature on technology transfer also often points to acquired technologies failing because they were mismanaged.

### III. RESEARCH METHODOLOGY

Twenty five companies which are auto component manufacturers were selected for this research, out of which fifteen were the old companies surveyed during 1999. A questionnaire was developed, which included questions related with capabilities of the organizations for adapting Manufacturing skills, manufacturing processes, Inspection and Test Facilities, financial soundness, technical qualification of vendor, list of existing vendors, process capability and Process control, geographical location and housekeeping. The questionnaire was sent through post and only five companies responded to it. Ten companies were contacted in person and candidates on managerial level were interviewed. Eight companies showed reluctance in providing information while two companies ended with total denial. Questionnaire was administered through forty-seven respondents on managerial hierarchy from thirty vendor organizations in auto component manufacturing units in NCR-Delhi comprising of Faridabad-Gurgaon cluster. Such primary data has been arranged as per TABLE-1 for further analysis. TABLE-2 represents the percent change in the parameters by customer companies essential for vendor registration over a period of fifteen years.

Tabular data has been compared with the similar observations made in 1999, to assess the change in vendor development process compared to present (2013) scenario. Such comparison has been put in tabular form as well as in the form of pie diagram. Based on the comparison, results have been discussed to arrive at a meaningful conclusion. Contributors to this research papers has been thanked and reviews of relevant literature has been acknowledged. Conclusions have been drawn based upon the analysis of primary data collected through questionnaire study.

### IV. ANALYSIS OF DATA

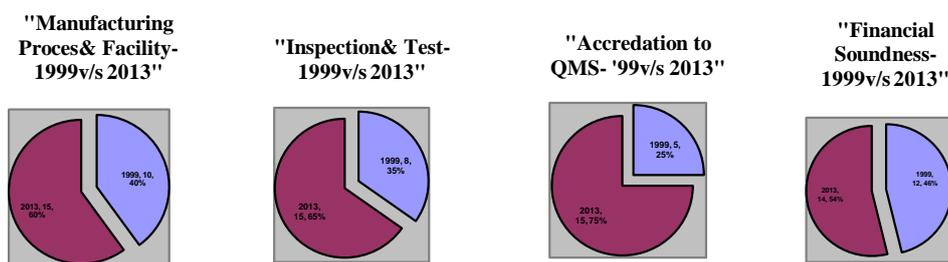
All qualified data have been recorded, summarized, analyzed and compared with the research thesis "Quality Management in Automobile Industry in India" (Sangeeta Sharma, 2002, GJU-Hisar) to study the quantum of impact over a period of one and half decade. Quantified data collected through questionnaire was used as input for differential analysis.

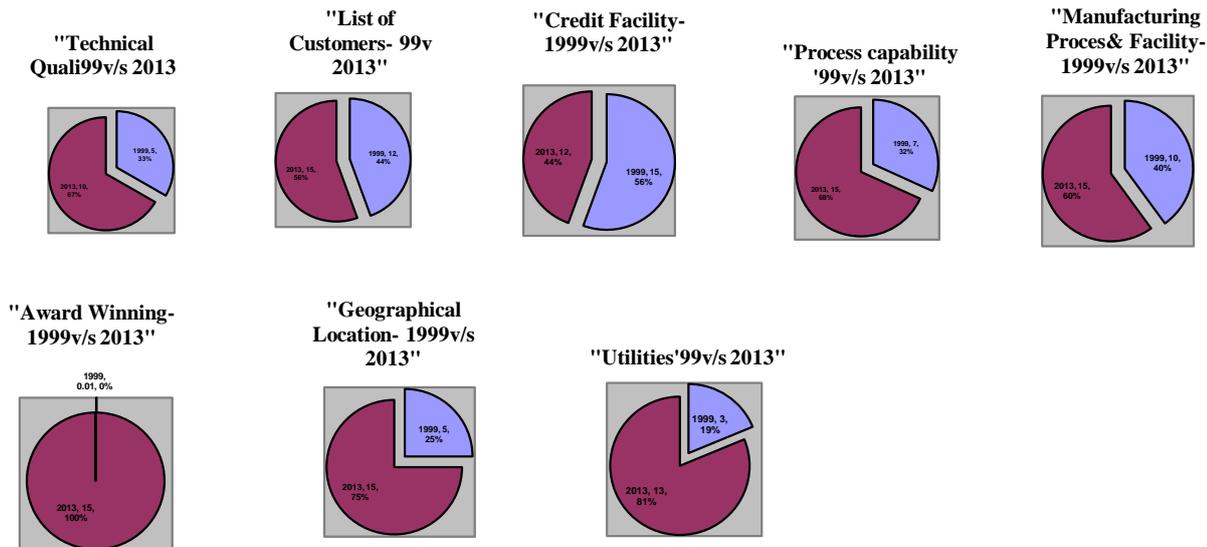
TABLE-1: CRITERIA FOR VENDOR SELECTION			
S.NO	PARAMETER	Year	
		1999	PRESENT
1	Manufacturing Facility	10	15
2	Manufacturing Process	10	15
3	Inspection& Test Facilities	8	15
4	Accreditation to Quality Standard	5	15
5	Financial Soundness	12	14
6	Tech Qualification of Suppliers	5	10
7	List of Existing Customers	12	15
8	Credit Facility	15	12
9	Process Capability	7	15
10	Process Control	7	15
11	Award Winning	Not considered	15
12	Geographical Location	5	15
13	Utility and House-keeping	3	13

The primary data has been compared with the data collected in 1999. The variation has been calculated (positive variation stands for improvement/increase in corresponding parameter and negative variance stands for decrease in respective parameter) and arranged in Table-2 in terms of percent decrease or increase. Certain parameters which were not present or valid as on 1999 have been added now for discussion. Simple average has been taken at the end to assess the quantum of overall impact made on vendors by various vendor development derives.

TABLE-2: VARIATION IN PARAMETER (1999 TO 2013) FOR VENDOR SELECTION		
S.NO	PARAMETER	PERCENT CHANGE
1	Manufacturing Facility	+33
2	Manufacturing Process	+33
3	Inspection& Test Facilities	+47
4	Accreditation to Quality Management System	+67
5	Financial Soundness	+13
6	Tech Qualification of Suppliers	+67
7	List of Existing Customers	+13
8	Credit Facility	-20
9	Process Capability	+63
10	Process Control	+63
11	Award Winning	+100
12	Geographical Location	+67
13	Utilities and House Keeping	+67
	<b>AVERAGE</b>	<b>47</b>

Below Pie chart represent the variation among all “yes” adopted by various companies for respective parameter during Year-1999 and Year-2013. Blue color represent the share of respective parameter in 1999 while dark brown color represent the same in 2013.





## V. RESULTS AND DISCUSSION

**Manufacturing Facility and Process:** It has been seen that customer companies have become 33% more inclined towards developing better manufacturing facilities and manufacturing process at vendor during its development. This has been recognised as a core area for consistency, reproducibility and repeatability of auto components. VD (Vendor development department of parent company keeps continuous watch on this aspect through periodic audits. Processes at par with global standard and equipment reliability helps the companies for consistency in quality thereby make cost effective produce. Respondants have narrated that the efficient and effective equipment not only reduces cost but affects the productivity positively. Thus, it constitutes a prime aspect of vendor development and customer companies do not register the vendor till this criterion is met as per their standard.

**Inspection and Tests:** Parent companies have improved upon this aspect by 47% and stress the supplier to produce components of assured quality duly inspected and certified by T.C (Test Certificate). Earlier, the customer company had Q.C (Quality Control) department for inspecting the incoming goods which is no longer an existing practice. Registered vendors are given rejection allowances in ppm (parts per million), not in percentage. If vendor ppm increases above a specified level, vendors are panelized and warned; in case it further shoots up, there are all chances of vendor to be deregistered by customer companies. Thus, Customer Company put the best effort such that duly inspected and certified quality material reaches to the assembly line. Consistent quality vendors are upgraded and redefined as D.O.L (Direct on Line) suppliers.

Customer companies have opined that **vendors accredited to QMS** are more quality conscious as accrediting company has surveillance audit on the management system obtained by the vendor. Also, some of parent companies make its vendors to undergo third party audit. In such cases, third party is mostly finalized by customer company and does a transparent audit of vendor's QMS. Many companies have a trend of grouping the vendors in form of a cluster which participate a collective training module program on QMS, TQM and TPM. This way, customer companies have improved by 67% in getting the QMS implemented to its vendors for consistency in quality of components and eliminating cost of poor quality.

**Financial Soundness** has been asked at an increased rate by 13% while Credit Facility demand by parent companies has dropped by 20%. Respondants has varied views on that but majority of respondents agree to this pattern of O.E.Ms. It has been viewed that financially sound vendors can meet increased demand off takes by purchaser company while interest cost of long

credits becomes an added cost of product, thereby, longer credit materials are not desired by customer companies. Some of Customer companies have a bill discounting facility for its vendors which reduces the input cost further.

As information technology has redefined the business process and we are in a new generation business. Keeping other aspects at par, Companies prefer **technically qualified** vendors who are fast adaptable to the technological changes in business processes. The traditional way of running vendor ships are no more applicable in this information technology age. Companies are forcing its vendors to go for Entrepreneur Resource Planning (ERP) for accuracy in bill of material, inventory control and JIT (Just in Time) system supplies for reducing the cost of input component. Customer companies have identified this area as major contributor in cost reduction & have put 67% extra efforts on vendors development on this front.

The efforts on **Process capability and process control** has been enhanced by 63%. Companies have realized that a capable and controlled process eliminates rejections and thus reduces cost drastically. Companies strongly feel that this not only improves cost of the component/sub-assembly but also improves the bottom-line of customer as well as Vendor Company. Vendor Development/SCM Department has continuous check on this aspect through periodic audits. To motivate the vendors companies have introduced annual awards schemes based upon their annual performances. Such vendors enjoys maximum share of component schedule.

Companies have intensified their efforts on developing vendors in **nearby geography and considered health, safety and environmental** aspects more by 67%. Preference vendor development in near vicinity not only reduces cost but also ensures timely deliveries. Parent companies have realized the high standard of business ethics and expect the same from its vendors. Companies are putting their best efforts in developing the vendors on hygienic, safe working condition along with putting curbs on industrial pollution. Bid vendors are stressed for environmental standards at par with international standards.

## VI. CONCLUSION

This paper has outlined, examined and analyzed that the automotive vendors have been developed continuously on the demand and support from parent company. Over a period of one and half decades, the prices of all commodities, wages and salaries have increased multifariously yet the cost of automobile production has remained under control. Companies have put their additional continuous effort to an average quantum of 47% compared to Year-1999 to make this industry most-competitive. Various vendor development derives over this period could help the parent companies for pushing its vendors towards development and cost reduction. More responsibilities are going to be added in vendors' scope for controlling inventories, using information technology and low cost automation. As the core technology in automobile industry as well information technology is advancing day by day, more efforts can be seen in the area of vendor development which will further broaden the scope of new investigating this topic and many more researches are yet to be seen on this topic as well on VSSQ in coming future.

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