Supply Chain Issues in Medium Scale Autocomponent Manufacturers: Case Study Approach

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Abstract: This research paper gives an insight about the supply chain issues occurring in medium scale enterprises (MSE). The medium scale industries are the intermediate industries between small scale industries and tier-1 companies. Their role is most important by managing small scale industry suppliers without compromising quality and also satisfying tier-1 companies to sustain in the present vibrant market. In this context the conceptual model is designed considering supplier issues, production issues, financial issues, logistics issues and HR issues as independent variables and financial performance, technical performance as dependant variable. The supply chain management(SCM) and supply chain risk management (SCRM) are partially practised without a dedicated team of employees. The authors of this paper are suggesting to practise SCM and SCRM from the beginning of the product life cycle and are suggesting as moderating variables. This conceptual model is validated based on the responses obtained from top officials of three auto component manufacturing medium scale industry(MSE) located near Chennai.

Key words: SCRM · Data Collections · Management · MSE

INTRODUCTION

Supply chain risk management (SCRM) is a field of escalating importance and is aimed at developing approaches to the identification, assessment, analysis and treatment of areas of Vulnerability and risk in supply chains [1]. Supply chain management literature has already identified a number of strategies and practices that can help to reduce supply chain risk, such as supplier quality management, supplier development, risk mitigation strategies, contingency planning and crisis management.

This article reports a case study research to reason supply chain management (SCM) issues in medium scale enterprises (MSEs) using insights developed from few auto-component manufacturing units of South Indian origin.

Literature Survey: Those MSEs, which lack access to basic infrastructural facilities and which could not strengthen their competitiveness, would have exited from the market [2]. In Brazil, the automotive companies have

the suppliers located near the manufacturing companies and this facilitates the modular consortia to work with the complex Automobile is one of the leading & developing industries in India. Various automobile and auto components manufacturers have setup industries in several parts of India. The Indian auto manufacturers are suddenly exposed to a fast development in the recent years. The competition among the automobile manufacturers have increased due to various developments in products. Chennai is known as the Detroit of Asia. The city and surrounding areas accounts for 60 per cent of India's automotive exports. Chennai has a market share of around 30% of India's automobile industry and 35% of its auto components industry. Chennai will turn out close to 1.5 million vehicles a year CMIE. The auto component is also a growing market in Chennai. The suppliers have to give a good product with lesser cost in a promised time, which will make the suppliers to be stable in the auto component market. India is developing in this field as the man power cost is less with greater potential to do work. The rule of "survival of the fittest" is applied to all the auto

components manufacturers. This study gives us a brief about the problems faced by the auto components manufacturers due to the demands of the OEMs[3]., more than any one U.S. In signs of slowing demand in the economy. Automobile production is expected to grow by 9.6% in 2012-13 as per data of Centre for Monitoring Indian Economy (CMIE). This is lesser than 10.6% growth predicted for the same period earlier by CMIE. The auto component is also a growing market in Chennai. The suppliers have to give a good product with lesser cost in a promised time, which will make the suppliers to be stable in the auto component market. India is developing in this field as the man power cost is less with greater potential to do work. The rule of "survival of the fittest" is applied to all the auto components manufacturers. This study gives us a brief about the problems faced by the auto components manufacturers due to the demands of the OEMs. production forecast.[4] Capacity constraints or shortages as well as poor logistics performance (delivery reliability) derive from unsolved problems in the supplier's production and operations management. The bullwhip effect also plays a role here and has to be countered by the suppliers. Furthermore, poor quality in the purchased products or services is a significant risk and can have a domino effect through the supply chain to the final customer[5].The MSE is a fully labour dependant sector. There are numerous opportunities available these days but the major problem being that the workers tend to have a mindset of working only in Multi National Company (MNC). The workers prefer MNC because they find it better for their self-esteem and also they are provided with good food, transport and a better work environment [6].However, the decline is more drastic in terms of growth of enterprises and employment relative to that of production and particularly, that of exports. While the growth of enterprises and employment has declined by almost 50 per cent, the decline in growth was less significant in production and only marginal in exports during the globalization period as compared to the pre-globalization period [7].

Generally it takes a long time to train a new worker. The time depends on the type of work. For e.g. in plastic moulding industries it takes 2-3 months for training a worker whereas in engineering maintenance works it takes up to 6 months to 1 year. A bright worker will take less time to learn the work. If not it may even take more than the estimated time. vigorous training and after the worker being well settled in the company, if they quit there are various losses faced by the MSE such as time loss, money loss and also the effort made by the trainee (owner

the trainee in most of the MSE to train the worker is a waste and then again the owner has to appoint a new worker and train him for next six long months. Those MSEs, which lacked access to basic infrastructural facilities and which could not strengthen their competitiveness, would have exited from the market. The easy availability of most raw materials and the relatively inexpensive workforce, the ingredients should have been in place for a sound manufacturing ecosystem in India. Supply chain management literature has already identified a number of strategies and practices that can help to reduce supply chain risk, such as supplier quality management, supplier development, risk mitigation strategies, contingency planning and crisis management.

Independant Variables

Financial Issues: The OEMs and the suppliers are mutually independent on each other. The OEM demands for the continuous supply of materials from the suppliers so that the production is not affected. In case of any financial instability the supplier will not be able to manufacture the products in time. In case theirs is inventory stock or there are more than one supplier for that product manufactured the production in the next level of the supplier or the OEM will not get affected or else the production has to be stopped until the financial crisis is solved.so every supplier is regularly audited every year [8]. The audit conducted every year focuses on the Turnover Growth, Dept Equity Ratio, Profitability, Assets, Quality Standards [9]. In case the supplier is a large scale manufacturer he is capable to handle the problem by himself. Or if the supplier is not financially strong he has to face financial instability [8].

Conceptual Model:
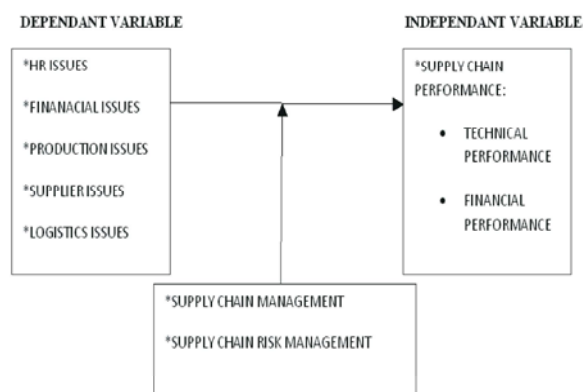
Moderating Variable

Production Issues: Production problems are the most important issues for a auto component manufacturer, the problems include machine repair, supplier production or raw material arrival delay, labour problems, power cuts, tool ware, excess work load due to demands, quality problems etc. so the company has, maintain a regular production schedule for every day manufacturing activities. If the production fails for a day, it will affect the supply to the OEM[2]. This may cause a bad remark on the supplier from the OEM. Mostly inventory stocks are maintained in case of sudden production problems. the production of the OEMs are causing a rise in demand for the materials or products.so proper planning of production is important. Some quality techniques like KAIZENS, 5S and 6SIGMA are implemented in every automobile supplier to get a good quality and organised output.

Logistics Issues: Logistics is an integral function of every MSE. It is a channel of supply chain which the value of time and place utility. In India, few raw materials are cheaper in places like Hyderabad and Bombay but it takes one month t deliver the raw materials whereas it takes only 10-12 days for delivery in local surrounding area where the costs are at a higher rate [11]. Another problem being faced by MSE is as most of the industries are outside the city it is very difficult to transport the raw materials as well as to deliver the finished products [12].

Human Resource Issues: There is often a fluctuation in the demand for production of the products. This forces the MSE to have only a limited number of permanent labourers. Thus they should employ some casual labourers in order to meet the increase in demands of the customers when necessary [13]. So they have to train the casual labourers in the meantime to work, which results in wastage of time and money for the MSE [14]. The MSE could not retain the manpower as the labourers get trained in the company and may leave them for better opportunities. They are not able to meet out the demands of the labourers as they expect high salary which cannot be met out by the MSE. Most of the MSE have to give allowances like rent, food etc. which affects their profit very badly. They also need to satisfy the bonus demands made by the workers. Moreover, many of the labourers in MSE prefer to work in OEM,.TIER1 as those large scale companies provide better work environment, high pay, transport, good food. Moreover, their timings are fixed but in MSE the work pressure is more and hectic. Supervisor of one company explained such that "We are not able to hold a labour for more than 2 years. We do provide

allowances but it goes in vain. Due to labour constrictions, we do not get new orders from OEM which is a hindrance to our company's development. Many of them prefer to work in MNC OEMs as they give a high pay." In the recent past, we have taken cold comfort in the belief that India's manufacturing will never be mass-based like China's; nor will it be capital-intensive like Europe's or US's – it will be skill-intensive.

Frequent leave taken by taken labourers fluctuates the production. Moreover, the MSE cannot deduct the salary for their absence. They should also to train the labourers to operate the machines and this cost is again bared by the MSE. E.g.:- It takes 5-6 months to train an employee in a press tool industry. After they get trained, they would move to other company if provided with high pay and better allowances. If they quit in recent time after getting trained it would result in time loss, money loss and effort made by trainee. Sometimes the Labourers are asked to work for over time in order to deliver the job in time for the OEM or T1 and also during the holidays. So the overtime payment is again bared by the MSE and not by the OEM or Tier1.

The workers prefer MNC because they find it better for their Self-esteem and also they are provided with good food, transport and a better work environment [4]. Given the easy availability of most raw materials and the relatively inexpensive workforce, the ingredients should have been in place for a sound manufacturing ecosystem in India. Yet for long, manufacturing has been a poor cousin to the service sector, which accounts for 57% of national output. In other Asian countries at similar stages of development, manufacturing has contributed much more significantly towards national GDP, compared to India's 16%. Manufacturing in India contributes to a mere 15% of GDP, unlike other countries such as China (34%), Thailand (40%), South Korea, Poland, Turkey and Malaysia (approximately 26-30%), In the recent past, we have taken cold comfort in the belief that India's manufacturing will never be mass-based like China's; nor will it be capital-intensive like Europe's or US's – it will be skill- intensive.

Supplier Issues: The tier one companies are bigger companies get products from the tier 2 suppliers. The tier 2 suppliers get raw materials or parts from the tier 3 suppliers. So there are various problems involved in the selection of suppliers. As observed in all the supplier companies in all the levels of suppliers. The OEMs have their own policy of purchasing a material from their suppliers. the purchasing policies or the SSP (Supplier Service Policy) are similar for all the levels of the suppliers

as the suppliers are located in a same geographical location and some are vertically integrated in the products they manufacture. Maintaining a purchasing policy will help the company to select a good supplier. The company has to see whether the supplier is well established, financially strong, capable of supplying continuously and with good quality systems. a good supplier is important to maintain continuous production.

Moderating Factors

Supply Chain Risk Management: Supply risk management is the strategic and systematic harmonization of various business functions and the tactics across the functions in the supply chain. For improving the operation of the individual companies. The management and maintenance of supply lies in the improved quality and the reduction in cost of a product. The concepts such as (JIT) Just In Time and (JIS) Just In Sequence are used to maintain a good supply chain.

Supply Chain Management: Supply Chain Management is a very important department in the company which will give a very good indication about the logistics and supplies available in the company. Out of the three companies studied, all the three companies don't have a separate department or a concerned staff for supply chain management.

Dependant Variables

Technical Performance: Technical performance refers to the quality of the production time delivery, supply issues it is a very important factor as it shows the Capability of the company

Financial Performance: Financial performance refers to the net profit or loss gained by the company. Financial performance speaks for the company. Financial performance takes into account the cost of the product lifecycle and the availability of profit. It plays an important role in supply chain management.

Research Methodology

Data Collection and Analysis: Three auto component manufacturing companies located near Chennai were studied and questionnaire was circulated to top officials of all the three companies and around fifteen responses were collected for the purpose of analysing. Various outputs were gathered from the responses of the employee. Graphical representation are given below for the better understanding and interpretations of the responses.

Table 1: Statistics of Independent Variable

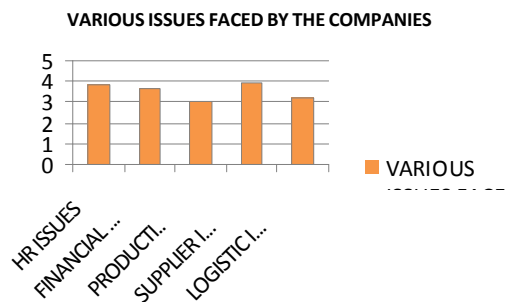| Independant Variable	
Factors	Mean
Labour Issues	3.8
Financial Issues	3.66
Production Issues	3
Supplier Issues	3.93
Logistic Issues	3.2

Fig. 1: Graphical representation of the issues faced by each company

Fig. 1 is a graphical representation which depicts the various issues like the HR issue, production issue, financial issue, supplier issue and logistic issues faced by the companies. This graph is depicted by taking the mean of the ratings given in the responses

Table 2: Table 2 depicts the mean of the ratings with respect to performance.

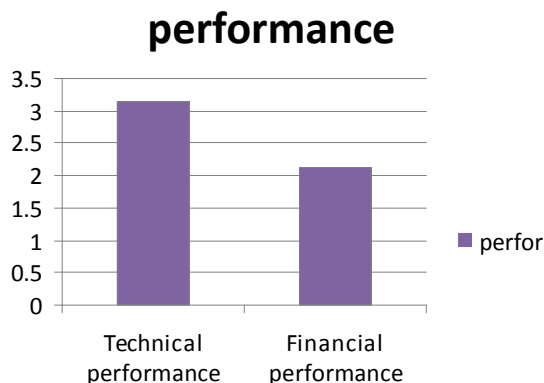| Dependant Variable	
Factors	Mean
Technical Performance	3.13
Financial Performance	2.13

Fig. 3: A graphical representation of the technical and financial performance

Fig 3 is a graphical representation of the technical and financial performance of the company. This graph is interpreted from the responses collected

Table 3: Table 3 Depicts the Implementation of Scm and Scrm

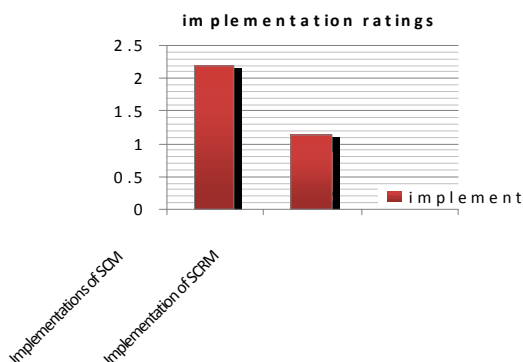| Moderating Factor	
Questions Asked on	Mean
Supply Chain Management(scm)	2.2
Supply Chain Risk Management(scrm)	1.13

Fig. 3: A graphical representation of the implementation of SCM and SCRM by the three companies

Fig. 3 depicts the graphical representation of the implementation of supply chain management (SCM) and supply chain risk management (SCRM).

CONCLUSION

Thus in this research paper we have found out that there have been several issues for the medium scale companies with regards to supply cahin management. This issues were because of the lack of proper SCM and Scram's the authors of this research paper suggest the SCM and SCRM should be strictly followed for the betterment of the company.

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