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# Supply chain issues in SMEs: Insights from auto ancillary unit

Rishu Sharma, Irwin O.Toppo

*Department of mechanical and Automation Engineering, G.B.Pant Engineering College, Delhi-110020*

***Worldwide interest in supply chain has increased steadily since 1980's when organizations began to see collaborative relationship in business and operations. Also, during last few decades, small and medium scale enterprises (SMEs) are considered to be the backbone of economic growth in developed countries. It, thus, becomes important to study, in detail, the supply chain issues in SMEs and strategically plan improvements in weak areas.***

***Auto ancillary industry, on other hand, is one of the highly fragmented Indian industry and has witnessed huge expansions and modernisations due to the highly competitive automobile industry. Due to the increased complexities and variability in market, auto ancillaries are becoming the key research area for many researchers and practioners.***

***The study presented in this paper has, therefore, set out to understand the important supply chain issues in small and medium scale enterprises, for auto ancillary unit, through a compressive review of ideas and concepts practised as well as provided in literature.***

***Key words: Supply chain management, Small and Medium Scale enterprises, Auto anicillaires***

## 1. Introduction

The concept of supply chain originated in 1980's and is seemed to gained substantial benefits- from vendors to customers; and developed concepts like like JIT (Vrijhoef and Koskela, 2000) and TQM (Wong and Fung, 1999), Kanban etc. SCM is aimed at improving overall effectiveness, developing positively and resulted in creation of innovation in basic business processes. It is defined as an effort by the supply chain members to implement and manage value added processes – along upstream and downstream linkages- in order to meet the customer needs (Burt el al. (2004)) and is seemed to influence the behaviour along the linkages in a particular way (Storey et al. (2006) ). The idea of SCM is not only limited to improvement in productivity and efficiency but also to reduce inventory, eliminating waste and add the value along the entire supply chain.

Small and medium scale enterprises (SMEs) can be categorized as component manufacturer for large manufacturing units, and they work under the approach of - make to order'. Due to the modern world globalization and increased competition in market, the SMEs are playing vital role in the business world. Hong and Jeong (2006) studied that SMEs have significant effect impact of supply chain performance and leads to the overall improvement along the supply chain. For developed as well as developing countries, SMEs proves to be the backbone for the economic growth.
Due to improved capability of purchasing power of customers and competitors capability to produce goods/services, the industries are experiencing shorter product life cycle. This increases the product complexity and leads to the new technical breakthroughs. Automobile industry, which is considered to be booming industry in Indian economy, witnesses the similar trend. Automobile ancillary industry in India is poised for rapid growth in coming year as it is riding on boom in the automobile sector.
Auto ancillary unit, which is considered to be a SME, is highly fragmented unit with more than 6000 units. The Indian Auto Components Industry is among the most dominant sectors of the Indian economy, contributing 7% to the GDP. The fact that Indian auto ancillaries are characterized by wide range of products at competitive price and good quality, India is becoming one of the competitive industries in ancillaries. For economic growth of country, it thus becomes important to understand the challenges faced by auto ancillary SMEs.
In order to sustain the growth and develop competitiveness, Indian auto ancillary SMEs continuously strive for increasing their growth rate in terms of efficiency, quality and productivity. In light of this, the motive of present paper to study the supply chain challenges for auto ancillary SMEs. The review presented in this paper sets the issues of SCM along SMEs, especially those applicable for auto ancillaries. The paper also reviews the various research techniques used in the analysis of SME along the supply chain.

## 2. SMEs-SCM Issues-An exploration

SMEs is one of the booming industry in Indian economy. The researchers in their study has pointed the fact that these SME's, in order to meet the competitive opportunities, should be exposed to various modern technologies viz information computing, ICT (Ritche and Brindley (2000)). In situations like this, need for SCM need emerges with the increasing size and business complexities in SMEs. Thakkar et al (2011) followed the concise definition of SCM in SMEs.

According to this definition, SME's in supply chain involves different business activities i.e. procurement from market, manufacturing and processing activities involved in assemblies or subassemblies and delivery of the goods/services using hired transportation and ensure large purchase order ; thus helping in expansion of business. SMEs are now taking more and more part in global business, participating in many interlinked supply chains.

The need to pursue the research in the SCM issue of SMEs can be realised from the study conducted by Morrissey and Pittaway (2004). He found in his study that SCM proves to be a special tool for improving the performance of SME's due the fact that with increasing globalisation there is increase pressure on SME's who are supposed to provide the product/services at controlled prices without any drop of quality parameters.

Several issues have been explored in literature for SCM issues in SMEs. Various authors (like Thakkar et al (2008), Thakkar et al (2012), Morrissey and Pittaway (2006), Eyaa et al (2010) and many more) have reflected in their study regarding the SCM issues in SME. A comprehensive review of selected paper is presented chronologically in table 1. Dangayach and Deshmukh (2001) highlighted the strengths and weaknesses of SME. The key strengths of SMEs, based on various researchers, includes employees behvour and their cooperation, easy and quich decision making and high flexibility. Lack of technical manpower, low infrastructural facility and less financial resources are the key weakness observed in SME's. In order to meet the market uncertainty and fluctuations of variables along supply chain, the intelligent decision making strategies are required for SME's. All the studies agreed into the fact that proper management along the supply chain improves the performance of SMEs in terms of quality improvement, on time delivery and reducing the effects of bull whip along the supply chain.

**Table 1: Relevant literature of SCM in SMEs**

| Reference | Remarks/Contribution/Focus |
|---|---|
| Campbell and Sankaran (2005) | Studies the participation of suppliers and retailers in SME supply chain and developed the framework for improving supply chain integration. |
| Charles (2006) | Studying different strategies for efficient management of supply chain and mapping the relationship in context of SME's |
| Morrissey and Pittaway (2006) | Finding the customer and supplier relationship and exploring the relationship in detail. |
| Thakkar et al. (2008) | Studies the effect of supply chain orientation and developed the interaction model for efficient understanding it. |
| Thakkar et al (2009) | Formulated performance measurement system for SME with objective to improve the visibility of their supply cahin amongst interacting partner. |
| Eyaa et al (2010) | Examines the relationship between collaborative relationships and SME supply chain performance. |
| Kannabiran and Dharmalingam (2011) | Analyzes the inhibitors and enablers of advance information technologies to access the relative importance with reference to SMEs. |
| Singh (2011) | Studies the coordination along the supply chain for SMEs using Interpretive Structural Modelling (ISM) and develops an index for coordination |
| Anuar and Yusuff (2011) | Studies the Malaysian SME's and investigates the practices, performs benchmarking in order to improve the improve the performance. |
| Thakkar et al (2012) | Studies six SMEs, performs critical analysis and reports set of recommendations to study the supply chain issues. |
| Sidola et al (2012) | Developed the model for supply chain of SME to study the IT capability on company's market share. |

## 3. Insights into auto ancillary unit

Auto ancillary industries are one the fastest and impressively growing SME in India and now form an important part in Indian economy. These SME's are supposed to have contributed about one-third of India's Gross Value Output (GVO) during the last five years. The industry has captured the attention of Indian as well as overseas manufacturers. Similar trends of growth and expansion are witnessed in automotive industry and are supposed to be key contributor in auto components and spare parts; thus having significant share in export market as well. According to Automotive Component Manufacturers' Association of India (ACMA, 2011), the compounded annual growth rate (CAGR) of the auto component industry records around 18.5 per cent in the 2017-2018 and registering the turnover of Rs 9071 crore.

The auto ancillary unit in India is considered to have more approximately 6000 and 700 ungranised as well as organised units and its market can be classified into three sectors viz original equipment manufacturers (OEMs), replacement market and export market with contribution of for 40, 50 and 10 per cent respectively. The auto ancillary products can be classified into six broad segments- Engine and engine parts ( Pistons, piston rings, piston pins, gaskets, carburettors etc); Suspension and braking parts (Leaf springs, shock absorbers, brake assemblies); Drive transmission and steering parts (Transmission gears, steering gears, crown wheels and pinions, axles); Electricals (Spark plugs, starter motors, generators, distributors, voltage regulators, flywheel magnetos, ignition coils); Equipment: (Dashboard instruments, headlights, horns, wipers); others ( Fan belts, sheet metal parts)

Auto ancillary industry are the fast growing industries in India , with cost competitiveness, customer orientation, lead time, as some of its key factors for the survival in new global set up. Some risks like shorter lead time of products with rapid changing technology, high fluctuation in cost of production, dependence on agents to trade with overseas customers, negotiations during purchase of raw material are observed in auto component SME's. Despite of several problems like poor infrastructural facility, low capital base, less international environment exposure, poor infrastructural facilities, auto SME's are continuously contributing towards the development of India's industrial base.

## 4. Research Techniques and Methodologies used for analysis of SMEs

Various studies have been conducted by the researchers for analyzing the various issues of SMEs. For purpose of this study, a comprehensive overview of selected papers is done (refer table 2). In this table, focus of the study and methodology used is highlighted. The papers are classified into two categories as analytical and empirical. The articles found purely explanation based are categorised as theoretical. Further analytical method is categorized as conceptual, mathematical, statistical and empirical methods are classified as case studies and experimental design. From the study, it is found that empirical methods are more readily used for analysing the SMEs. Very few studies have been based on the analysis based on simulation and other statistical methods.

**Table 2: Research techniques used for analysis of SMEs**

| Reference | Focus/Issue studied | Methodology |
|---|---|---|
| Ates et al (2013) | Investigates the gap between theory and practice in performance in SMEs and develops managerial practice for effective performance management. | Case studies |
| Campbell and Sankaran (2005) | Proposes an inductive framework for enhancing supply chain integration through enhanced participation of SME suppliers and resellers in the supply chain | Case study |
| Eggers et al (2013) | Studies impact of customer's responsiveness and entrepreneurial orientation (i.e. proactiveness and innovativeness) on growth of SMEs. | Structural Equation Modelling |
| Gharakhani and Mousakhani (2012) | Highlights the impact of knolwedege management on the SME's organizational performance | Survey |
| Iikay and Aslan (2012) | Examines the effect of quality management system (ISO 9001) on the performance of SMEs and factors affecting their relationship. | Case study |
| Jagoda et al (2010) | Explores technology transfers for SMEs for dealing the complexities in the product, requirements of the customers, timely and better customer service, and increased competitive pressures. | Case study |
| Kannabiran and Dharmalingam (2012) | Identifies and evaluates the key factors enabling the adoption of advanced IT in the Indian auto ancillary SMEs | Survey |
| Kross et al. (2006) | Studies and examines the adoption of JIT technology by manufacturers on inventory policy of their vendors. | Survey |
| Morrissey and Pittaway (2006) | Finds the relationship between customer and supplier from the perspective of SMEs | Survey |
| Nabhani and Shokri (2009) | Presents the application of six sigma in SME in a lean environment to reduce the waste. | Case study |
| Sharma and Bhagwat (2005) | Discusses the existing information systems practices in Indian | Case study |
| Sidola et al (2011) | Highlights the impact of proper information technology (IT) tools on organization performance. | Simulation |
| Zheng et al. (2004) | Discusses the models of e- business (like focous dominance model, transportation model, portfolio model, internet adoption) in context with SME's. | Conceptual, case study |
| Taparia et al (2018) | Studies the effect of IT adoption in SME's and perform SWOT-TOWS to analyze the critical factors for its application in auto ancillary units | Case study |

## 5. Conclusion and Further Directions

Competitiveness, with quality as a theme, has been the watchword for the Indian auto component industry ever since the Indian economy was opened up to the world in the early 1990s. The paper, thus, highlights the key issues of auto ancillary SME. The paper presents the review of SCM issues in SMEs. In order to strategically plan the policies, SMEs

need to diagnose the supply chain issues; which enhances learning capabilities and can help to develop systems thinking, information sharing, team work and leveraging of the knowledge base.

It is expected that the study will help SME managers to diagnose their supply chain function and strategically plan improvements for weak areas. In addition, it provides the platform for SMEs managers to plan the policies for improving quality, meeting due dates, reducing failures and enhancing flexibility. This study is supposed to be helpful for the policy makers in SME's to know the supply chain problems and make the decision makers to take necessary action for the improvements.

From study it is found, that many researchers have chosen SMEs as their area of research. Despite of the contribution of auto ancillary SMEs in the economic growth of country, very less attention is given in this area. Also, survey and case study based methods are widely used techniques for the analysis of all types SMEs. To best of knowledge, limited use of simulation, for performing the analysis of SMEs, is found. Thus, for further direction, researchers can put their effort in analyzing the auto ancillary SMEs using simulation as the tool.

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