

## **A Study of Supply Chain Management in Selected Mechanical Engineering Units (Some Literature Review)**

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### **ABSTRACT**

*Study is focused on the some literature review on the supply chain management in selected mechanical engineering units. Various articles are reviewed with special reference to supply chain management practices, challenges as well as issues, use of Information & communication technology in the supply chain management. Some review of nearly 15 articles is done and findings of it are discussed further.*

**Keywords:** Mechanical, Engineering, Challenges, Issues, Information & Communication technology.

### **INTRODUCTION:**

In today's globalized era with increasing competition supply chain managers are facing many new challenges as complexities in it are increasing and advancement in technical as well as functional aspects of it is rapidly taking momentum. Supply chain management is an essential aspect of business in today's global era. The concept is to apply a total systems approach to manage the entire flow of information, materials and services from raw materials of suppliers through factories and warehouses to the end customer. An increasingly popular perspective today is to observe the flow of materials from suppliers all the way to customers as a system to be managed. This perspective of managing flow and information from a company's suppliers through the company's operations and then on to its customers is commonly referred to as supply chain management. In order to further focus on supply chain management some literature review need to be done so as to know the areas on which already study have been completed and where is there is research gap. This article focus on the same.

### **Objective:**

To examine literature review of supply chain management with special reference to mechanical engineering units regarding supply chain management practices, challenges as well as issues, use of Information & communication technology,

### **REVIEW OF LITERATURE:**

Inayatullah, Rakesh Narain, Amar Singh (2015) conducted research study which was aimed to provide insight into the similarities and dissimilarities of supply chain management practices between large enterprises and small and medium enterprises of india. Study found that despite of so many constraints, the managers of the SMEs need to bring in a cultural change in their attitude needed to outlive and outperform other firms existing at every tier of supply chains of LEs. If only SMEs could focus on better strategic planning and management of their businesses and not just only on economic aspects, they could reap much more dividends. It is now for SMEs to grab various opportunities take lesson from the best practices of LEs and put out their best foot forward to play a bigger role in shaping the economy of the country.

S.C Lenny Koh and Mehmet Demirbag, Erkan Bayraktar, Erkan Tatoglu, Selim Zaim (2007) conducted study with the purpose to determine the underlying dimensions of supply chain management practices and to

empirically test a framework identifying the relationships among SCM practices, operational performance and SCM related organizational performance with special emphasis on SMEs in Turkey. They found that both factors of strategic collaboration and lean practices (SCLP) and outsourcing and multisuppliers (OMS) have direct positive and significant impact on operational performance. In contrast both factors do not have significant and direct impact on SCM related organizational performance.

Kiran Bala (2014) conducted a study which was aimed to understand what supply chain management is and how it is affecting organization, what are different challenges and it can be proved as a tool for improving overall performance in today's global competitive environment. They concluded that assessing supply chain performance leads to identification of problems and opportunities, Having a strategy and measuring key parts are necessary to understand and take control of supply chain. Put the process, people and technology in place to create competitive advantage, both for today and tomorrow. If organization do not, a competitor will do it.

David J. Ketchen, G. Thomas M. Hult (2006) conducted study by describing how key organizational theories help to distinguish traditional supply chains from best value supply chains and found that best value chains use strategic supply chain management in an effort to excel in terms of speed, quality, cost and flexibility. Despite the value of this concept to modern firms, little is known about how prominent theories can help shed light on what distinguishes these chains from others and makes them exceptionally successful. Study focused on building bridges between organization theory and supply chain management in order to help close the gap of information required about best value supply chains.

Keah Choon Tan (2002) conducted study which was aimed to identify and compare the major concerns in implementing a successful SCM program as well as to identify the practices and concerns associated with successful supply chains. It is concluded that a truly integrated supply chain requires a massive commitment by all members of the chain. The buying organization may have to overhaul the purchasing process and integrate a supplier's engineering teams and product designers directly into its own decision making process. Since the cost of changing a partner in the supply chain can be large, the purchasing firm can become captive to its supplier. Poor supplier performance is not the only risk, the purchaser needs to worry about the possibility of a supplier passing trade secrets to competitors or with its new found abilities, venturing out on its own. While there are many other pitfalls of effective SCM, such as conflicting objectives and missions among supply chain members, inadequate definition of customer service, and separation of supply chain design from operational decisions.

Stanley E. Fawcett, Gregory M. Magnan, Matthew W. McCarter (2008) conducted study with a purpose to focus on potential benefits, barriers and bridges of strategic SCM. It is concluded that although cost reduction is a prime motivator to strategic SC collaboration, customer satisfaction and service is perceived as more enduring by managers and should therefore be brought to the fore as the leading goal for SC managers. Also all managers recognize technology, information, and measurement systems as a major barriers to successful SC collaboration. However the people issues such as culture, trust, aversion to change, and willingness to collaborate are more intractable.

Douglas M. Lambert and Martha C. Cooper (2000) conducted a study to focus on issues in the supply chain management of the organization. It concluded that successful SCM requires integrating business processes with key members of the supply chain. Much friction, and thus waste of valuable resources, results when supply chains are not integrated, appropriately streamlined, and managed. A prerequisite for successful SCM is to coordinate activities within the firm. One way to do this is to identify the key business processes and manage them using cross functional teams.

Hartmut Stadler (2004) conducted a study with objectives to focus on issues and challenges of advanced planning system in the supply chain management. It concluded that despite great progress in modelling and solution capabilities there are still many areas for improvements and for future research in SCM and advanced planning. While the issues facing an inter organizational supply chain are mainly addressed in research areas associated with the integration of individual organizations, knowledge regarding process orientation and advanced planning across company borders is still in its infancy.

Souresh Bhattacharya, Dr. D. Mukhopadhyay, Dr. Sunil Giri (2014) conducted study which seeks to understand the present status, complexities and challenges facing Indian automobile sector. It concluded that Indian industry is yet to match the standards of developed countries and tremendous potential exists for national level integration of supply chains. The industry needs to focus on development of green technologies such as hybrid vehicles, low emission and fuel efficiency to meet futuristic, stringent norms, cost control throughout the automotive value chain, enhance investments and efforts in R& D specially in auto component manufacturing sector and buildup scale to enhance export.

Sama Hamisi (2011) conducted study about challenges and opportunities about Tanzanian SMEs in adapting

supply chain management. It concluded that one of the constraints to growth of SMEs is adoption of SCM as an effort to strengthen and leveling the playing field with MNCs and TNCs in national, regional, and global competitive market. Increasing market competitiveness of SMEs in SCM not only focus specific economic sector perspectives, but also a form of viewing all chain members.

Ravinder Kumar, Rajesh K. Singh, Ravi Shankar (2015) conducted study about critical success factors for implementation of supply chain management in Indian SMEs and their impact on performance. It reveals that the critical success factors have positive impact on different categories of performance such as customer service and satisfaction, innovation and growth, financial performance, and internal business of Indian SMEs. Further, when analysed sectorwise different CSFs show different impacts on different performance criteria in different sectors. It is also observed that to face the challenges of a global market, SMEs in India are now recognizing the importance of SCM implementation on a larger scale.

Suhong Li, Bhanu Ragu-Nathan, T.S Ragu-Nathan, S. Subba Rao (2004) focused study on empirically testing a framework identifying the relationships among SCM practices, competitive advantage and organizational performances. It reveals that higher levels of SCM practice can lead to enhanced competitive advantage and improved organizational performance. Also competitive advantage can have a direct, positive impact on organizational performance, the increased competitiveness of a firm may enable a firm to implement higher level of SCM practice due to the need to outperform its competitors constantly and keep its competitive position in today's dynamic business world.

V. M Rao Tummala, Tobias Schoenherr (2008) conducted study which aims to facilitate the task by developing an implementation decision framework for SCM initiatives based on best practices and reveals the framework consists of SCM goals, enablers, SCM initiatives and the defining operational activities which will enable firms to develop and implement SCM plans logically and in systematic fashion. Furthermore the framework can be used with analytic hierarchy process modeling process to systematically prioritize the SCM plans for effective implementation by companies.

Job Dubihlela, Osayuwamen Omoruyi (2014) conducted study which presents the SCM implementation barriers and suggests significant variations between these barriers as well as their impact on the business performance of SMEs. It concludes that resultant impact of these components on SCM indirectly influences business performance for SMEs. Both lack of economies of scale and technological challenges have stronger negative influence on SMEs capacity to implement SCM than does organizational structure, the findings in this study also confirm the importance of technology in contemporary business operations and supply chain integration.

Peterson Obara Magutu, Josiah Aduda, Richard Bitange Nyaoga (2015) conducted study to determine the extent to which supply chain technology moderates the relationship between supply chain strategies and performance of large scale manufacturing firms in Kenya. The findings indicate that there is a strong significant relationship between supply chain technologies, supply chain strategies and firm performance, implying that both supply chain technology and supply chain strategies explain most of the changes in the firm's performance. The net effect shows that supply chain technology is a significant moderator of the relationship between supply chain strategies and firm performance. This study cleared some contradictions to support the position that firms should invest in supply chain configurations and technologies that lead to improved service delivery accompanied by enhanced operational and overall firm performance.

T.N Varma, D.A Khan (2014) studied use of information technology in supply chain management in which he discusses the role of IT as an enabler in supply chain management with vast benefits to organizations with a comprehensive IT implementation as well as curbing e-risks.

## **METHODOLOGY:**

The literature is examined from three perspectives. First supply chain management practices, Second challenges & issues in it and third use of Information & communication technology in the supply chain management. Mostly while examining the literature following points were summarized;

- 1) Name of the author
- 2) Year of the author
- 3) Objectives of the article
- 4) Findings from the article.

According to above structure articles were reviewed and conclusions were made.

**FINDINGS & DISCUSSIONS:**

**Table No.1**

<b>Author</b>	<b>Contribution in literature</b>
Inayatullah,Rakesh Narain,Amar Singh	Similarities & dissimilarities of supply chain management in various sectors
S.C Lenny Koh	Determination of underlying dimensions of supply chain practices
Kiran Bala	Different challenges in supply chain management
David J.Ketchen	Bridging the gap of information required about best value supply chains
Keah Choon Tan	Identification and comparison of major concerns in implementing a successful supply chains
Stanley E.Fawcett	Focus on potential benefits,barriers and bridges of strategic supply chain management.
Douglas M.Lambert	Focus on issues in the supply chain management
Hartmut Stadtler	Focus on issues and challenges of advanced planning system in supply chain management
Souresh Bhattacharya	Understand the present status,complexities and challenges facing indian automobile sector
Sama Hamisi	Study about challenges and opportunities about Tanzanian companies
Ravinder Kumar	Study about critical success factors for implementation of supply chain management
Suhong Li	Focus on framework identifying the relationships among Supply chain management practices,competitive advantage and organizational performances
V.M Rao Tummala	Facilitate the task by developing an implementation decision framework for SCM initiatives.
Job Dubihlela	Present the SCM Implementation barriers
Peterson Obara Magutu	Determine the extent to which supply chain technology moderates the relationship between supply chain strategies and performance of firms in Kenya
T.N Varma	Use of information technology in supply chain management

Major findings & discussions as following;

- Operational performance is dependent on strategic collaboration,lean practices,outsourcing and multisuppliers.
- Identification of problems and opportunities after assessing supply chain performance.
- Truly integrated supply chain requires a massive commitment by all the factors within the organization.
- All key business processes need to be identified and manage them using cross functional teams.
- Knowledge regarding process orientation and advanced planning across company is still in its infancy.
- Indian industry is yet to match the standards of developed countries and tremendous potential exists for national level integration of supply chains.
- Critical success factors have positive impact on different categories of performance within the organization.
- Higher levels of SCM practices can lead to enhanced competitive advantage and improved organizational performance.
- The IT systems with service oriented architecture and web service standards,expected to come in future,may facilitate better supply chain management.

**CONCLUSION:**

Study was focused on reviewing literature for supply chain management in selected mechanical engineering units.Various literature is available as discussed above.Literature with specific focus on mechanical engineering units is rarely available.In that also only small scale units are covered,Other types of units are neglected in various studies with specific reference to supply chain practices,challenges.issues,Information and communication technology .This can be considered as the research gap and need to be addressed.

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