

Study of Evolution and Future of Supply Chain management

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ABSTRACT

Supply Chain Management is a methodology of improving the business processes, making them more resilient, more agile and as a result, more competitive. The main function of SCM is to improve the product or service competitiveness (Machowiak, W. (2012). This paper is an endeavour to study, understand and interpret the evolution of supply chain management. On the basis of systematic literature review, we have attempted to explore the future of Supply Chain. We have captured various definitions of SCM provided by experts from the initial to recent period along with major classical definitions. Various dimensions of Supply chain are an integral part of this study. The paper discusses SCM and its dimensions; and tries to delineate SCM from related areas like Logistics Management, Value Chain Management and Operations Management. The paper also elaborates various theories of SCM. On completion of thorough literature review, the paper ends with a conclusion and future scope of work.

Keywords: *Supply Chain, Supply Chain Evolution, Supply Chain Theories, Future Dimensions of Supply Chain*

1.INTRODUCTION:

A supply chain deals with the conversion of raw materials into finished goods and timely delivery of the products to end users (Mabert and Venkataramanan, 1998). This paper first describes the evolution of various definitions of supply chain. Supply Chain Management basically looks into the interrelationship and inter-linkages between various functions, processes and chain members and analyses the impact of their interaction on value additions and profit maximization (Ballou, 2007). We next elaborate certain research questions such as understanding SCM and its dimensions, delineating SCM from other related areas and identifying various contributions in SCM theories. We have further tried to analyse and identify research gap.

Research Questions

RQ1: To understand evolution of SCM and its dimensions.

RQ2: To delineate SCM from other related areas like Logistics Management,

Value Chain Management, and Operations Management.

RQ3: To identify various contributions in the field of SCM theories. SCM connects different departments, from demand management, sourcing and procurement management, and manufacturing management to logistics management.

SCM process is made up of different parties i.e. retailer, manufacturer, and supplier involved in providing products and services to the customers, and the sole purpose is to add value in their products, both in upstream and downstream, through some channel with the proper flow of information and resources. In this fast paced business, it is imperative to have proper flow of information within this physical network which can be fully leveraged through business integration. This business integration will help in coordinating between different parties to achieve the bottom line results. In Fact many companies have begun to identify that today competition occurs between supply chain networks rather than individual firms (Li et al., 2005; Koh et al., 2007; Chow et al., 2008).

2. Evolution and Definitions of SCM :

The scope and definition of supply chain management has been ever changing. The meaning of the word supply chain management in industry parlance is not the same that it was 20 years ago. It is continuously evolving and broadening its scope. Here, we have tried to identify the trend in the evolution of SCM by reviewing papers in chronological orders. Reviewing papers in chronological order will show the trend in evolution of definition of SCM.

3. Research Methodology:

In order to answer the research questions, the literature review method is used. Our research paper tries to identify the trends in evolution of SCM. There are various definitions and theories of SCM which have changed rapidly with time. We have reviewed a lot of research papers and have made an attempt to study the various definitions of SCM in chronological order.

Various research papers from databases like Emerald, Science Direct and EBSCO were identified and referred to. Within these databases, various journals such as International Journal of Logistics Management, International Journal of Information Management, International Journal of Physical Distribution and Logistics Management, Journal of Operations Management, Supply Chain Management: An International Journal, International Journal of Operations and Production Management etc. were referred to by us.

The following methodology for the literature review process has been adopted

- 1. Identification of Areas:** Based on the research questions, we were able to identify the particular areas in which we were supposed to find literature.
- 2. Searches in Various Databases:** After finalizing the areas for literature review, we utilized various databases such as Ebsco, Emerald etc. to find the relevant research papers.
- 3. Sorting the Literature for Review:** Once the research papers were available, the papers based on the relevance of those papers with respect to the research questions were sorted out.
- 4. Performing Review:** The sorted papers were then reviewed in an attempt to answer the research questions.

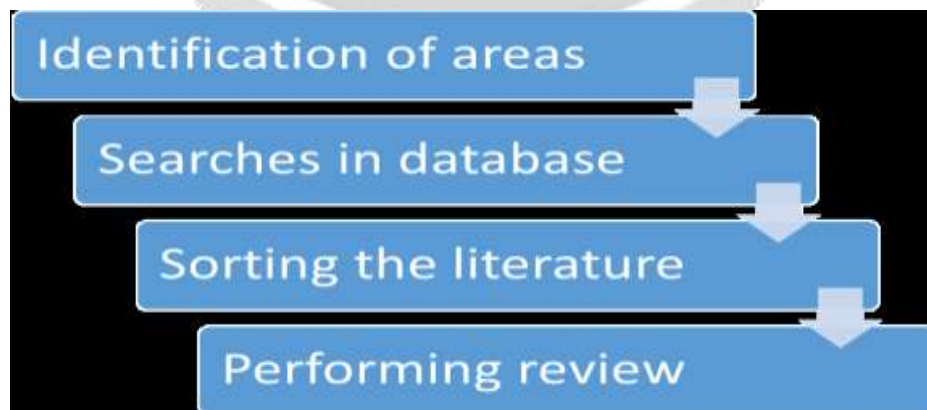


Chart-1 Visual Representation of the Process

4. Dimensions of Supply Chain Management

After studying various papers, we were able to identify 3 major supply chain dimensions:

4.1 Long Term Relationship

The key signs of long term relationship in supply chain management are trust and communication (Heidi and John, 1990). Long term relationships have been identified as a very important dimension of SCM in various literatures (Min and Mentzer, 2004). The main idea behind maintaining a long term relationship in a supply chain is to complement each other's strengths and to develop synergies to improve the total gains (Carr and Pearson, 1999). Organisations should be all the time aware of the long term relationships between them and other firms. Long term relationship really helps an organisation by sharing their knowledge with others and learning from others experience and knowledge (Griffith, Harvey, and Lusch, 2006).

4.2 Concurrent Engineering

It is essentially the collaboration of all the stakeholders of a supply chain i.e. suppliers, and customers at an early stage (Celtek and Kaynak, 1999). All the stakeholders are included in the decision making from the design stage so that there are no miscommunications regarding any aspect of design of engineering. All the work which might have dependencies with other stakeholders is done by making cross functional teams and involving all the stakeholders in the process of designing the product or process.

4.3 Strategic Purchasing

In today's era, purchasing is replaced by strategic purchasing. The profits are generated not from the customers but from the vendors or suppliers. Hence purchasing is becoming more and more strategic now. Identifying the vendor is also a part of strategic purchasing. Strategic purchasing always takes a long term view in mind while taking any decision. The purchasing strategy should be well aligned with the firm's strategic goals.

5. Organizational Theories in Supply Chain Management :

There is a need to understand these theories that act as pillars of foundation in supply chain. There has been research regarding these underlying elements (Ketchen Jr. and Giunipero, 2004 and Ketchen and Hult, 2006). These theories will be employed in understanding the traditional view point of SCM and how it has evolved over time.

5.1 Resource-Based View

Resource-based View (RBV) is considered as most dominant dimension in supply chain management. These resources are rare, valuable and difficult to purchase. Such resource provides competitive advantage over the competitors who lack in such resources (Barney, 1991). Competitive advantage is generally considered as the implementation of strategies not currently being implemented by other firms that facilitates reduction of costs, exploiting market opportunities, and neutralization of competitive threats. Appropriate deployment of resources results in competitive advantage.

5.2 Knowledge-Based Theory

Knowledge-based view provides insight in terms of coordination of supply chains. A traditional organisation largely relies on the hierarchy for coordination. Normal philosophy of supply chain lacks in formal hierarchy. They largely depend on knowledge to facilitate for concerted actions. Generally, most of the supply chains in formal mechanisms are for storing vital knowledge (information) in an organisation (Grant, 1996).

5.3 Agency Theory

Agency theory suggests that the firm can be viewed as loosely defined between resource holders. An agency relation arises when multiple individuals hire other individuals (agents) to perform some tasks and authorize them with decision-making. Both the parties get very different targets, normally the agent possesses higher target than that of the principal (Eisenhardt, 1989). Agency expenses are incurred to hire agents in order to sustain an effective agency relationship.

5.4 Institutional Theory

Institutional theory is largely depended upon the external pressures or forces for shaping of organisational choices. It emphasizes on definite supply chain practices to some firms. It provides guidance to managers and employees to understand success of other organisations and to apply appropriate possible actions (DiMaggio and Powell, 1983).

5.5 Transaction Cost Analysis

This theory provides a standard approach to ascertain the limits within which a firm should operate efficiently (Williamson, 1975, 1985, 1996). TCA can be used to provide an incentive for the firms to enter into collaboration with other organisations. By using this theory, we can ascertain which functions are to be performed within the organisation and which functions are to be outsourced. Whenever a firm outsources a function, the firm to which it has outsourced becomes the partner of the parent firm. Thus the transaction costs also depend upon the behaviour of the partner when it discovers some opportunity. The way to reduce these risks due to uncertain behaviour of the partner is by entering in long term contracts with the partner, having penalty clauses and making joint investments. This theory is generally used in taking the crucial decision i.e. whether to manufacture a product or to outsource its manufacturing (Maltz, 1993; Andersson, 1997; Halldorsson, 2002). Thus essentially TCA helps in deciding whether a particular operation should be performed in-house (within the organisational limits) or to be outsourced (outside the organisational limits).

5.6 The Network Theory

In today's competitive era, the performance of a firm does not depend only on its direct partners and indirect partners. Hence, the way in which a firm interacts with other firm becomes significantly important in this era. The way the firm interacts with other firms decides the formation of a new resource. Thus the two firms combine together to develop synergies and to learn from each other's strengths. The network theory provides an understanding of the importance of relationship between two organisations, whether it is build-up of trust or long term relationships or using of each other's systems and processes.

The relationship between two firms in a network is enhanced by two kinds of processes i.e. the exchange process wherein the two firms exchange information, goods, services etc. while the other is adaptation process where the two firms learn and adapt to each other's processes such as legal, administrative logistics etc. (Johanson and Mattsson, 1987).

7. Conclusion:

The objective of the paper was to study SCM, its evolution and dimensions. This paper was based on three research questions which were:

RQ1: To understand evolution of SCM and its dimensions.

RQ2: To delineate SCM from other related areas like Logistics Management, Value Chain Management, and Operations Management.

RQ3: To identify various contributions in the field of SCM theories.

After reviewing papers pertaining to SCM and Operations Management, we were able to map the evolution of Supply Chain Management as a concept and the results are represented in a tabular form. We were able to identify the most important dimensions of SCM namely Long Term Relationship, Concurrent Engineering and Strategic Purchasing. We were able to identify a thin line that separates various terminologies such as SCM, Value Chain, Operations Management and Logistics Management. After reviewing several papers on these topics, we were able to delineate SCM from other related areas.

During the passage of time, various theories of SCM have evolved and were widely accepted in the industry. We have studied various papers for the theories and elaborated these theories in the paper.

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