Review on Role of Knowledge Management in Supply Chain Management

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Abstract—There is a little dispute that supply chain management is an area of importance in the field of management research, yet there have been few literature reviews on this topic. Knowledge is a fundamental asset for firms in the contemporary economy. Increasingly, knowledge is distributed across individuals, teams, and organizations. Drawing on the knowledge-based view of the firm and theory from the information processing and organizational learning literatures, this study has been devised a model linking knowledge development to cycle time in strategic supply chains. Therefore, the ability to create, acquire, integrate, and deploy distributed knowledge has emerged as a fundamental organizational capability. This paper is also focusing on the role of knowledge management in managing supply chain. Many studies in this area so far distinguish different methodological attributes of the process that present knowledge management application in supply chain. This paper identifies that there is hardly any prove available on the improving collaboration between company’s outcome and IT strategies they use. They are still areas that are not clearly studied issues with outdated information in supply chain management is one of them. Further researches on the processing of the collection of knowledge promise new frontiers. This essay discusses building theories and empiric way of investigation at the end.

Key words: Supply chain management, knowledge management

1. INTRODUCTION

This writing tries to assess knowledge management and supply chain management and correlation between them by focusing on the current regarding theoretical and empirical researches. It also dedicated to the knowledge management and its characteristic in supply chain management. Agility, adaptability and assignment mentioned as the attributes of the knowledge, its flow and it’s sharing among supply chain associates [1]. Mentioned attributes result in improving the performance. These essays will focuses on answering these three questions. (I) In which scopes of supply chain management knowledge management has been generally used? (II) In which ways this usage can lead to supply chain management improvement? (III) In what way knowledge management can encourage creating knowledge and allow different stockholders to use it? An increase in the interest level of using Knowledge management in supply chain is clearly visible while studying available literature. This improvement happens mainly due to the availability of fragmented zones and knowledge in more complicated supply chains. Focusing on the issues mentioned this paper finish this section concluding on most important knowledge management styles, and the techniques which are mainly concentrate on supply chain. This essay will cover following sections. Second part is introducing the methodology. Third part is concentrating on the learnt knowledge management functions. Parts 4 to 6 are focusing on our three main questions. Finally, the last chapter will review these papers main achievements.

2. MATERIAL AND METHOD

Considering the twisted characteristic of knowledge management levels and its usage, the studied papers will be analyzed in imaginary sequences. First one will be from attainment to examination (March 1999) in the paper issued in 2001, Gray divide knowledge management practices using the difference between these two concept [2, 3]. Oshri et al., (2005) believe exploration and exploitation should be studied as whole rather than different issues [4]. Brown and Duguid (2001) also debate on the necessity of re-studying issues considering these two as a whole [5]. Another way to maintain a sequence is consider it as creating and developing knowledge rather than sharing it. The third way is based on “polar” strategies which stressing on using IT to improve information sharing and knowledge distribution in one side and emphasizing social features communities of practice (Cops) to increase the level of productive knowledge sharing and development. This is not the best interaction between the two techniques [6]. In the following section we study focusing on exploitation.
3. KNOWLEDGE MANAGEMENT STAGES – FROM EXPLOITATION TO EXPLORATION

A. Exploitation

In this part, we start with the exploitation of knowledge. Studying knowledge sharing or knowledge transmission and end with the sequence presented. We go through this procedure for papers available. The result of the process will be presented in table 1.

TABLE 1: Exploitation and exploration: a continuum.

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<th>Exploitation</th>
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<td>Madsen et al. (2008)</td>
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Paton and McLaughlin (2008) focused their study on service exchange and its effect on innovation. They introduced these exchanges as important factors which result rapid growth. For this study they mainly analyze the importance of knowledge transfer in SC interchange. Specifically, they focused on the role of knowledge centered technological architecture and its part in maintaining knowledge workers [7].

Madsen et al., (2008) introduced a way for recognizing the knowledge which is concealed in outsourced ventures. The recognition process consist of processes which used to establish knowledge binds to non-usual business situations, working on the knowledge gathered in various business settings by associate companies and a presenting a way which allowed shifting unusual business cases [8].

Al-Mutawah et al., (2009) focused on the value of unify knowledge current within the manufacturing supply chain. They emphasized on the significance of managing distributed knowledge. Also, in their study they analyze a framework working on a multiage system which was supposed to work on the issue of sharing tacit knowledge in the manufacturing supply chain [9].

Blumenberg et al., (2009) pictured the explicit influence of a certain knowledge transfer method on outsourced performance. The mechanisms introduced were guiding, strategic Level Agreements (SLA) [10].

Fugate et al., (2009) studied the value of processing knowledge management to organizations achievement in total. This essay indicated that distributed clarification of knowledge arbitrates the circulation. They recognized an interaction between Knowledge management procedure and business execution. Their study was held in strategy operation environments [11].

Pedros and Nakano (2009) worked on the complication of data and knowledge current in supply chain. The focus of their research was on information currents regarding to technical issues. Also, they work on the value of smoothing the on-time delivery of information between supply chain users. Their research formed in pharmaceutical business environment. In this business, accessing technical information online holds a special value and effect on the entire procedure. The study showed that, complex managing system of the information, asking for them and corporal and financial currents are necessities. The paper also mentioned IT systems and social hubs can be worked for distribution purposes [12].

Corso et al., (2010) were working on the knowledge management practices in supply chain. The context of their research was food industry. The research indicated the capability of IT oriented results of the supply chain for the knowledge management inquiries [13].
Pillai and Min (2010) focused on the issue of assessing knowledge levels. This assessment concerns the indetermination of assessing part complete data and with the assurance of people in charge about knowledge precision. They suggest a model to qualify businesses to assess the knowledge [14].

Xiwei et al., (2010) focused on a designing problem in knowledge Supply Networks (KSNs). Their study was mainly on the capacity of the KSNs associates which presenting information. They specifically studied the capability of academic and research environments as an important source of technical innovation. They also presented a risk assessing procedure [15].

At the ending of the sequence, this paper looks into two other studies which hold different assessment level every time examined by one of the ways we are studying. Kovaes and Spens (2010) show the issue of knowledge allocation in supply chains [16]. Also reading Hansen et al. (1999) the designation of CoP management becomes obvious [6]. Khaled et al., (2010) Study gathering and sharing knowledge by indicating that these can upgrade the complexity of supply chain structure and producing performance. They also focused on the role of CoPs [17].

B. Exploitation and exploration

In this chapter we look at three other papers. Corso et al., (2001) organized an essay on knowledge management in product innovation. Researching and attainment were mentioned in this study. They focused on the following two currents: First, They concerned about the extent of knowledge creation system. Second, they worked on processing knowledge management [18].

Esper et al., (2010) studied the unification of two methods, the first one is demand-focused and the second one is mentioned as supply-focused that are usually study separated. They present unifying these methods can lead to a profitable value assessment in organizational knowledge management. They carefully made a substructure to tie these two methods through the knowledge management procedure [19].

Halley et al.’s (2010) paper indicates the compatibility of chain and knowledge managements. In spite of the known attribute of the business which builds external links through cooperation. The relation network is available in the supply chain which is debated to be the best network in which knowledge shared and creations made [20]. Here we take a look at Granovetter’s debate (1973), which stress on the weak link in business more than the strong firm ties [21].

C. Exploration

Cheng et al., (2008) emphasize on the role of thrust in knowledge sharing in relief supply chain. The mention that having trust, values in common and contribution are strongly related with the capacity of learning [22].

Chen et al., (2008) designed a model considering the analytic network process (ANP) and sensitivity analysis to manage the issues of new product development (NPD) complication. In a second level of their research NPD mix selection and KM procedures are combined. a steady score chart the NPD selected. Afterwards KM procedures were inserted to increase the success ratio of implementation of the NPD procedures and boost the knowledge process [23].

Wu (2008) worked on the different types of conversational knowledge procedures of the SECI model (Nonaka & Konno, 1998) to understand how firm managers being able to authorize firm conditions, adopting technology, providers and customers relationship management in supply chain. The outcome of his research indicates that each item has a different equally valuable impact in the stages of the knowledge conversion process (SECI) [24].

Yeh (2008) experiments on the knowledge concentrated acquisition studies. Specifically Yeh worked on identifying the knowledge conversion procedure and value producing to measure the success of each process [25].

Craighead et al., (2009) worked with an economic point of view that assesses the influence of forming knowledge scope on supply chain execution. The literature, study the influence of innovation-cost strategy in the supply chain management. The research indicates that of developing knowledge scope smart efforts are improving the outcome of other supply chain strategies [26].

Lancioni and Chandran (2009) mentioned the issue of knowledge management in an industrial firm. The necessity to have shorter NPD loops and smoothing the learning procedure where studied in this paper. The paper described smart efforts and managing good customer relationship as the most valued scopes of knowledge management, which leads to knowledge exploitation and firm learning [27].

Lau et al., (2009) worked on a mining system procedure that carry knowledge discovery in every day strategic affairs. They put the results of the study in use in a firm case and the outcome indicated that it was able to draw out highly valuable and usable information [28].

Niemi et al., (2009) studied the procedure of knowledge gathering. The paper offered the procedure as an extended process in which adopting firm procedures and invention practices happen steadily. Huiskenon and Kärkkäinen also mentioned that business features need to be assessing to maintain inventory management techniques. The model presented tested on different cases and it appeared practical in evaluating the current setting on inventory management studies, recognizing the evolution focal scopes and assessing the level of priorities of the development effort [29].
Lopez and Eldrige (2010) tried to elevate generation and control of supply chain. Specifically the paper focused on broadcasting the best experiments between supply chain users. The researchers designed recognition module which was made and implemented in a multi user cooperative working pattern to experiment on users designated actions and to state the influence of these experiments to the user [30].

The goal of Niemi, Huiskonen, and Karkkainen (2010) was to assess the introduction of complicated procedures of supply chain management. To achieve this aim, the knowledge maturity model had been used accompanied by policies for gathering knowledge as theoretical substructure. The study revealed that strategies and policies assessed and selected with cultural and organizational environment in mind [31].

4. RESULTS

1. To which aspects of supply chain management has knowledge management been commonly applied and how?
   The most normal aspects happened to be outsourcing, the developing firm, conclusion support, NPD and risk management. It appears that Outsourcing activities conduct to be a favored zone for knowledge management to administer the supply chain.

2. How can knowledge management be conduct in the supply chain management and improve it?
   Paton and McLaughlin (2008) mention the capacity of knowledge centered technological designs in sustaining knowledge workers [7]. Esper et al. (2010) mentioned suggested knowledge management procedures as the foundation for unifying the strategic procedures mentioned earlier. , the demand-focused and the supply-focused are mostly apart [19]. Nollet et al., (2010) studies firmly believe in mending and managing the currently existing ties in the supply chain to gain information instead of starting new business ties outside the firm [20].

3. How is knowledge management used to stimulate knowledge creation and sharing across the various supply chain stakeholders?
   Two main approaches to the knowledge management process emerged in the journal articles analyzed. Those who proposed IT solutions as the main basis of every KM activities, and those who, considered the social aspect of knowledge exchange and, to improve it, proposed the improvement of CoPs. The second approach, focused on the social architecture of knowledge exchange, highlights the importance of trust, cooperation and communication to foster knowledge sharing and learning among actors. As emerged in the papers on outsourcing activities the role of trust, cooperation, communication and relational variables is recognized to be a successful factor in knowledge sharing and knowledge creation process. The first approach is based on the extensive use of IT solutions and innovative techniques, such as in the case of the semantic web. These kinds of techniques allow information and knowledge sharing as well as the integration of information flow. What is interesting to note is that the choice of one technique or another is a reductionist way of studying the opportunities provided by knowledge management activities. If we look at these through the lens of the continuum adopted in this paper, between exploitation and exploration activities, they both appear a challenge for the firm.

5. CONCLUSION

In this literature we studied essays published in between 2000 to 2010 with the main focus on the knowledge management applications in the supply chain. We mention a few points from this review in the following area.

Theoretical concerns and research methodological issue - To maintain a more slid result we reviewed the articles to assess if a certain theoretical point of view is available. In essays with concentration on current strategic and economic theories, the theory used is based on strategic management. In the essays with economic point of view TCE pattern was in mind, however in a few examples results wasn’t as TCE predicted. Study on a regional supply network (Batenburg & Rutten, 2003) is one of those examples, in which the result showed trust has a more valuable role than economy in inter-organizational bonds. Also, from the methodological perspective, methods base on quality could have a major rule, however very few of the researchers invest researching based on them.

Observations and recommendations - Revising the papers indicated that knowledge management is taking into account as an item to unify supply chain. In spite of the attention in working on IT results to maintain sharing knowledge, results provide that the connection between their usage and success in unifying supply chain is very weak. Corso et al., (2010) paper indicates confirmation on the function knowledge management and IT-solutions using an example [13]. Niemi et al., (2009) mentioned firm solutions required more than technical solutions like Shapiro (2001) did [29]. On the contrary, (Becker, 2001; Edwards, Shaw, & Collier, 2005) believe otherwise [12]. Apart from these, some researches took some other aspects of knowledge management and supply chain performance and found appositive connection between them. Craighead et al. (2009) establish a connection like that between the influence of knowledge development capacity and supply chain performance while studied from an economic point of view [26].
REFERENCES


