

Can Knowledge Management Ideas Help Collaboration Across Interfaces?

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ABSTRACT

In this working paper, we discuss the link between supply chain collaboration and knowledge management. We use a collaborative sales forecasting method as an example of a collaborative process and show that the implementation has been difficult due to problems related to the knowledge management domain.

Key words: collaborative commerce, electronic communication, supply chain management, knowledge management

INTRODUCTION

Success stories from the industry as well as mounting evidence from academic research indicate a link between supply chain collaboration and increased efficiency, productivity and service performance. By sharing accurate and timely information, better coordinating supply chain activities and eliminating operational redundancy, supply chain parties can save money and improve service. (Stank & al, 2001, Stein & Voehl, 1998) Today, the concept of collaboration is more attractive than ever, due to the emergence of technologies that enable low cost electronic communication and information sharing. (Gross 2000, Graham & Hardaker, 2000, Stein & Voehl, 1998)

However, the scarcity of large-scale implementations of collaborative business processes such as collaborative planning or joint forecasting indicates that there are obstacles that need to be overcome to attain successful collaboration. In practice, supply chain collaboration has been difficult to achieve because:

- The parties have different interests, responsibilities and benefits
- It has been difficult to create processes that support collaboration

- The present way of organizing tasks does not support collaboration
- Employees need new capabilities

Many of the problems of supply chain collaboration seem to be related to knowledge management themes. Thus our working hypothesis is: Knowledge management ideas can support supply chain collaboration or, at least, remove some of the current obstacles hindering the development and implementation of collaborative processes.

OUR APPROACH

This working paper describes our approach to study the topic: can knowledge management ideas support supply chain collaboration? We will first describe two phenomena: supply chain collaboration and tacit knowledge that form the core of our interest. The key theories related to our topic are electronic business, supply chain management and knowledge management and we will present a brief summary of them.

A new collaborative sales forecasting method was developed by our research team to support internal collaboration between sales and logistics as well as external collaboration both upstream with suppliers and downstream with customers. It has been difficult to implement it in practice and when analyzing the difficulties we realized that many of the problems are related to the people involved.

We will analyze this collaborative sales forecasting method from a knowledge management perspective. Both the development and implementation of the collaborative process will be analyzed. A real life case in the consumer goods sector will be used as a pilot to test the ideas. The findings should enable us to formulate a research agenda to study the phenomena -supply chain collaboration and tacit knowledge- further.

PHENOMENA AND THEORY

In this paper we look at supply chain collaboration and tacit knowledge in order to understand better what could be the favourable or necessary conditions for successful knowledge transfer across company interfaces. The related theories are electronic business, supply chain management and knowledge management.

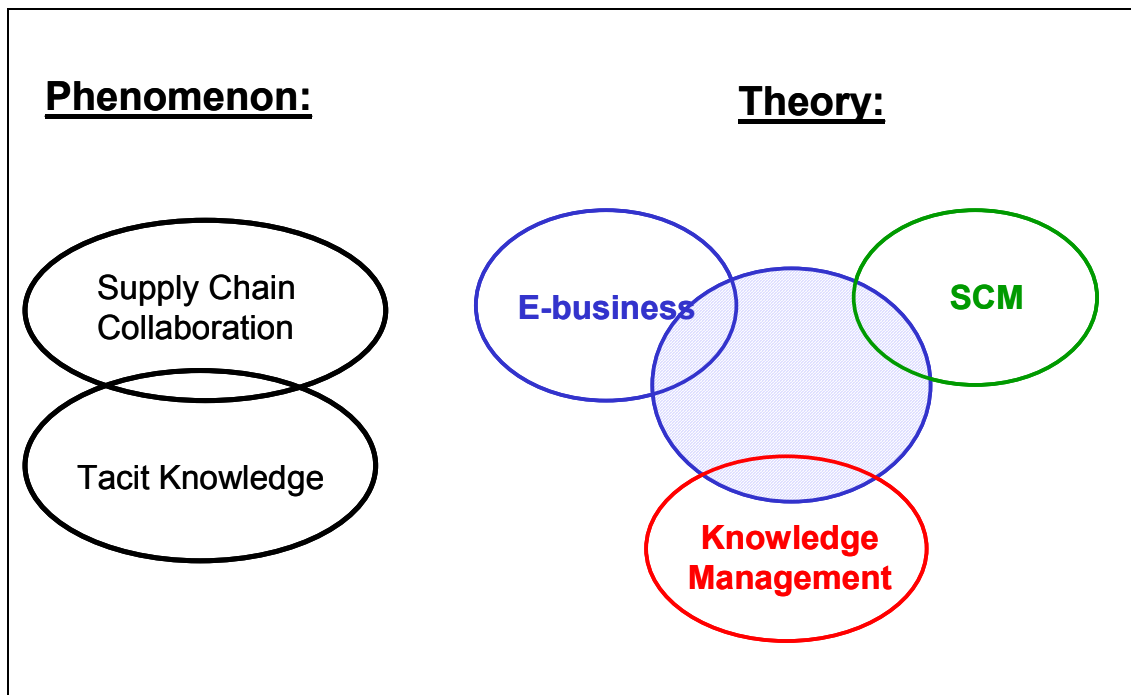


FIGURE 1 Phenomenon and theory

Phenomenon: Supply Chain Collaboration

Supply chain collaboration invites companies to exploit opportunities across the whole supplier to customer network, as well as between themselves and other market players – including competitors – in the same industry. (Harvey, 2001) Collaboration occurs when two or more parties agree to change how they do business, integrate and jointly control some part, or all, of the value chain to customers and then mutually share the benefits.

Some studies have examined collaboration as a generic institution, others have focused on specific forms of collaboration: joint ventures, technology sharing arrangements, supplier partnerships and cross-border arrangements. Collaboration has a strategic approach to business development and competition and it offers opportunities at the operational level for linking processes and individuals across the extended enterprise, to support broader corporate goals.

Collaboration requires:

- Sharing information with partners
- Networking between companies at multiple organisational levels
- Keeping partner's interest in mind when crafting strategies
- Being willing to learn from those outside the firm's own walls
- Respecting differences among companies and cultures
- Interpersonal and organisational sensitivity.

Phenomenon: Tacit Knowledge

Knowledge can be divided into two different types of knowledge: tacit knowledge and explicit knowledge. Tacit knowledge is the knowledge inside of each individual. It is based on personal experiences; therefore it is hard to put it into words. Explicit knowledge is more concrete; it is transmittable in a formal language. Explicit knowledge exists in books, databases etc. (Nonaka 1994)

The more complex the environment is, and the more non-linear development is, the more important the tacit dimension of knowledge is. It is however, questionable whether tacit knowledge has been recognized as an essential part when planning and implementing collaborative processes.

Theory: E-business

In this paper we look at the development of electronic business from two aspects. Firstly, the technological development, which includes the Internet, World Wide Web, browsers, standard development etc. enables integration of processes across company interfaces. It has been possible to develop applications and information systems to facilitate collaboration, coordination and relationship formation across traditional organisational boundaries. Secondly, the development of electronic business has a potential to change the ways business is conducted and how the value chains of different businesses are changing. (Werbach, 2000, Kaplan & Sawhney, 2000, Swahney & Parikh, 2001)

Theory: Supply Chain Management

There are several, slightly different definitions of supply chain management. In this paper we have selected the definitions of Bowersox and Walker as a basis. (Quinn, 1998, Walker 1998) Bowersox gives the following definition: "Supply chain management is a collaborative-based strategy to link cross-enterprise business operations to achieve a shared vision of market opportunity. It is a comprehensive arrangement that can span from raw material sourcing to end-customer purchase." The definition of Walker has a slightly different focus: "A supply chain is the global network used to deliver products and services from raw materials to end customers through an engineered flow of information and physical distribution. The objective of a competitive supply chain is to weave each of the trading partners into a seamless fabric of information flow, physical distribution and cash flow to the benefit of the end customer."

The key points of the selected two definitions can be summarised as follows:

- There must be collaboration and shared vision among the partners in the supply chain.
- The supply chain is comprehensive from raw materials supplier to end customer.
- The supply chain has a network structure.
- There is an engineered flow of information within the supply chain.

Research on supply chain integration usually focuses on one of three viewpoints: integration as a series of interactions, as collaborative behaviours, or as a composite of the two. In this paper, the focus is on the collaborative aspects of integration.

Theory: Knowledge Management

According to a study of the CEO's of large US companies carried out a few years ago (Wiig, 1997), CEO's agreed that knowledge-based assets will be the foundation of success in the 21st century. The study states that progressive managers have recognised that an enterprise's viability depends on the competitive quality of its knowledge-based intellectual capital and assets and the successful application of these assets in its operational activities to realise their value to fulfil the enterprise's objectives.

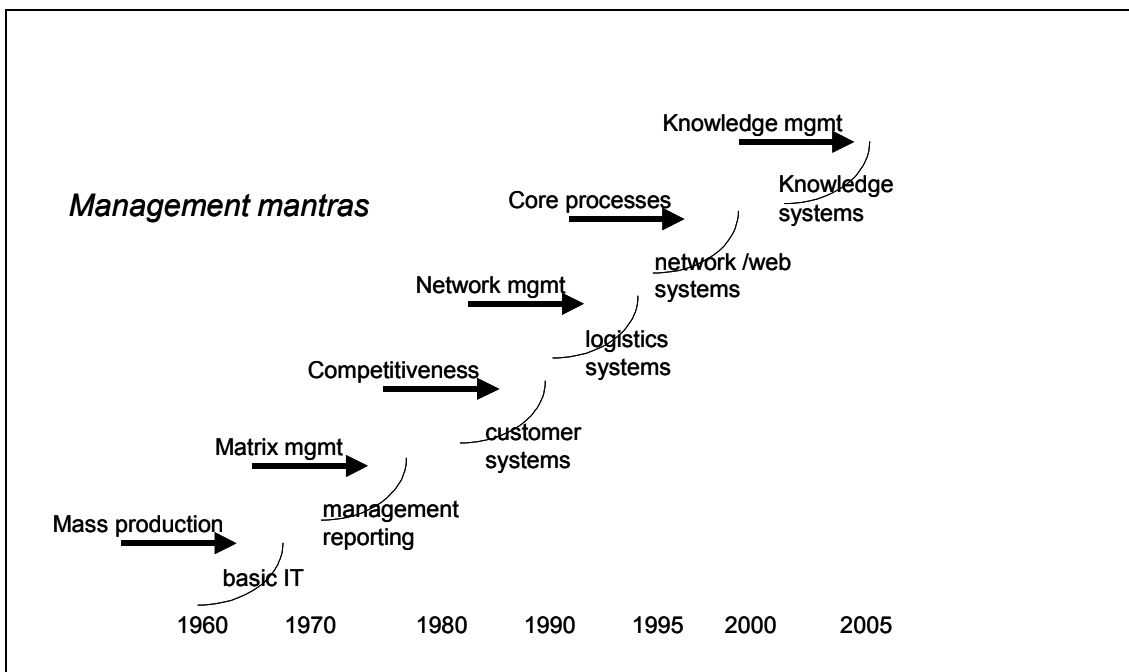


FIGURE 2 Development of management mantras (Ruohonen, 2001)

Knowledge management is seen as a management mantra that will be necessary to adopt to be able to remain competitive in a new, networked business environment. Effectively implementing a sound KM strategy and becoming a knowledge-based company is seen as a mandatory condition of success for organizations as they enter the era of knowledge economy.

Knowledge can be defined as information combined with experience, context, interpretation and reflection. (Davenport, 1998). Therefore, when an individual expresses their tacit knowledge through communication, it is information, which is

passed to the recipient. The recipient must then apply their experience, context interpretation and reflection to the information so that it becomes their tacit knowledge. The technologies that make it easier to implement KM systems continue to evolve rapidly, especially in the areas of collaboration and search engines. But the major hurdle for implementing KM is not the technology; it is the lack of collaborative climate in the organisations. It is been said that knowledge management only works in a collaborative environment with high degree of mutual trust. (McDermott, 1999, Roberts J., 2000)

It is recognised that few knowledge management initiatives have been applied to supply chains. Most of the efforts to extend knowledge management initiatives to suppliers and customers are largely still in the embryonic stages. (Whiting, 1999) But it is exactly these interfaces that are the key issues for the knowledge management process in the networked business environment. There are barriers that can cause misunderstandings or misinterpretation of the information and thus prevent successful collaboration. (Barson & al. 2000)

Case: Collaborative Forecasting Method

We will now proceed to our case example. The current situation regarding the knowledge sharing in the consumers goods sector can be summarised as follows:

- At the supplier level: Logistics operations need sales forecasts for controlling the material flow. Sales and marketing have the best knowledge of upcoming promotions and assortment changes.
- At the supply chain level: Suppliers need sales forecasts for controlling the material flow. Retailers have the best knowledge of upcoming promotions and assortment changes.

The situation is analogous at both levels. The knowledge is “created” in a different place from where it is “used”. There seems to be a need to attempt to fill in the missing link by creating an easy and rapid method for turning plans into forecasts

Thus our research team developed a new collaborative sales forecasting method. Theoretically it was supposed to support internal collaboration between sales and logistics as well as external collaboration both upstream with suppliers and downstream with customers; it was supposed to be the missing link.

However when piloting the method some problems were encountered:

- Difficult to motivate retailers to participate; additional work and little benefit
- Difficult for marketing and sales people to put down their knowledge on paper (“understand the category, products and consumers, but don’t know what it means in exact sales figures”)
- Difficult to create the information sharing mechanism to compare and iterate figures (“don’t trust figures presented by others”)

The experience from these pilot tests led us to realize that these problems are related to knowledge management. This realization forms the starting point to our future work and gives us the motivation to study the phenomenon further.

Research Agenda: Knowledge Worker Focus a Key Issue

In the first phase a thorough literature study will be conducted to understand better, what should be the components of a knowledge management system that supports supply chain collaboration. We will then continue to use our collaborative sales forecasting method in a real life case setting as our pilot to test our new ideas.

The message from the knowledge management domain tells us that in the knowledge era the company needs to nurture the “knowledge worker”. We cannot develop collaborative processes only from the process and technology point of view. What does this mean in a networked, collaborative environment? Kilpi has presented a matrix where he illustrates the need for knowledge worker focus in collaborative processes where there is tacit knowledge involved. (Kilpi, 2001) Is what we now call collaboration only coordination if the knowledge worker focus is not taken into account, will be one of the leading questions directing our research work.

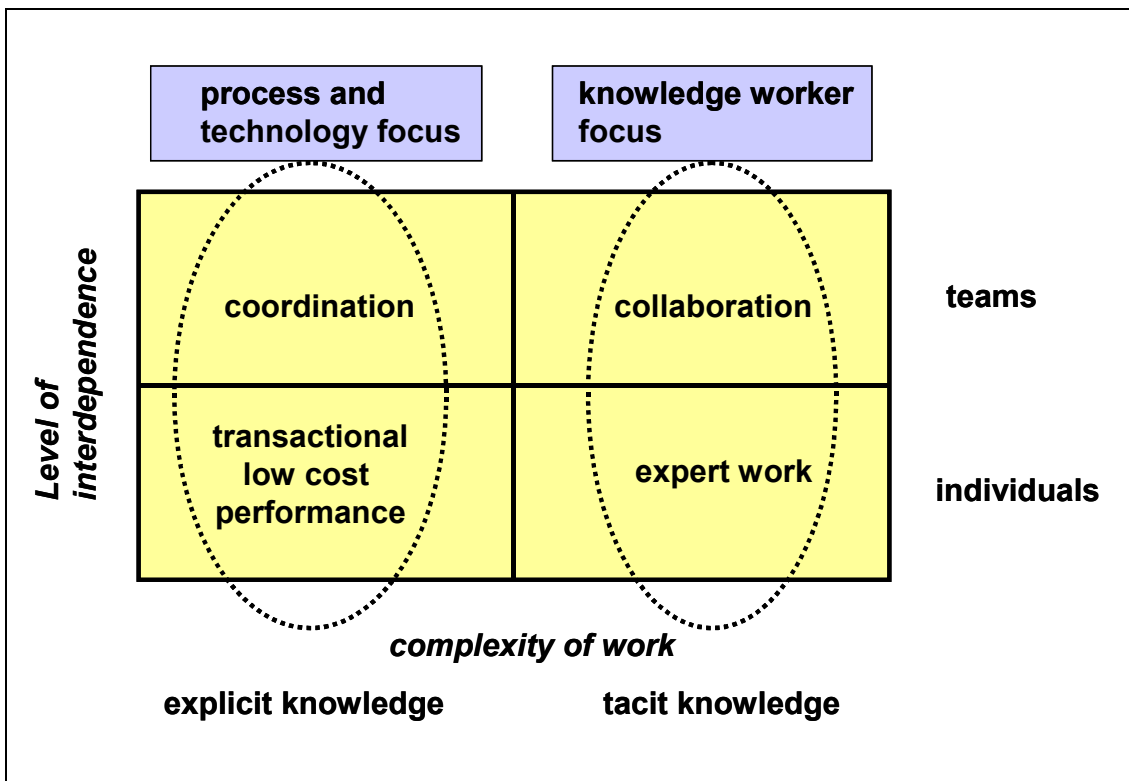


FIGURE 3. Knowledge worker focus (Kilpi, 2001)

Overall it seems beneficial to examine supply chain collaboration from a knowledge management point of view. It will increase our understanding of knowledge management in a collaborative process and enable us to formulate a research agenda

to study the topic further. This should bring us a step closer to find solutions that could really have practical value in a real life setting.

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From Idea to Knowledge