

# Managing dynamic global sourcing relationships through knowledge governance

Keywords: Sourcing, Knowledge governance, Globalization, Relationships

Claus Jørgensen<sup>1</sup>, [clausj@hih.au.dk](mailto:clausj@hih.au.dk)

Dmitrij Slepnirov<sup>2</sup>, [ds@production.aau.dk](mailto:ds@production.aau.dk)

Brian Vejrum Wæhrens<sup>2</sup>, [bvw@production.aau.dk](mailto:bvw@production.aau.dk)

<sup>1</sup>Aarhus University, Denmark; <sup>2</sup>Aalborg University, Denmark

Corresponding author: Claus Jørgensen<sup>1</sup>

## ABSTRACT

The paper will discuss managerial knowledge challenges in global sourcing relationships faced by two small and medium enterprises (SMEs) competing in a highly globalized industry (textiles). Each company has changed its global sourcing setup due to the continuing globalization of their manufacturing and distribution activities; and in this process have experienced how the relational set-up in the value chain is strongly influenced by an increasingly dynamic task environment that unfold along with structural reconfiguration. The outset of this paper is, therefore, to investigate how knowledge governance approaches change along with the emergence of global sourcing and distribution relationships.

---

<sup>1</sup> Claus Jørgensen, Aarhus University, Institute of Business and Technology, Birk Centerpark 15, 7400 Herning, Denmark, [clausj@hih.au.dk](mailto:clausj@hih.au.dk), Phone +45 9720 8311, Fax +45 9720 8312

## 1. INTRODUCTION:

The paper will discuss managerial knowledge challenges in global sourcing relationships faced by two small and medium enterprises (SMEs) competing in a highly globalized industry (textiles). Each company has changed its global sourcing setup due to the continuing globalization of their manufacturing and distribution activities; and in this process have experienced how the relational set-up in the value chain is strongly influenced by an increasingly dynamic task environment that unfolds along with structural reconfiguration (Slepniov, Wæhrens and Jørgensen, 2010). The outset of this paper is, therefore, to investigate how knowledge management approaches change along with the emergence of global sourcing and distribution relationships.

However, initializing or up-scaling global sourcing activities also entails increased complexity that raises many issues companies must consider and react to in order to succeed in the global market. Ultimately, any business process or task that can be (i) decomposed, (ii) codified, and (iii) digitized is amenable to global sourcing arrangements. However, Danish companies, and Danish SMEs in particular, rely largely on proprietary processes, tacit competencies, and unique products to support their niche strategies. For this reason, these companies rely more on long-standing sourcing relationships than may be expected in other circumstances (e.g. Freytag & Mikkelsen, 2007). This may indicate that although Danish companies, and many other western companies with them, have come quite far in relocating most parts of their value chain, they have done so at great initial cost and that they follow this up with intense coordinative and cooperative efforts. Cost assessment for relocation in itself (let alone the total cost of global sourcing) is accordingly difficult as are the assessment of potential influences on competitive capabilities.

This paper investigates *how companies can use knowledge governance mechanisms to better manage the transition to and improve the sustainability of increasingly complex operational set-ups*. It is based on the following assumption: *SMEs can improve the management of global sourcing relationships by implementing knowledge governance mechanisms that match task and task environment characteristics*. Global sourcing relationship management is examined, with attention paid to how the SMEs have changed their coordination and cooperation approaches for the management of knowledge transfer and integration between business units separated by both time zone and physical distance.

The case companies, both of which are SMEs, were chosen due to their success (growth rates in volume, turnover, and bottom line) in a competitive and volatile market and to their changing approaches of handling these challenges. The companies are notable for their dynamic movement over time toward either captive, non captive, or a combination of captive and non captive domestic and offshore manufacturing facilities. The authors considered the SME categorisation of the companies to be particularly interesting with regard to globalisation trends and challenges, and the companies were chosen partly for this shared characteristic.

Knowledge governance (Foss and Michailova, 2009; Foss, 2007) is investigated as an approach to managing the complex relational settings in globalized setups for SMEs. The knowledge governance approach is also seen as a way of combining (Heimann and Nickerson; 2002 and 2004) the literature of transaction cost economics (Williamson, 1975) with a resource-based viewpoint (Barney, 1991) when making managerial sourcing decisions and implementing these decisions over

time. Formal and informal knowledge governance activities will be used for analysis of the case companies (Scarbrough and Amashi, 2009). The approach of comparing the two case companies is expected to help identify any similarities regarding which knowledge governance mechanisms (contracts, directives, reward schemes, incentives, trust, management styles, organizational culture, etc.) are more effective in establishing, maintaining, and developing sourcing setups within the different governance structures (non captive, captive, or a combination).

## 2. LITERATURE REVIEW

In the search of means for explaining inter-firm collaboration, several scholars (Heiman and Nickerson 2002 and 2004, McIvor, 2009) have worked with combining the resource-based viewpoint (Kogut and Zander 1992; Conner and Prahalad 1996; Grant 1996) with transaction cost economics (Williamson 1985; Foss 1996). This paper follows this trend by using the knowledge governance approach to combine these two research streams and analyze dynamic global sourcing relationships.

Knowledge governance has been defined in several ways.

- Choi et al (2005) “believe that an analysis of knowledge transfer in MNCs requires the analysis of governance structures based on types of ‘exchange’ governance”, they categorize these exchanges as including a straightforward exchange, an entitlement, or a gift, and recommend using a combination of these to govern knowledge transfer.
- Foss (2007) describes the knowledge governance problem as: “the KGA (knowledge governance approach) identifies, grapples with, and solves problems that lie in the intersection of organization and knowledge processes, problems that for various reasons are hard to approach and solve within other knowledge-based approaches or where these approaches give a different solution than the KGA”.
- Michailova and Foss (2009) further explain the knowledge governance approach as: “‘Governing knowledge processes’ means choosing governance structures (e.g., markets, hybrids, hierarchies) and governance and coordination mechanisms (contracts, directives, reward schemes, incentives, trust, management styles, organizational culture, etc.), so as to favorably influence processes of transferring, sharing, integrating, using, and creating knowledge.”
- Gereffi and colleagues (2005) introduce 5 approaches to govern global value chains based on 3 key determinants: complexity of transactions, ability to codify transactions, and capabilities in the supply-base. Through these 3 variables, the degree of explicit coordination and power asymmetry are grouped into the 5 identified governance approaches: market, modular, relational, captive and hierarchy. To compare, Gereffi and colleagues suggest 3 alternatives under the rubric of the hybrid form propounded by Michailova and Foss: modular, relational, and captive. The other 2 structures (markets and hierarchies) are identical to how they are defined in Gereffi and colleagues (2005) work.

Moving forward, we apply the approach suggested by Michailova and Foss to more closely study the dynamic global sourcing relations, as we expect these relations to be influenced by both the choice of governance structure (make, buy, or co-develop) and by the use of both formal and informal coordination mechanisms. Furthermore, we apply the more detailed governance structures

put forward by Gereffi and colleagues when we compare the case companies with respect to their use of knowledge governance structures and the way in which they approach knowledge governance for their global value chains.

The choices made regarding knowledge governance structure and coordination mechanisms might change over time due to both unsolved and new challenges that SMEs face in their globalisation processes regarding knowledge transfer, sharing, and integration. Ferdows (2006) identifies 4 primary knowledge-transfer mechanisms that are dependent on whether the form of production know-how is tacit or codified, and whether the speed of change for production know-how is slow or fast. The 4 primary transfer mechanisms consists of moving people (tacit and slow); projects (tacit and fast); manuals and systems (codified and slow); and also of joint development (codified and fast). The viewpoint of Scarbrough and Amaeshi (2009) that “it might be more important that such structures [knowledge governance] are able to change and adapt to the shifting needs of knowledge integration than pursue a best fit with circumstances prevailing at a single point in time” fits well with this dynamic approach. Indeed, a more dynamic view of knowledge governance is evolving with the demands from sourcing relationships. Formal coordination mechanisms and relational cooperation mechanisms are both needed to develop knowledge governance that fits the situation of a specific value chain.

We apply the 4 mechanisms of Ferdows to see how the case companies combine the primary transfer mechanisms to cope with the challenges of governing their globalised value chains, and if they focus more on formal coordination mechanisms or on relational cooperation mechanisms in specific stages of the globalisation process.

## **2.1 Formal coordination vs. relational cooperation**

Grandori (2009) suggests 3 approaches to govern the growth of knowledge in relational settings: associational governance, constitutional governance, and democratic governance. In the words of Grandori (emphasis ours):

- “*Associational governance* specifies who the associating parties are, which resources they are going to commit, who holds which rights over the invested resources, at what condition parties can exit and withdraw resources, and how the surplus is going to be divided.”
- “*Constitutional governance* specifies which party holds what decision and control rights, and which procedures should be used on what matters, how voice and information is guaranteed (rather than the terms of exchange or cooperation); that is, procedural and framing governance that can be contrasted with substantive and task specific governance.”
- “*Democratic governance* indicates that the regime is democratic rather than authoritarian, that is, decision procedures and residual decision and reward right allocations prefigure joint direct or representative decision-making and negotiation...; and distributed ownership of assets and residual reward, rather than residual decision and reward rights assigned one party.”

We use this approach for our SME case study to establish if the findings by Grandori (2001) can be verified in our cases; namely, that “the ‘discrete’, if not ‘adversarial’ view of governance and organizational arrangements, as well as the attraction toward solutions that are just frequently

applied in practice...., have apparently produced an overstatement of the virtues of hierarchy in the governance of uncertainty, ....., and an understatement of the role of democratic governance for knowledge growth.” (Grandori 2009).

There are also approaches that countermand Grandori’s approach, and thereby enrich the overall discourse. For one example of this, let’s start with a premise: companies need to modularize offshore manufacturing activities to some extent in order to outsource them. Osterloh and Frey (2000) establish that tacit knowledge transfer cannot be overseen or contracted out as long as it is not incorporated into a monetized/tradable product. Accordingly, this kind of knowledge must be governed differently when compared with the governance of specific products. Ehtiraj and Levinthal (2004) further establish that whenever knowledge integration with complex tasks is necessary “it is better to ‘undermodularize’ than ‘overmodularize’.” The approaches implied by Ehtiraj and Levinthal imply a more cooperative and intrinsic view of knowledge governance, rather than the formal approaches developed by Grandori. Our case studies attempt to balance the two. We establish the activities that are modularized by the companies, and how the companies eventually are similar in their approach to knowledge governance in relation to distinct activities. This will aid in the identification of difference knowledge governance choices the companies make, both with regard to relational cooperation and formal coordination.

The main goal of these various analyses is to provide further managerial guidance for managers in SMEs regarding how to manage sourcing activities through knowledge governance in a globalized setting.

### **3. APPROACH AND METHODS OF ANALYSIS**

We selected the case companies to study two approaches to knowledge governance in the competitive and globalised textile industry. Both companies have considerable experience with offshore sourcing. By comparing two cases within the same industry, we expect to avoid large industrial differences in areas like availability of supply, transactions, technology, know how, and so forth.

We conducted onsite observations and semi-structured interviews and reviewed secondary materials to construct the case studies. The question of subjectivity was addressed by including respondents from each company and by showing them case summaries, including revisions. We reviewed materials from each company, such as annual reports, press releases, customer presentation materials, and stakeholder and media material. We use a comparative method based on a few cases and a few events (strategic change) as the process research design. We partly transcribed the interviews and coded them in NVivo (QSR International, Australia). The codes from the transcripts, the revised summaries of the interviews, and the secondary material were all used to build the case descriptions. Both companies began offshoring manufacturing processes to reduce costs.

The methodological approach relies on interviewing key informants in the two companies. Following our first visit, we revisited them the following years (the first interviews used a semi-structured questionnaire; follow-up interview were unstructured interviews). To identify and analyse possible scripts, we followed Barley and Tolbert’s (1997) four processes: (1) grouping the data by category or unit of observation; (2) identifying behavioural patterns (scripts) within categories; (3) identifying commonalities across scripts; and (4) comparing scripts over time.

This study shows how factors and issues change over time by employing a real-time process approach based on narrative descriptions (Van de Ven 2007). The companies appear to share common ground in their progression from offshore outsourcing to a more complex offshore constellation. The cases are seen as single entities (Van de Ven, 2007) due to their size as SMEs; they have fairly simple organisational structures constituting a single case category. The cases are to a certain degree heterogeneous (Pettigrew, 1990), but they are neither extreme nor polar types. Each of the companies are highly experienced in their realm of business, and with respect to the aspects studied in this paper.

## **4. CASE COMPANIES**

### **4.1 Company A**

The company was established as a family-owned business in 1982 and remains so. It is the second-largest working wear producer supplying the European market (2010). It strives to consistently be the first in innovation by conducting a close dialogue with customers and consumers. Lately, the company has added a new product line of safety shoes that is fully sourced from Chinese suppliers and has been well-received by the customers. The company outsourced its sewing activities in the late 1980s to Eastern Europe as an early mover in the Central Jutland textile cluster. It kept all other activities in Denmark and shifted its outsourced sewing activities among suppliers in Eastern Europe as well as later to India, China, and Vietnam. More recently, Company A began to move its other Eastern European activities to its own newly established production facilities in Vietnam (production started in 2008). In 2010, it employed around 1,300 workers in Europe and Vietnam and had about 2,500 workers in the Far East engaged in outsourced activities. Outsourcing work to Vietnam reduced costs as well as time to market for manufactured goods. For this reason, the physical location of the raw material stock was also moved from Denmark to Vietnam. Recently, the company has increased its activities in Vietnam, both in-house as well as through a number of local suppliers. This has led to a decrease in its outsourced sewing activities in China, indicating a consolidation of the more complex production activities in Vietnam. The company's current plan is to increase the in-house production activities in 2012 by more than 200% of the present activities.

Development and quality control take place in two laboratories in Denmark (development) and Vietnam (quality). To manage the flow of tacit and systemic knowledge between Denmark and Vietnam, the company moves key employees back and forth between the two countries for longer periods of time and a few expatriates (5 at the beginning of 2011) work at the Vietnamese site, with a recent employment of another Danish expatriate to improve the daily or weekly communication activities taking place between the Danish and Vietnamese premises. Explicit knowledge is managed through a number of interactive tools as well as through different knowledge flow channels such as Skype, video conferencing, and email; most communication is in writing due to difficulties in understanding during verbal conversations.

Knowledge transfer between the outsourced, offshore production units and the company is lower, but the control function implemented by the company transfers and translates manufacturing improvements between the different sites on an ongoing basis. Part of this knowledge is also explicit in the company's own IT-systems. The company has offshored the cutting-out process (drawings) to Vietnam and is now increasing the outsourced activities with more complex activities in the same area on a step-by-step basis to see how the skills of the Vietnamese employees develop. The continuous work increasing the knowledge base at the Vietnamese premises has been supported by the company's choice to focus on acquiring an international CSR certification (SA 8000), which

is expected to be granted before summer 2011. The company already holds an ISO9001 certificate. At the beginning of the offshoring process to Vietnam, activities there were constantly being monitored via IT by Danish employees. This is not the case anymore, indicating a sufficient level of production and warehouse knowledge has already been established at the Vietnamese premises.

The knowledge governance structure of the company has changed with the captive establishment of production, quality control, and warehousing in Vietnam. Through this move, the company has increased its capacity to both manage formal and informal coordination mechanisms between its development, sales, and marketing activities in Denmark with the other activities in Vietnam. Furthermore, the demands on the relational cooperation mechanisms of the company regarding its outsourced production activities have decreased. The more complex production activities are now taken care of through the company's captive Vietnamese activities (complex production activities are increasing most in turnover due to changes in market demand). Furthermore, the company is presently considering moving further upstream in the value chain to ensure more control regarding delivery time and volume.

## **4.2 Company B**

Company B is a Danish textile company that develops, manufactures, and sells high-quality furniture fabrics and related textile products to industrial customers. During almost all of the company's 160-year history, wool and the treatment of wool have been a core expertise. In the 1960s, a niche market for woollen upholstery fabric began to grow, and by 1980 it became the company's main focus.

Until the mid-1980s, the company concentrated on the domestic market. In contrast, today the company exports more than 85% of its products. However, changes characterised not only the demand side of business. In the late 1990s, transformations in the external environment of the company, such as growing low-cost competition from Asia (mainly China), revealed the need for changes in how the company's operations were organised. Traditionally, the company mastered every process from the treatment of raw wool to the finishing of the woollen fabric. However, in the late 1990s the company's approach to operations started to change with offshore outsourcing initiatives penetrating various stages of its production.

By 2008, all production processes were outsourced to partners overseas, while the company focus shifted primarily towards managing a network of suppliers and development of integrated solutions for its customers. The transfer of production to sites in Lithuania took place in stages. The weaving process outsourced to Lithuania in 2002 required the movement of machinery from Denmark. Now, the equipment is leased to the foreign supplier. The partner's plant in Lithuania was essentially an offshore full-scale operation focussed on costs and efficiency, while product and process development, laboratory, and prototype production resided in the Danish headquarters. For some time after the offshoring journey of the company started, some quality-sensitive operations, such as dyeing, softening, and washing, were still carried out by the company lead factory in Denmark. However, in 2006 the decision to transfer the rest of operations abroad was made, radically shifting Danish facilities' focus and role from manufacturing to innovation, system integration, and supply chain management. These areas relying heavily on knowledge governance practices emerged as new core areas replacing the actual manufacturing competence, making the following activities a daily routine of the company's operations: 1) Need for continuous presence of the company's team

at new partners' sites; 2) Communication of the importance of quality and environmental management to partners; 3) Constant search for new suppliers; 4) Key account management

Through these activities the company retains knowledge about its entire supply chain, and specifically on the processing procedures at each stage. This knowledge is absolutely essential to the company's customer service, particularly regarding cooperation on product development. It also means that the company retained some employees previously involved in production, even after the last production process left Denmark.

As the outsourcing initiatives expanded, the company also started buying finished fabrics from external suppliers. Since 2006, a representative office in China that currently employs 8 people has been playing a crucial role in this process. The role of the office is two-fold. First, the China office strives to establish and develop its cooperation with leading furniture manufacturers, adhering to the strategy of close proximity to its customers on a global scale. Second, the office is expected to support the company's core processes in their efforts to reduce the relative level of costs and strengthen sales in Europe, the US, and China. Another important role for the Chinese office is directed towards developing and extending its number of suppliers to procure eco-friendly products at globally competitive prices. The task is more challenging than may appear at first glance. In accordance with the environmental management system certified to ISO 14001, the company has to follow up on environmental targets for its approved suppliers. Therefore, textile engineers employed in China have to stay in close contact with suppliers. These engineers have a great outreach to potential suppliers. The company's approach has been to find suppliers that have potential, but are not yet on the Western level, and to develop suppliers from the ground up. If a Chinese supplier is included to the company's network, 100% of its output supplied to the company undergoes the so-called expanded quality inspection, which later is limited to sampling.

Today the company can be characterised as a market-oriented company with a semi-virtual production network. It consists of several companies and business units within a single economic and ethical framework. The company managed to transform itself from a classic materials supplier to a system integrator in control of its entire supply chain through the effective use of knowledge governance mechanisms, enabling it to maintain deep insight into the production processes without necessarily owning and directly controlling all elements of their supply chain.

## **5. DISCUSSION**

With this description of the current-day situations of the two case companies with regard to offshoring of different capabilities and to knowledge governance, we will examine their approaches through the diverse frameworks we introduced in the Literature Review and Approach and Methods sections of the paper.

### **5.1 Five governance approaches and key determinants**

The 2 companies have chosen very different trajectories after globalizing operations. Company A has moved from a combination of modular and partly relational governance settings to a combination of captive and hierarchy governance settings. Company B has moved in the opposite direction, from a hierarchy and partly modular governance setting to a mainly relational and partly captive governance setting (value chain categories established by Gereffi et al, 2005).

Company A argues that due to a change towards more complex and individual demands in the customer base, it has made sense to increase control in the supply chain. Accordingly, its moves have provided a better opportunity to manage transactions that are increasingly complex due to both product complexity and customer demands. However, at the same time the company has increased its ability to codify transactions, which actually trends in the opposite direction regarding the choice of governance structure. A further reason for still moving towards a more hierarchical governance structure might be found in the company's challenges in finding suppliers with a sufficient level of capability with regard to both quality and time of delivery, and willingness to supply fairly small and constantly changing batch requirements within the less standardized product groups.

The activities of Company B become increasingly distributed in terms of location, i.e. tasks which were previously co-located within a single site now have to be performed at a distance. However, in contrast to the other case, the process of global dispersion of activities in Company B involves externalising some or most of them and gravitating towards a predominantly relational governance setting. The company has removed itself from all production activities and is now mainly preoccupied with facilitating the various participants in the global network. Through the activities of its Chinese office, Company B constantly updates and develops its suppliers' portfolio. Despite being very project oriented in its development activities, the company found a way to reduce complexity of its transactions by standardizing the process and targeting its product development at approximately 50 selected Key Account customers.

Both companies have established their own translation "hubs" with close geographical proximity to the key suppliers, in Case A at their own premises in Vietnam and in Case B with the establishment of a control office in China. These are formalized knowledge governance structures that have been established as a necessary managerial tool to work with the continuous standardization of either mainly processes in Case B, or mainly products in Case A.

An area to investigate further is the governance of approaches on the distribution end, which might also be affecting the different knowledge governance structures chosen regarding the sourcing setup in the two cases. Case B has identified and standardized its interaction with 50 key customers in the innovation activities, whereas case A is relying more on the interaction with end consumers in their innovation activities, indicating a more complex and less controllable interaction pattern compared with the setup in Case B.

## **5.2 Four primary transfer mechanisms**

The 2 companies have chosen opposite paths regarding the employment of knowledge-transfer mechanisms. Company A has actually chosen fairly slow transfer mechanisms, including moving people to transfer mainly tacit knowledge (relocating employees with experience in Denmark to Vietnam) as well as increasing the use of very detailed documentation of their different products. This involved the installation of several IT-systems and standardization through several systems (ISO and SA) at both ends.

Conversely, Company B is mainly applying the opposite knowledge-transfer mechanisms. Although the company also uses the mechanism of moving people (e.g. it has its engineers at partner's sites to ensure quality and compliance with environmental standards), joint projects have become key in its governance 'toolbox'. In this way, the company has moved to transfer tacit knowledge quickly as well as engage in joint development with key suppliers and customers.

However, Company B also uses more formal and slow transfer standardization mechanisms through the continuous work with the ISO standards in the supply chain.

The different ways of combining the transfer mechanisms in the two cases can also be explained with the level of absorptive and learning capacity present in the supply chain of the two cases. Case A has established itself with production facilities in a geographical area with an initially very low knowledge base, whereas Case B has found its supplier base in geographical knowledge “clusters” being characterized as more advanced compared to Case B.

### **5.3 Three approaches to governing the growth of knowledge**

Company A has moved away from a fairly pure associational governance structure that didn't focus on growth of knowledge among the parties involved in the production of standardized products. In fact, there was still a reduced level of knowledge growth between the parties when Company A's quality controllers moved production knowledge from one sub-supplier to another in an unorganized fashion. Today, the company depends mainly on a constitutional governance approach, and tries to cultivate knowledge within its own premises without involving sub-suppliers to a significant degree. The company does continue to use their customers as a key knowledge source, which continues the associational governance structure in which primary knowledge gains are within the company and not on the partner level.

Company B has, on the other hand, moved from a constitutional governance approach regarding knowledge growth to a combination of associational and democratic governance approaches that involves both suppliers and customers in building knowledge within the established network system. Innovation and value-cooperation are the key words that define the company's identity today. Gradual development of its suppliers and continuous involvement of key customers into its development process allowed Company B to shift its strategic orientation to external processes and the external network.

Both companies define innovation capability as a key core competence for survival in the market. However, they have chosen very different knowledge governmental trajectories moving more or less in opposite directions. The geographical representation of the customer base might be part of the explanation to the different developments. In case B a number of key customers have activities in China indicating a close proximity to the control center established in the area, as well as other key customers being present in Europe indicating a fairly close proximity the Danish headquarters. On the other hand Case A have all their key customers positioned in Europe as well as earlier mentioned the interaction with the customers in innovation activities is mainly on a consumer level, whereas in Case B the interaction is with 50 key customers indicating more frequent interaction and dependency with less actors in the innovation development activities.

### **5.4 Over/under modularization**

Company A has to a certain extent continued its practices regarding its sub-suppliers concerning the level of modularization of the products. They continue to source fabrics from suppliers, which they then either sew in their own factory or have sub-suppliers sew for them. However, they have established 100% quality control for all fabrics involved (both fabrics used in their own factory as well as fabrics used by their sub-supplier). On the other hand, due to the change in market conditions the company now produces all the customer specific products in-house in its captive

offshore facilities (in Vietnam), whereas some of the standardized production activities are still conducted by sub-suppliers. This shows that the more complex products are more difficult to modularize by the company at an efficient level with outsourcing.

Company B has moved to a capability level, where the products can be modularized at a more complex level. Positioning itself as a system integrator, Company B has been able to develop capabilities allowing it to modularize its products without necessarily increasing its level of commodization. This indicates that the capability to modularize enables a more open knowledge governance environment, however, it also indicates a demand of more thorough standardization which reduces the level of flexibility towards the customer base, which is a growing need in case A, reducing its possibilities of modularizing compared to the previous market situation.

### **5.5 Formal/informal approaches**

Company A has been on a continuous journey towards formalizing more formerly tacit knowledge into explicit knowledge. This is due to challenges regarding quality control and delivery time. Moving the main production capabilities from Denmark to Vietnam was primarily conceived in response to these two challenges. However, making the complex production activities captive also indicated that a significant amount of tacit knowledge has not been codified at a level where sub-suppliers are capable of delivering the expected products on time and with sufficient quality. Rather, numerous informal interactions between the Danish and Vietnamese employees cope with the demands regarding sufficient knowledge transfer to attain the required level of product quality and production efficiency. At the same time, the process of establishing more formal documentation within the company continues with the establishing of IT-systems as well as partly automation of the production process. These considerable investments within the company can better capture knowledge and improve efficiency. The movement of primarily Danish employees and the use of expatriates also manifest the necessity of building more informal relationships between the employees in Denmark and Vietnam. This can help cope with the increasing demands on the part of consumers for more individualized and complex products.

The approach of Company B towards formalization was very aggressive and started before the company embarked on the outsourcing journey. It can be exemplified by the fact that the company was divided into independent units called Masters. The outsourcing mentality penetrated even intra-organisational relations between these units with the idea that anybody seeking to work for the organisation (whether as a supplier or as an employee) had to either learn to view the organisation as a competitive marketplace or lose its position to someone else inside or outside the organisation. Following this logic, in recent years, the split up of the operations activities into such independent business units helped facilitate the move from tacit to explicit knowledge. On the other hand, the establishment of a knowledge “hub” in China as well as the presence of the company’s own engineers at the supplier’s premises indicates a continuous need for transfer of tacit knowledge as well. This again shows that Company B continues to combine both formal and informal approaches of governing knowledge between the different actors in the supply chain.

Both cases show a need for combining formal and informal approaches dynamically. There is a change over time in the way the companies combine the approaches to reach an adequate level of knowledge governance. However, the cases also indicate the different combinations of the approaches are shown worthwhile in different phases of the supply chain setup.

## 6. CONCLUSION

The empirical evidence from the two cases provide insights into how companies can use knowledge governance mechanisms to better manage the transition to and improve the sustainability of increasingly complex operational set-ups.

The knowledge governance approach provides a perspective on the structural context of knowledge management, which complements the process based perspectives of knowledge management by paying particular attention to the structural conditions underlying the knowledge management process and the effects of changes within these conditions. This remains important as a means to developing appropriate contingency based knowledge management efforts.

As has been indicated earlier in the discussion several variables have been identified as possible indicators of how the knowledge governance setup is being changed over time. Both the relationship to, position of customers and suppliers as well as their geographical setup are important in the way the knowledge governance of the focal company is structured. Furthermore, the absorptive and learning capacities within the supplier base play a role in the way the knowledge governance structure develops over time.

Knowledge governance becomes increasingly important as a means to improving the internal efficiency and external responsiveness of global value chains. Governance mechanisms take many forms according to the scope of the task and the task environment and the strategic choices regarding the value chain structure

The increased standardization of relationships in the value chain have resulted in new means for organizing knowledge exchanges, where each company has been pushed into formalizing its interactions with the value chain in the form of formal procedures and specifications as a means to controlling key in- and output variables, but also to supplement these with the attention to the build-up of knowledge about key principles of operations. On the other hand the cases have shown that the informal approaches combined with the formal approaches regarding knowledge governance are changing over time, but both formal and informal knowledge governance tools are continuously at play as important ways of managing the continuous flow of knowledge within the globalized value chain.

Although the companies have adopted different means in the process, the relations to the underlying governance structure of the value chain relationships suggests that similar results may be achieved with different initial conditions and in many different ways, which also means that we are a long way from pointing to one best way of organizing knowledge exchanges within the global value chain. However, both cases indicate that companies can use knowledge governance mechanisms to better manage the transition to and improve the sustainability of increasingly complex operational setups.

One area of interest for further research that has been identified in the paper points toward the influence of the distribution setup in the way the knowledge governance structure evolves both regarding the proximity in geographical terms of the customers as well as the position of the customers in the value chain.

## 7. REFERENCES

- Barney, Jay (1991): "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17, no. 1, pp. 99-120
- Choi et. al (2005): "Knowledge governance", *Journal of Knowledge Management*, Vol. 9, No. 6, pp. 67-75
- Conner and Prahalad (1996): "A resource-based theory of the firm: knowledge versus opportunism", *Organization Science*, Vol .7, No. 5, pp. 477-501
- Ethiraj and Levinthal (2004): "Modality and innovation in complex systems", *Management Science*, Vol. 50, No. 2, pp. 159-173
- Ferdows, Kasra (2006): "Transfer of Changing Production Know-How", *Production and Operations Management*, Vol. 15, no. 1, Spring, pp. 1-9
- Foss and Michailova (2009) in 'Foss and Michailova, ed.': "Knowledge governance – processes and perspectives", Oxford University Press, pp. 1-24
- Foss, Nicolai J. (2007): "The emerging knowledge governance approach: challenges and characteristics", *Organization*, Vol. 14(1), pp. 29-52
- Foss, Nicolai J. (1996), "Knowledge-based approaches to the theory of the firm – some critical comments", *Organization Science*, Vol. 7, No. 5, pp. 470-476
- Freytag, P.V., Mikkelsen, O.S. (2007): "Sourcing from Outside – Six Managerial Challenges". *Journal of Business & Industrial Marketing*, vo. 22, no. 3, pp. 187-195.
- Gereffi et. al (2005): "The governance of global value chains", *Review of International Political Economy*, Vol. 12:1, February, pp. 78-104
- Grandori in 'Foss and Michailova, ed.': "Knowledge governance – processes and perspectives", Oxford University Press, 2009, pp. 81-107
- Grandori, Anna, (2001): "Organization and Economic Behaviour", London: Routledge
- Grant (1996): "Prospering in Dynamically-competitive Environments: Organizational Capability as Knowledge Integration", *Organization Science*, Vol. 7, No. 4, pp. 375-387
- Heiman and Nickerson (2004): "Empirical evidence regarding the tension between knowledge sharing and knowledge expropriation in collaborations", *Managerial and Decision Economics*, Vol 25, pp. 401-420
- Heiman and Nickerson (2002): "Towards reconciling transaction cost economics and the knowledge-based view of the firm: the context of interfirm collaborations", *Economics of Business*, Vol. 9, No. 1, pp. 97-116
- Kogut and Zander (1992): "Knowledge of the firm, combinative capabilities and the replication of technology", *Organization Science*, Vol . 3, August, pp. 383-397

McIvor, R. (2009). “How the transaction cost and resource-based theories of the firm inform outsourcing evaluation”, *Journal of Operations Management*, Vol. 27, pp. 45–63

Osterloh and Frey (2000): “Motivation, Knowledge transfer, and Organizational forms”, *Organization Science*, Vol. 11, pp. 538-50

Scarbrough and \*Amaeshi in ‘Foss and Michailova, ed.’: “Knowledge governance – processes and perspectives”, Oxford University Press, 2009, pp. 220-246

Slepniov, D., Waehrens, B.V. and Jørgensen, C. (2010): “Global operations networks in motion: Managing configurations and capabilities”, *Operations Management Research* (in press DOI: 10.1007/s12063-010-0032-4

Williamson OE. (1985): “The Economic Institutions of Capitalism”, The Free Press, New York