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Two Sides of a Token: Coordinating Demand and Supply at Furniture Wholesaler

Abstract

This research work investigates the occurrence of demand-supply chain management (DSCM) components in a Swedish furniture wholesaler that sources most of its products from China. Three of eight main components of DSCM were identified in the case company and one component was not fully applicable. The case shows possible caveats of being demand-driven and highlights the need to balance demand and supply sides simultaneously. During economic crisis years 2008-2009, business has experienced extraordinary decline in sales and profitability, while holding considerable amount of inventory at hand. In the long-term supply chain strategy relying on Chinese manufacturing could face increasing challenges in total costs due to currency changes, transportation costs increase, and environmental regulation.

Keywords: Demand-supply chain management, furniture wholesale, Sweden, China

1. Introduction

A chain of organizations may be described by dividing it into two parts, a demand chain and a supply chain (Jacobs, 2006). Both chains include the same actors, from consumers to suppliers, with focus on different processes and activities (Hilletoft et al., 2009). In order to maximize effectiveness and efficiency the two chains (or sides) require attention (Canever et al., 2008; Charlebios, 2008; Esper et al., 2010). Managing the demand chain is referred to as demand chain management (DCM) and includes the management of processes responsible for understanding, creating, and stimulating consumer demand (Hilletoft, 2011; Jüttner et al., 2007; Walters, 2008). Managing the supply chain is referred to as supply chain management (SCM) and includes the management of processes dedicated to fulfilling consumer demand (Gibson et al., 2005; Hilletoft, 2011; Mentzer et al., 2001).

It has been suggested that a demand-supply oriented business model should be created, by extending the area of responsibility for either DCM or SCM, to encompass both management directions (e.g., Mentzer et al., 2001; Williams et al., 2002). However, an extended area of responsibility is more frequent in literature, than in practice. Hence, practitioners instead focus on their own management area, and coordination of DCM and SCM is achieved on a macro level (e.g., Canever et al., 2008; Jüttner et al., 2007; Walters, 2008). The demand-supply chain management (DSCM) concept proposed by Hilletoft (2011) is used to describe this overreaching management perspective.

Depending on market characteristics (Christopher et al., 2006), as well as business model (Hilletoft and Hilmola, 2008), it may be appropriate for an organization to focus on either the demand processes (DCM) or the supply processes (SCM). Demand led, or supply led, business models are distinguishable in most industries (Jüttner et al., 2007). In order to gain a competitive advantage demand led organizations try to provide superior consumer value, while supply led organizations try to reduce price. In demand led organizations the supply side tends to get a supporting role, and vice versa (Walters, 2008), giving one management direction priority over the other (Hilletoft et al., 2009).

It may be argued that DCM and SCM must be coordinated (Hilletoft, 2011) and balanced (Jacobs, 2006) in all business environments. An imbalance between them may induce major

difficulties (Walters, 2008). Organizations with a high demand chain competence, that is not coordinated with the supply chain, may experience detrimental effects on cost and delivery performance, while an organization with a high supply chain competence, that is not coordinated with the demand chain, may experience inefficient new product development (NPD), segmentation, and product delivery (Jüttner et al., 2007).

The purpose of this research is to investigate the concept of DSCM. The foundation of DSCM, coordination of the demand and supply processes, is well established (Canever et al., 2008; Hilletoft et al., 2009; Jüttner et al., 2007; Walters, 2008). Still, more research is needed on its components, benefits, and requirements (Hilletoft, 2011). Previous research has focused on the appliance industry (e.g., Hilletoft, 2009; Hilletoft et al., 2010; Hilletoft, 2011) and thus there is a need to extend the research into other industries. This research investigates the previously identified components of DSCM in the furniture industry. The main research question is “are the components of DSCM important in the Swedish furniture industry?”.

The research is based on an embedded single case study (Yin, 2008), focused at investigating coordination of DCM and SCM. The case company is a Swedish furniture wholesaler (Alpha) active in the Northern Europe. The case study was initiated 2009 with in-depth interviews with key informants at the case company, which have been followed up by additional interviews. The researchers have also have been granted full access to the case company allowing them to attend business meetings, observe day-to-day activities, review internal documents, and access to the company’s database.

The remainder of this paper is structured as follows: To begin with a literature review of DSCM related issues is presented in Section 2. After that, the case study is presented analyzed in Section 3. Finally, the research is discussed and concluded in Section 4.

2. Literature review

DSCM is an integrative philosophy for coordinating and managing the demand processes (DCM) and the supply processes (SCM) within a particular company and across the entire demand-supply chain (Hilletoft, 2011). The aim is to gain a competitive advantage by providing superior consumer value as cost-efficiently as possible (Hilletoft, 2011; Jüttner et al., 2007; Walters 2008). It is achieved by organizing the company around understanding how consumer value is created efficiently (managing the demand chain), how consumer value is delivered efficiently (managing the supply chain), and how these management directions can be coordinated (Figure 1). In essence, it concerns macro coordination of DCM and SCM across intra- and inter-organizational boundaries (Hilletoft, 2011).

The underlying principle is that both DCM and SCM are of fundamental importance to every organization and that they must be coordinated to maximize effectiveness and efficiency (Hilletoft, 2011; Jacobs, 2006). The management of the demand side of the company (DCM) is revenue-driven and focuses on effectiveness, while the management of the supply side (SCM) tends to be cost-oriented and focuses on efficiency. Evidently, these management directions together determine the firm’s profitability and therefore need to be coordinated, which requires a demand-supply oriented management approach. The focus in DSCM is both on revenue growth (effectiveness) and cost reduction (efficiency), since the goal is to gain a competitive advantage by developing desirable products and delivering them through

tailored supply chain solutions, while simultaneously managing the demand and supply processes as cost-efficiently as possible (Hilletoft, 2011).

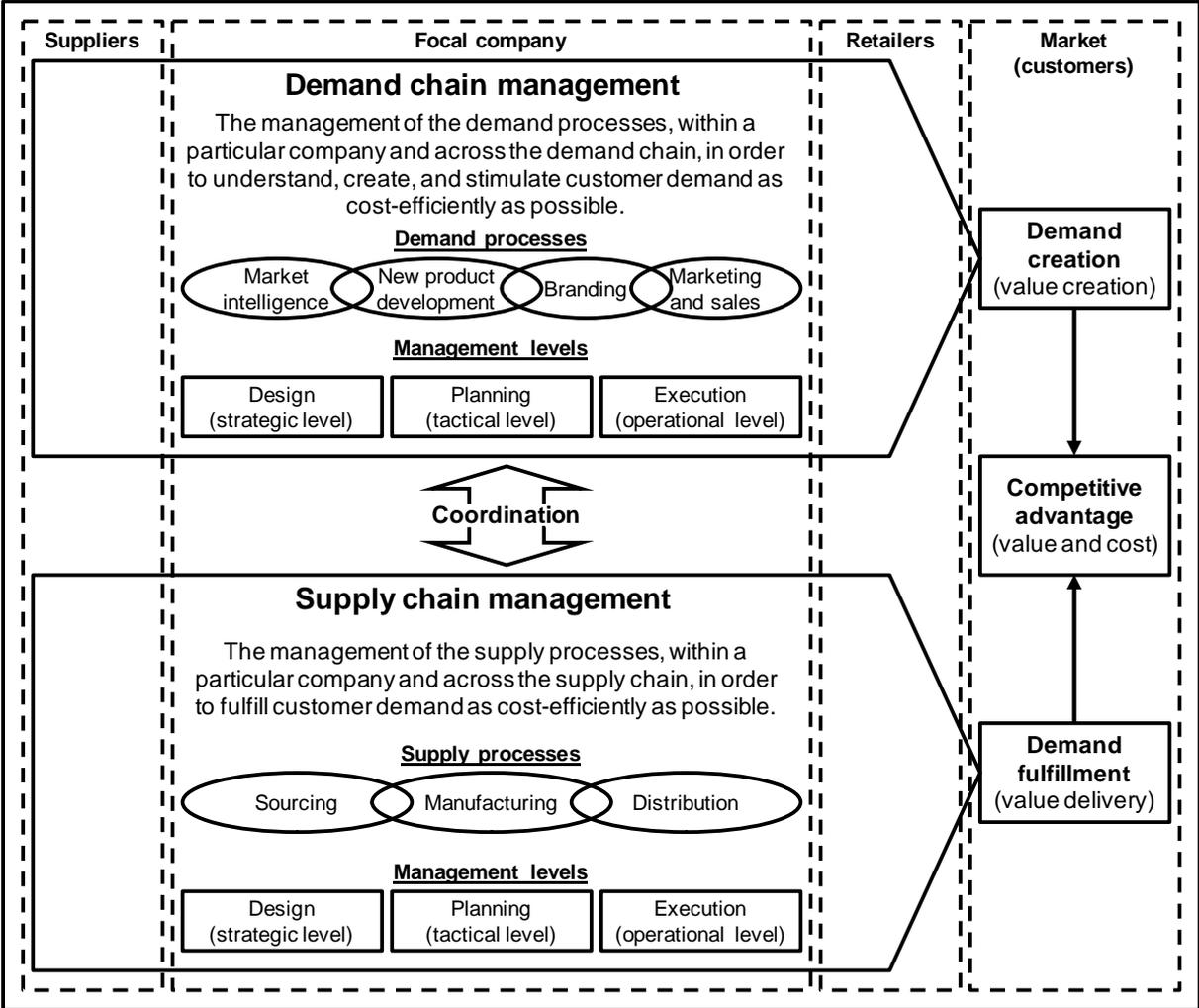


Figure 1 Framework of demand-supply chain management (Hilletoft, 2011)

Eight major components of DSCM have been proposed in the literature (Figure 2). The first component (*market orientation*) implies that the entire demand-supply chain should be aligned to serve the consumers (market-driven) with superior consumer value, that is, create and fulfill consumer demand as cost-efficiently as possible (e.g., De Treville et al., 2004; Heikkilä, 2002; Jüttner et al., 2007). In order to coordinate the demand and supply processes, meaningful and actionable market segmentation based on market intelligence is required (Hilletoft, 2011; Jüttner et al., 2007).

The second component (*coordination of the demand and supply processes*) highlights that market orientation is achieved by understanding, how consumer value is created and delivered in a cost-efficient manner, and how these demand and supply processes can be coordinated (e.g., Childerhouse et al., 2002; Esper et al., 2010; Hilletoft et al., 2009). In essence, it means that neither DCM nor SCM should set the business agenda (Jacobs, 2006). Both management directions should be coordinated and given equal attention. Practitioners within each management direction should focus on their area of expertise, and coordination is achieved through management on a macro level. The coordination needs to develop from an internal, to an external scope.

The third component (*viewing the demand and supply processes as being equally important*) stresses that demand and supply processes needs to regarded as equally important, and managed in a coordinated manner (e.g., Hilletoft et al., 2009; Jacobs, 2006; Rainbird, 2004). A company with focus on one management direction faces the risk of a business model, where one management direction dictates the business model. Instead, both DCM and SCM should be involved in the development and execution of the overall business strategy. This requires support from senior management, and well-constructed key performance indicators and incentives (Rainbird, 2004).

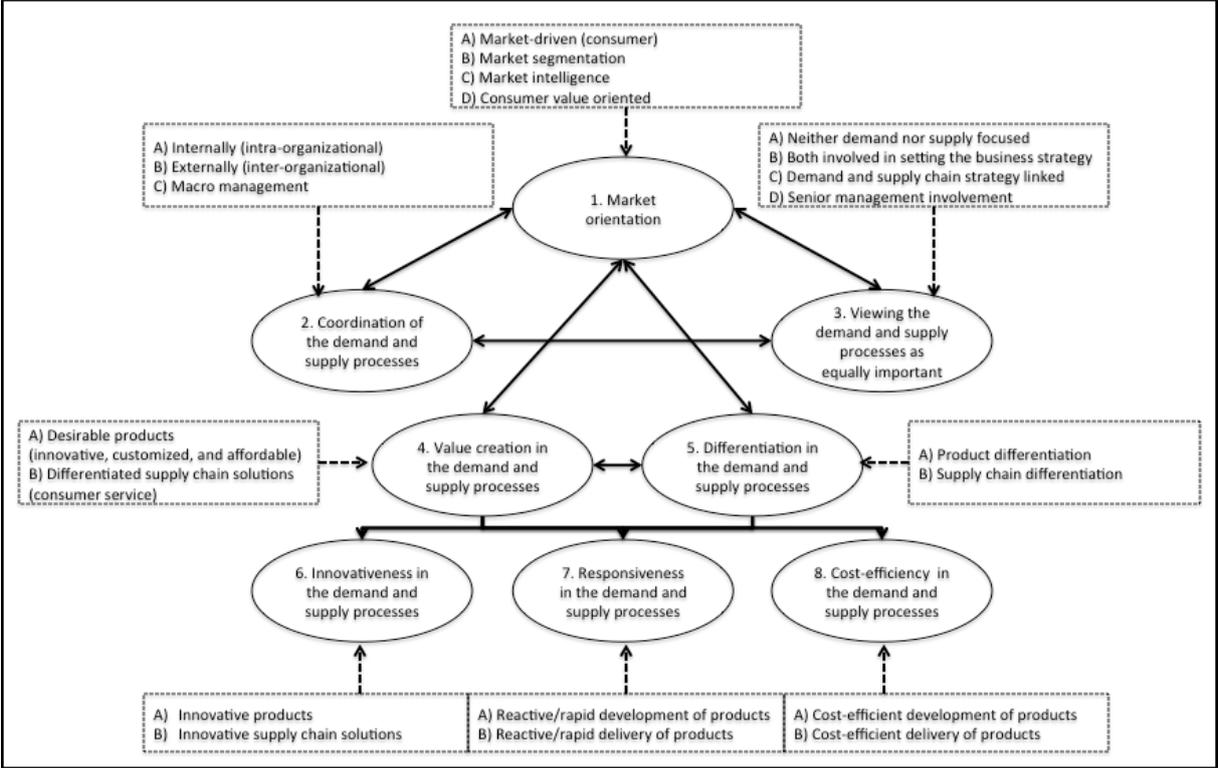


Figure 2 The components of demand-supply chain management (Based on Hilletoft, 2011)

The fourth (*value creation in the demand and supply processes*) and fifth (*differentiation in the demand and supply processes*) components address the importance of value creation in both demand and supply processes as vital areas for increased competitiveness (e.g., Al-Mudimigh et al., 2004; Hilletoft et al., 2009; Walters, 2008). Value creation has extended its scope from demand processes to also include supply processes as a response to fierce competition and fragmented markets. In DSCM, synergies between DCM and SCM provide a foundation for value creation. Superior consumer value is achieved through differentiation from competition with regard to both products and supply chain solutions (e.g., Esper et al., 2010; Hilletoft et al., 2009; Jüttner et al., 2007).

The sixth (*innovativeness in the demand and supply processes*) and seventh (*responsiveness in the demand and supply processes*) components identifies innovation and responsiveness as two of the most vital opportunities for both product and supply chain differentiation (e.g., Canever et al., 2008; Jüttner et al., 2007; Selen and Soliman, 2002). Innovativeness and responsiveness in demand processes refer to rapid and reactive development of innovative

products, and to the development of innovative supply chain solutions with rapid and reactive product delivery in the supply processes.

The eight component (*cost-efficiency in the demand and supply processes*) implies that the components mentioned above should be carried out in a cost-efficient manner (e.g., Frohlich and Westbrook, 2002; Hines et al., 2002; Jüttner et al., 2007). In accordance with the macro management perspective of component two, cost-optimization should be conducted from a holistic and coordinated approach to avoid the inherent risk of sub-optimization associated with micro management.

3. The case study

The Swedish furniture industry consists primarily of wholesalers and retailers that are independent from each other. Wholesalers are devoted to NPD and sourcing, and try to sell showroom furniture to retailers. Once a consumer makes a purchase at a retailer the retailer places an order to the wholesaler who starts distribution. Most wholesalers carry inventory, but retailers still need to carefully consider their investments in showroom furniture to ensure that their investment will generate sales. Furniture are primarily manufactured in Asia, mostly China; low cost countries in Europe, e.g. the Baltics, Rumania, and Poland; and in Sweden. Wholesalers also choose between purchasing manufactured furniture or manufacturing furniture by themselves in own manufacturing plants. Almost all transports from wholesalers to retailers is carried out by third party logistics service providers.

The industry is highly competitive and during the 2008 recession both wholesalers and retailers faced economical difficulties. Furniture is available in the commodity price range, but also in the most premium price ranges; the price of a sofa can range from €100 to €10 000 at the same retailer. Thus, several strategies are available on cost alone. In contrast to other industries the most fashionable products have been available for over 50 years. The products with the shortest life-cycle in the furniture industry is usually products purchased at a minimum price that is sold until the order is sold out, and furniture that are dependent on the season, e.g. garden furniture. Distinguished from the wholesaler-retailer configuration investigated in this research there are two large actors in the Swedish furniture industry: IKEA and Jysk. These however, have so large sales volumes and different strategy controlling both wholesale and retail that a comparison that includes them is not suitable.

The case company is a family owned Swedish wholesaler from the furniture industry. Their main activities are distribution and NPD. Furniture is manufactured in China, and shipped to Alpha's warehouse in Sweden. The distribution model with retailers is the same as the one described above for the industry. In 2004, the case company faced fierce competition in a saturated marketplace, and decided to shift from a low cost business model, to a consumer driven model focusing on premium products in a higher price range. Due to the fact that the DSCM concept has not been previously researched within the Swedish furniture industry, Alpha's strategic choice to become consumer driven, and that the researchers were granted full access to company data, the case company was considered to constitute a good area of research.

3.1 Methodology

The research aims to investigate the concept of DSCM focusing on the importance of the DSCM components in the Swedish furniture industry. Empirical findings are based on results from an embedded single-case study devoted to investigating the coordination between DCM and SCM. The investigated events are contemporary and occur in a complex setting in which the researchers have no control. The chosen approach is appropriate for explorative research (Yin, 2008).

Due to the complex setting of the case, the findings from the case company must be explained in relation to the context (Flick, 2009). This has required several data sources containing both qualitative and quantitative data, which is accepted within case study research (Yin, 2008). The data collection was initiated in 2009 by reviewing internal documents primarily regarding the DCM process at the case company, which was followed up with 60-90 minute long in-depth interview with the founder/former CEO, the CEO, the manager of NPD, and the manager of purchasing/logistics. The interviews were carefully prepared based on the review of internal documents and communication with the case company. The purpose was to understand the choice to change business model, and the DCM process. Following the in-depth interview the researchers have worked in close collaboration with the case company taking part in internal, external and board meetings, visits to customers and suppliers, and discussions with providers of transport and IT services.

The collaboration with the case company allowed the researchers become participants at the case company. Thus, structured interviews were replaced with weekly interactions with all employees at the case company. All data requested by the researchers were extracted from the case company's data system. The close collaboration allowed findings, ideas, and questions to be continuously discussed and revised during the course of 18 months. The primary focus of the data collection was the effects of the new DCM focused business strategy, and its relation to SCM. Stock-keeping-units, inbound shipments, NPD projects, and collaboration with manufacturers and retailers are some of the investigated areas. In total, 35 interviews, 99 annual reports, more than 600 internal documents and reports, and findings from 23 supply chain partners constitute the empirical foundation of this research.

To increase internal validity (Yin, 2008), rival explanations for the findings have been discussed with other researchers, and personnel at the case company. Since the case company was chosen based upon its unique characteristics, and are based on contemporary events the external validity (Yin, 2008) was considered to be important. Since it is a single-case study, connecting the empirical findings to established theories increases external validity. The theoretical foundation presented in this paper constitutes a fraction of the reviewed literature. The triangulation of data, methods, and theory (Flick, 2009) has contributed to improved rigor, depth, and breadth of the results, which is comparable to validation (Yin, 2008) and helps the investigators to gain a more complete understanding of the studied phenomenon (Scandura and Williams, 2009).

3.2 Findings

The case company has adopted a strategy, where it attempts to offer added value by gaining insight to consumers' explicit and implicit needs. In essence, Alpha is in a transformation from cost and volume focus to becoming innovative and consumer-oriented. The case

company’s model for managing products is heavily focused on DCM processes, and SCM is only included as an enabling function. At the heart of the new model are efforts to develop innovative products, with added perceived consumer value, at a premium price. The management of these major processes is further described below.

3.2.1 Demand chain management

Alpha’s process for developing consumer-focused products is described within the DCM approach. It is adopted for all target markets with the purpose of managing the product lifecycle by incorporating all areas of creating and selling products. The CEO has the ultimate responsibility for DCM, while the managers of NPD, purchasing/logistics and marketing are responsible for assigned areas. As of today the areas are not clearly defined. The three main phases of Alpha’s DCM approach are market intelligence, product creation and commercial launch (Figure 3).

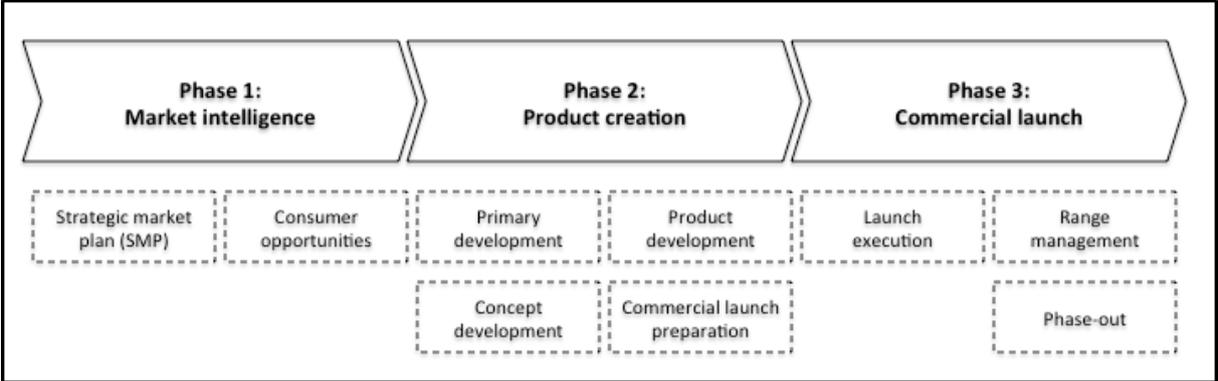


Figure 3 Demand chain management process

The objective with the market intelligence phase is to ensure clear identification and prioritization of opportunity areas and express these in a strategic market plan (SMP). The SMP is closely intertwined with the case company’s segmentation model: the product platform. Consumers are separated into three psychographic segments: innovator, trendy, and adapter. These consumer groups are used for all target markets. The products are divided into three design styles: contemporary, Nordic, and classic. This combines into a 3*3 matrix. Moreover, one matrix for each furniture group is created, for example, dining and bedroom. Furniture in each matrix is color-coded based upon its life cycle. Together with the SMP the product platform constitutes an important tool for strategic and tactical decisions. Discovered consumer needs and wants may be converted into innovative solutions possible to implement in all segments.

The close connection between the SMP and the product platform helps to ensure correct prioritization of activities and to keep coherence among activities. One of the main goals when identifying consumer opportunities is to discover implicit consumer needs, and gain consumer insight. Therefore, consumer opportunities are important during both market intelligence, and product creation. Consumer opportunities include visiting potential and actual consumers in an everyday setting and photo-documenting their homes. “Through this technique we have developed very profitable and successful furniture that we would have never thought about otherwise”, said the founder/former CEO when discussing their DCM. He continued, “I always thought that a bedroom should include a bed, nightstands, a closet and a drawer. But now we are selling a multi-purpose bed casket where consumers can store

laundry, place their laptop and sit down while getting dressed“. External agents (so far only students), under guidance of the case company, perform the study of consumers’ homes. Over the course of six years since the DCM approach was adopted the number of consumer available products has more than tripled as a result of new identified consumer opportunities. There are newly developed products that have not performed well, and the increase in products is troublesome to manage. However, both the CEO and the manager of purchasing/logistics believe that change in business model to some extent is a trial and error period, and that the company just recently has been able to decide what products to focus on and how to reduce the product range to a manageable level in comparison to the turnover.

The object with the product creation phase is to define and develop consumer relevant and innovative products addressing well-understood consumer needs. The first step, also discussed above, is consumer opportunities. Based upon an assessment of the product platform and the SMP a room or furniture type is targeted. During primary development a number of squares in the product platform is targeted. The designers are restricted to their targeted square, but also to a list of pre-chosen materials called the material matrix. The manager of NPD is responsible for the material matrix. Choice of materials is limited to ensure reliable sourcing, but also to ensure coherence and flexibility between different furniture collections.

Demand Chain Management			Alternative
DCM Stage	Description	Illustration	
Consumer Opportunities	Explore chosen room/ furniture type to find consumer opportunities		By chance, or observation get an idea for a product
	Gather consumer insights regarding consumer opportunities and present them to designers		
	Residual ideas	!!!!!!!!!!	
Primary Development	Design furniture based upon consumer opportunities, targeted square in the product platform in accordance to restrictions in the material matrix		
	Analyze presented ideas and prioritize future product development		
	Residual ideas	○○○○○○	
	Winning product concepts, prototype creation	○○	
	Redo previous steps, continue to product development, put down		

Figure 4 Consumer opportunities identification process

Parallel to the DCM approach employees might come up with ideas that have not gone through the process mentioned above. For example, one of the company’s bestselling

furniture collections includes products co-developed between the manager of purchasing/logistics and the manufacturer. Here, consumer opportunities are identified outside the outlined process. However, in primary development furniture is still designed in accordance to the material matrix and the product platform. The described process is summarized in the company's consumer opportunity identification process (Figure 4). The founder of the company points out that the process generates a lot of residual ideas that may be used in the future, or sooner, depending on internal capabilities and prioritization.

To ensure successful NPD a large amount of time is invested during the early DCM stages. However, the external agents invest much of the time, while internal personnel guide the project. Hence, the economic investment is kept at a minimum during the opportunity identification process. New products have been well received among the retailers. "You are really good at making new furniture. They have great features, and offer a lot of flexibility for the end consumer", one storeowner told to the CEO at a meeting. Still, the growth in sales is missing. Both the case company, and many storeowners believe that the turmoil in the national and global economic situation is to blame.

Marketing plays a strong role in the DCM approach. One key activity with the new strategy has been to inform retailers and consumers about the new products. Hence, the manager of marketing and sales has produced both in-store material and advertisement directed at consumers. The CEO discussed the processes of determining the budget and revealed that the marketing expenses was approved by the board of directors prior to completing the company budget, and felt that it was an example of the trust in and focus on DCM.

3.2.2 Supply chain management

As with DCM SCM strives to be end-user focused. It is important that all supply chain activities, from choosing the right raw material, to handing over the finished product to the consumer and to be prepared to help consumers even after the purchase is completed. Even though the case company's DCM does not contain instructions for all logistics processes the manager of purchasing/logistics is present during NPD, and by developing new products using pre-chosen materials logistics has a presence in DCM.

In a premium price range the case company is always compared to other premium firms, and consumers expect the quality to match the price. One storeowner pointed out that he perceives causation between price and quality demand with an exponential correlation. Consumers that buy furniture in lower price ranges accept variations, for example, wood color and sprigs. However, as soon as the price increases, every small detail is scrutinized. Further, the storeowner said that consumers told him that: "We chose to come to you instead of IKEA. We expect really good quality". Hence, companies selling at premium price always need to undertake their supply chain activities with excellence. There are four areas identified by the case company in which they need excellent performance: quality, cost efficiency, flexibility and reliability.

To ensure premium quality the serving team in China plays an important role. They employ quality control personnel at most of the factories in China. Further, they help to keep shipping cost down by coordinating and consolidating goods from nearby manufacturers. In the recent year the calculated shipping cost for a 40" high cube container has tripled, which makes filling rates increasingly important. Moreover, the interactions with the serving team

have increased to an extent where it now almost is on a daily basis. E-mail and Skype are the preferred tools for communication. Despite the attempts to monitor activities in China the labor situation is difficult. One of the manufacturers included in the research reduced its workforce from about 1400 to 900 employees after the Chinese New Year in February 2010. Employers were forced to pay the salary before the holidays, which enabled the workforce to apply for jobs in their home villages. Workers that did return preferred jobs in the car and electronics manufacturing industry where the work environment is cleaner. Thus, the furniture industry had problems recruiting personnel. In order to increase flexibility without proportionally increased complexity in sourcing and warehousing a postponement strategy is utilized. For example, the size of many tabletops and the height of many table legs may be changed. Hence, the same legs may be used for many tabletops, and vice versa.

Instability in manufacturing in China has brought along insecurities in sourcing. Together with imbalances in materials and container flows it has resulted in prolonged manufacturing and delivery lead-times with about 50 percent. Moreover, the increased number of products along with the loss in turnover has increased the number of different articles in each order and container complicating the manufacturing processes. The increased complexity due to increased article numbers and the previously mentioned problems in sourcing has led to both stock outs and abundance in the warehouse. In turn, this has led to lost sales and impaired utilization of invested capital. Hence, communication with the serving team and manufacturers has increased in importance, and seems to have increased the reliability in sourcing. Moreover, due to a global supply chain with long lead-times forecasting is of essence. All retailers are given customer cards where yearly sales are forecasted. When done correctly it is perceived to make a huge impact on the reliability in sourcing. However, since the turnover of the company is rather small, one large customer order may destroy the forecasting for an individual product, and minimum order requirements may force Alpha to order several years of inventory, which has resulted in increased inventory levels. The issue of large orders can occur if, for example, a hotel may want to buy 40 tables each with 6 chairs. Accepting that order may result several months of delivery problems to retailers, which may impede the collaboration between the case company and retailers. However, rejecting that order may result in lost sales. The dilemma of the big order exemplifies that there will always be trade-offs, and that a business model with long lead times and many end-user configurations may not be suitable if one wants to serve both retailers, while every now and then accepting large orders.

In an attempt to outperform the competition the company tried to deliver all orders to the customers the day after the order being placed. The company discovered that fast deliveries drive costs, were hard to handle for the retailers, and that consumers did not expect quick deliveries. Hence, fast delivery meant that the company over performed towards the consumer. Nowadays the main focus is to deliver at the agreed upon time. Also, stores that want are welcome to pick their goods up at the warehouse, and about 4 percent of the inbound containers are shipped directly from the port of Gothenburg to the retailer. The supply chain is now adapted to fit the needs of the customers and the end-users, providing a variety of options. In essence, the configuration of delivery options is a three-step process. Firstly, it is important to understand the consumers and their demands. Secondly, the case company needs to consider the capabilities of its supply chain partners, both retailers and manufacturers. Thirdly, they may configure different supply chain solutions that are results

and combinations of the manufacturing strategy and capabilities, and the delivery strategy and capabilities (Figure 5).

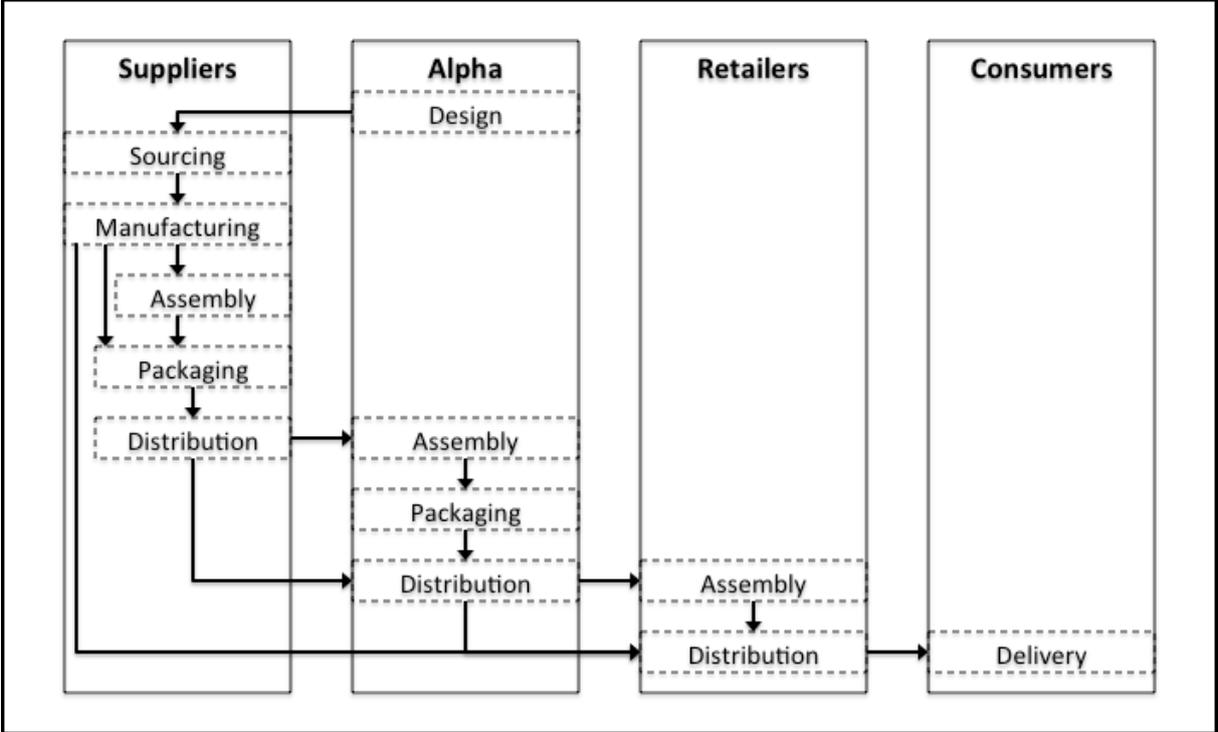


Figure 5 Case company Alpha's supply chain

Before describing the supply chain solutions it is important to emphasize that there is a decoupling point in the supply chain before the manufacturing, and sometimes at the manufacturer. In the first case the manufacturers' supply chains are not integrated with the case company's supply chain. Secondly, small order quantities with increased number of unique articles have lead to overproduction and stock keeping at some manufacturers. For example, when painting large batch sized are preferred due to long set-up times and some manufacturers perceive that the risk and cost of overproduction is lower than the cost of producing small batch sizes. Moreover, due to transparency issues it is hard to determine how manufacturers source raw materials and components.

In total, the case company offers five different supply chain solutions, which are a combination of four supply (backside) methods and three delivery (front side) methods. The first is source to order (STO), or made to order (MTO), where containers are delivered directly to the customer. Further, products may be made to stock (MTS), or go through final assembly (assemble to order, ATO) at the case company, before delivery to the customer, or before the customer collects the products. Postponement of final assembly, used in ATO, is a way to decrease the risk of forecasting error, while offering a wide array of consumer available configurations. In all supply chain solutions the activities are performed in cost efficient way. Due to the nature of the consumer needs, and the relatively long product life cycles, the furniture industry is able to manage long lead times in supply.

3.2.3 Coordination between DCM and SCM

The case company acknowledges that demand and supply processes have to be coordinated in an effective and efficient way in order to fully utilize the benefits of DSCM. It is important

that demand creation and fulfillment are coordinated and treated as equally important and that value creation is not restricted to products, but also includes the supply chain solutions. However, it is evident that the case company has not fully incorporated this in their business model. The great increase in article numbers resulting in increased supply chain complexity is a great example of the lack of focus on the SCM processes. Further, while the customers appreciate the new products consumer sales are lacking. The lack in sales may be a result of outside economic factors, SCM factors such as problems with sourcing from China and DCM factors such as flaws in NPD and communication with retailers. There is no follow up of the success of new product launches. Hence, it is hard to truly assess the impact on the case company's DSCM approach. Despite the problems faced by the case company the last years there has been an increase in average contribution margin of 8 percentages implying that there is some success in the new business model.

One important factor in the coordination between DCM and SCM is the lack of control over the retailers. The success of an innovative product heavily depends on the sales persons' ability and wish to sell the furniture. The ability may be affected by knowledge about the products, the way they are developed, and the flexibility offered. The wish to sell the furniture may be affected by several factors. For example, some stores import their own furniture and give the sales representative monetary incentives for selling their own furniture. Moreover, it is also evident that there are factors related to emotions and path of lowest resistance. One storeowner revealed that he considered dropping one distributor since their customer representative is difficult to talk to on telephone. Many retailers also shared the opinion that consumer complaints are extremely time and energy consuming and that they avoid selling brands that they have had problems with in the past. The value added through DCM might therefore be reduced due to various kinds of distortion in the supply chain.

DSCM processes spans over the entire supply chain, and the backside and the front side of the supply chain have a big interdependence. On the front side the case company offers a lot of variety and is very consumer aware. However, the backside sourcing in Asia brings long lead-times, long transports, and offers little flexibility. The case company is heavily dependent on forecasting by the customers in order to synchronize the backside and the front side. Since there is an imbalance between DCM and SCM, and the fit between the backside and the front side is not airtight, work still needs to be done to achieve maximum performance.

In order to reach the full potential of DSCM there is a need to give equal attention to DCM and SCM. SCM includes both backside and front side of the supply chain and a fit between the two. DCM includes organizational skills in marketing to gain consumer insight and advanced marketing segmentation. The coordination between DCM and SCM includes trade-offs between marketing and logistics to ensure that areas of improvement may not only be discovered, but also profitable. On one hand, the case company does this exemplary when limiting the designers to certain materials. On the other hand, the discovered areas of improvement have lead to a great increase in consumer available products that has impaired the logistics performance.

3.2.4 Business performance

A performance evaluation of case company Alpha based on annual reports is shown in Figure 6. There has been a reported growth in sales from 2003 to 2007. During 2008 and 2009 Alpha lost sales compared to previous years. Since the cost structure did not respond accordingly the company reported a loss for the same years. Figures from the Swedish Retail Institute show a decline in business in Alpha's business segment for the same time period. The demand driven approach has led to an increase in products and complexity that together with a decline in sales has resulted in decreased turnover in inventory and decreased ROA. Managers have different explanations to the cause. However, managers working with supply processes on a daily basis believe that the focus on the demand side is the cause, while managers on the demand side perceive the problem to be a result of inefficiency in sales. Despite some differences in the underlying cause all managers points to causes within the demand side of the company.

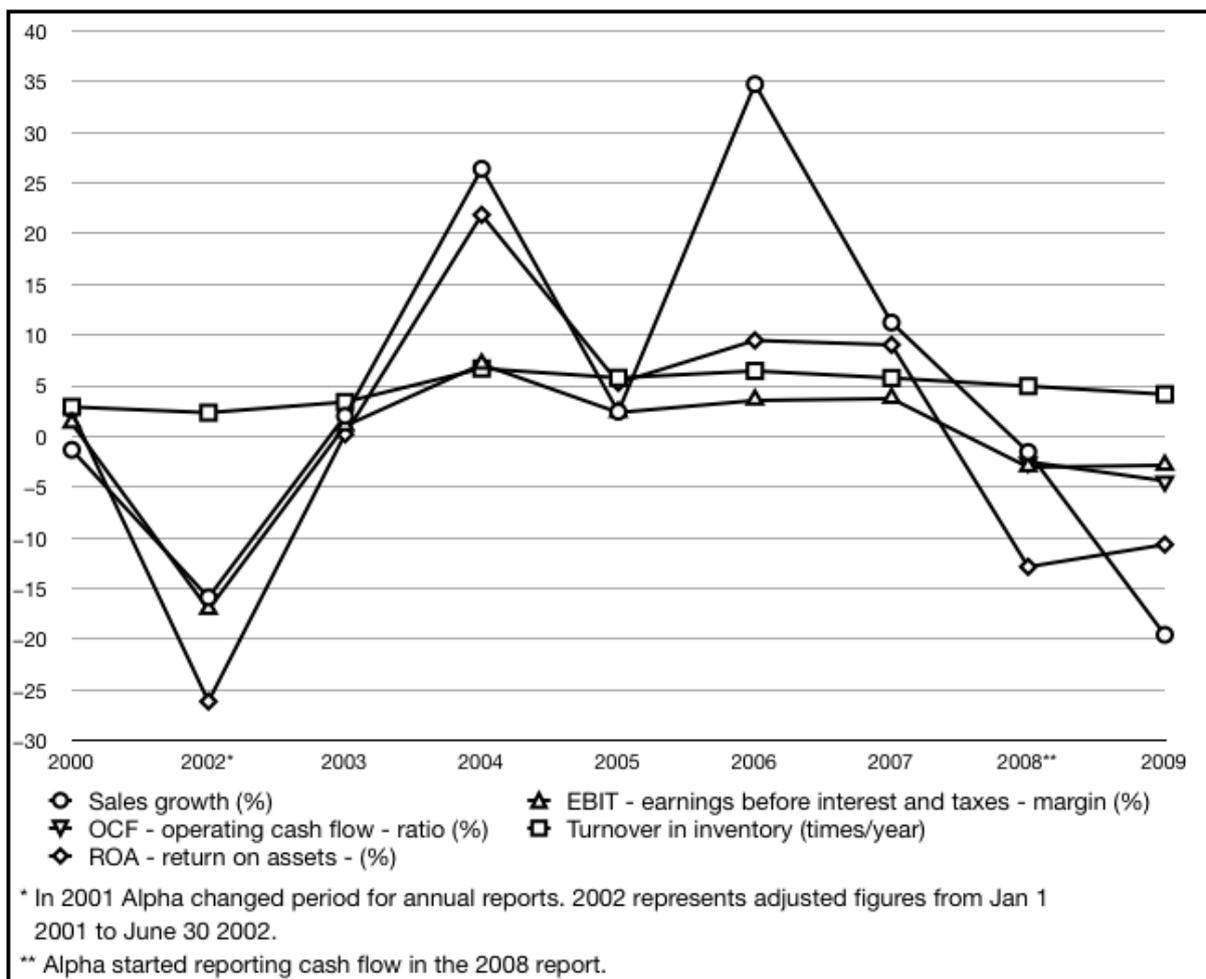


Figure 6 Performance evaluation of the case company

It would be premature to only point out the business model as the culprit. Several retailers have praised Alpha's products, and believe that the business model is the reason why Alpha still is in business. However, problems with the internal activities are well recognized even if the cause is not agreed upon.

3.3 Analysis

The literature review has revealed eight major components of DSCM, and these, to varying degrees, have also been identified in the case study (Table 1). The first component of DSCM identified in the literature review was market orientation (e.g., De Treville et al., 2004; Heikkilä, 2002; Jüttner et al., 2007). Alpha has realized the importance of implementing a consumer focused strategy in their highly competitive and fragmented market. The nature of Alpha's marketplace forced the company to become more innovative, differentiated, responsive, and cost-efficient in order to avoid competition on lowest price, and to stay maintain profitability. As a result, Alpha has transformed itself from being a production focused to an innovative consumer focused company.

The second component of DSCM identified in the literature review was coordination of the demand and supply processes (e.g., Childerhouse et al., 2002; Esper et al., 2010; Hilletoft et al., 2009). The case company manages the demand and supply processes with some internal coordination. The processes have gone through great revisions during the shift in business model, but still lack in internal and external coordination. For example, managers within the demand side have a strong impact on the performance on the supply side processes, and the supply side has been given a supportive role to the demand side.

Table 1 Occurrence of DSCM components

Components proposed in the literature	Case Alpha
1. Market-orientation	Yes
(a) Market-driven (consumer)	(a) Yes
(b) Market segmentation	(b) Yes
(c) Market intelligence	(c) Yes
(d) Consumer value oriented	(d) Yes
2. Coordination of the demand and supply processes	No
(a) Internally (intra-organizational)	(a) Some
(b) Externally (inter-organizational)	(b) No
(c) Macro-management	(c) No
3. Viewing the demand and supply processes as equally important	No
(a) Neither demand nor supply focused	(a) No
(b) Both involved in setting the business strategy	(b) No
(c) Demand and supply chain strategy linked	(c) Some
(d) Senior management involvement	(d) No
4. Value creation in the demand and supply processes	No
(a) Desirable products (e.g., innovative, customized, and affordable)	(a) Yes
(b) Differentiated supply chain solutions (consumer service)	(b) Some
5. Differentiation in the demand and supply processes	No
(a) Product differentiation	(a) Yes
(b) Supply chain differentiation	(b) Some
6. Innovativeness in the demand and supply processes	No
(a) Innovative products	(a) Yes
(b) Innovative supply chain solutions	(b) No
7. Responsiveness in the demand and supply processes	Yes
(a) Reactive/rapid development of products	(a) No, n/a
(b) Reactive/rapid delivery of products	(b) Yes
8. Cost-efficiency in the demand and supply processes	Yes
(a) Cost-efficient development of new products	(a) Yes
(b) Cost-efficient delivery of products	(b) Yes

The third component of DSCM identified in the literature review was viewing the demand and supply processes as being equally important (e.g., Hilletofth et al., 2009; Jacobs, 2006; Rainbird, 2004). Currently, the case company can be classified as a demand chain master. The demand side has great influence over the supply side. Even though supply capabilities are considered during demand processes, the supply side has a support role to the demand side. One example is the fact that the marketing budget was approved before the company budget upon entering the previous fiscal year.

The fourth and fifth components of DSCM identified in the literature was value creation as well as differentiation in the demand and supply processes (e.g., Al-Mudimigh et al., 2004; Hilletofth et al., 2009; Walters, 2008). The case company has a high focus on creating desirable products differentiated for each consumer segment. However, the differentiation and value creation in SCM is extremely limited. One reason is probably that the retailers are responsible for deliveries to the consumers, which makes it hard to align processes over the demand-supply chain.

The sixth and seventh components of DSCM identified in the literature review were innovativeness as well responsiveness in the demand and supply processes (e.g., Canever et al., 2008; Jüttner et al., 2007; Selen and Soliman, 2002). The case company has developed products with high innovation level compared to the industry, but the innovativeness in the supply chain solutions is not as high. The need for reactive/rapid development of products is not considered to be important in the industry, since it is still slow moving. Product delivery is carried out in a flexible manner, making it both reactive and rapid.

The final component of DSCM identified in the literature review was cost-efficiency in the demand and supply processes (e.g., Frohlich and Westbrook, 2002; Hines et al., 2002; Jüttner et al., 2007). The company sources from a low cost country, and has adopted several strategies to reduce costs. However, rising prices in shipments have led to an increase in shipping prices, and the cost focus in sourcing contribute to negative economic effects in inventory management. Albeit not traced, the cost for NPD is kept low by utilizing external personnel on a need basis.

All of the components appear important and applicable in the furniture industry, according to the empirical findings, except one part of component seven. Reactive and rapid product development is not perceived as important in the case company. Due to the long product life cycles it is more important to develop the right furniture. Of the eight components, three (1, 7, and 8) were fulfilled, and five (2, 3, 4, 5, and 6) were not fulfilled at the case company. Albeit component eight is fulfilled, the transportation costs have increased during 2009 and it can be argued that it is fulfilled, but costs are rising due to external circumstances and sub-optimization. Of the ones not fulfilled, three (4, 5, and 6) were almost fulfilled.

4. Discussion

The empirical findings of this research reveal that all of the DSCM components appear vital and applicable in the furniture industry, except one part of component seven. Reactive and rapid NPD is not perceived as important. It is more crucial to develop the right furniture due to the long product life cycles. The case company fulfills three of the eight components (1, 7, and 8); correspondingly five of the components are not fulfilled (2, 3, 4, 5, and 6). Market-

orientation (component 1) can be seen as the heart of the case company's strategy and has allowed it to differentiate itself from the competition and discover new product ideas. Ideas generated through market-orientation are reactively converted into product offerings in NPD, and responsive and rapid product delivery is achieved through forecasting and inventory management (component 7). Cost-efficiency in the demand processes is achieved through a low-cost NPD, and in supply processes through low-cost sourcing and by using a transporter that is able to consolidate goods and have high filling rates (component 8). Although component eight is fulfilled the transportation costs have increased during 2009 and it can be argued that component eight is fulfilled, but costs are rising due to external circumstances and sub-optimization.

Of the components not fulfilled, three (4, 5, and 6) were almost fulfilled. Value creation (component 4), differentiation (component 5), as well as innovativeness (component 6) in the demand and supply processes are not entirely fulfilled due to the low level of supply chain differentiation. This issue is, however, important since the conformity of distribution opportunities in the Swedish furniture industry imply that a firm that device differentiated and value adding supply chain solutions may gain a competitive advantage. Coordination of demand and supply processes (component 2), and viewing the demand and supply processes as equally important (component 3), are not fulfilled by the case company. In fact, the strong focus on DCM without control of the supply chain complexity has caused severe problems with sourcing and inventory management. This stresses that coordination of demand and supply processes and viewing these kinds of processes as equally important are central components of DSCM.

About six years have passed since the company shifted their business model from supply driven to demand driven. They have not actively focused to balance demand and supply processes, rather focused on the demand side of the company, which may be the reason for only fulfilling three out of the eight DSCM components. A more DSCM oriented approach to the new business strategy might have focused on balancing and coordinating components such as components 2 and 3. This raises two questions about DSCM. Firstly, how long time does it take to implement a DSCM business model? The lack in performance the first six years may then be seen as an implementation cost. Secondly, what would the results have been if the company had focus both demand and supply processes? The case company started their change process according to how they perceived market demand, and how they identified a way to differentiate themselves from competition. However, a more balanced demand-supply approach in the business transformation may be a better way to change the management and business directions.

The case company did not adjust its SCM to match the new DCM approach, which created severe problems with sourcing and inventory management. However, the situation with sourcing from China might induce problems beyond the match in the longer term. A widely discussed issue in macro-economics is the valuation of Chinese currency, Yuan (or Renminbi), since China has massive surplus in its trade accounts, which has been one reason for unbalanced growth in world scale after credit crunch (particularly economic growth problems in Europe and USA are good examples out of this). Chinese central bank has still not let the currency float freely, and there is a continuous debate that Yuan is 30-50 % undervalued (Burdekin, 2008; Dorsch, 2010). Like it or not, boom in offshoring and outsourcing to China has been fuelled by Yuan tie-up to US dollar in mid 90's, and as USA has

been on continuous economic problems (particularly in last decade), valuation of this tied-up currency has been low and favorable for export based manufacturing industry. It should be remembered that during 70's Chinese Yuan was valued with roughly two Yuans against US dollar, as this changed in mid 90's to above eight Yuans against US dollar (Burdekin, 2008). Major threat for old west operating wholesalers, who rely mostly on Chinese manufacturing, is that its currency will heavily appreciate in the future, and salaries simultaneously will increase (Harney, 2010). This could mean that manufacturing labor in China would easily demand 1000 USD monthly salaries instead of one or two hundreds. This in turn would make products much more expensive, and squeeze margins of wholesalers in west to loss. A development that, according to the case findings, may be seen in first in manufacturing industries where jobs are not desired due to, for example, unclean working environments.

Since July 2005 Chinese central bank has with rather small steps let the Yuan to be valued in the currency markets in a bit more free fashion (has been enforced more during year 2010; see e.g. Burdekin, 2008, Hilmola 2006). Even if this movement has been rather narrow, implications of it were well existent in credit crunch of 2008-2009. As was shown in analysis that in this period old west sales were severely hit, as was the case with furniture wholesaler Alpha. However, this was not the only harm in business side; e.g. Swedish currency Krona lost approx. 30 % of its value (see Figure 7). So, lower end item demand combined with increasing purchase price was toxic combination, and it is no surprise that deficits were recorded all over of west operating companies.

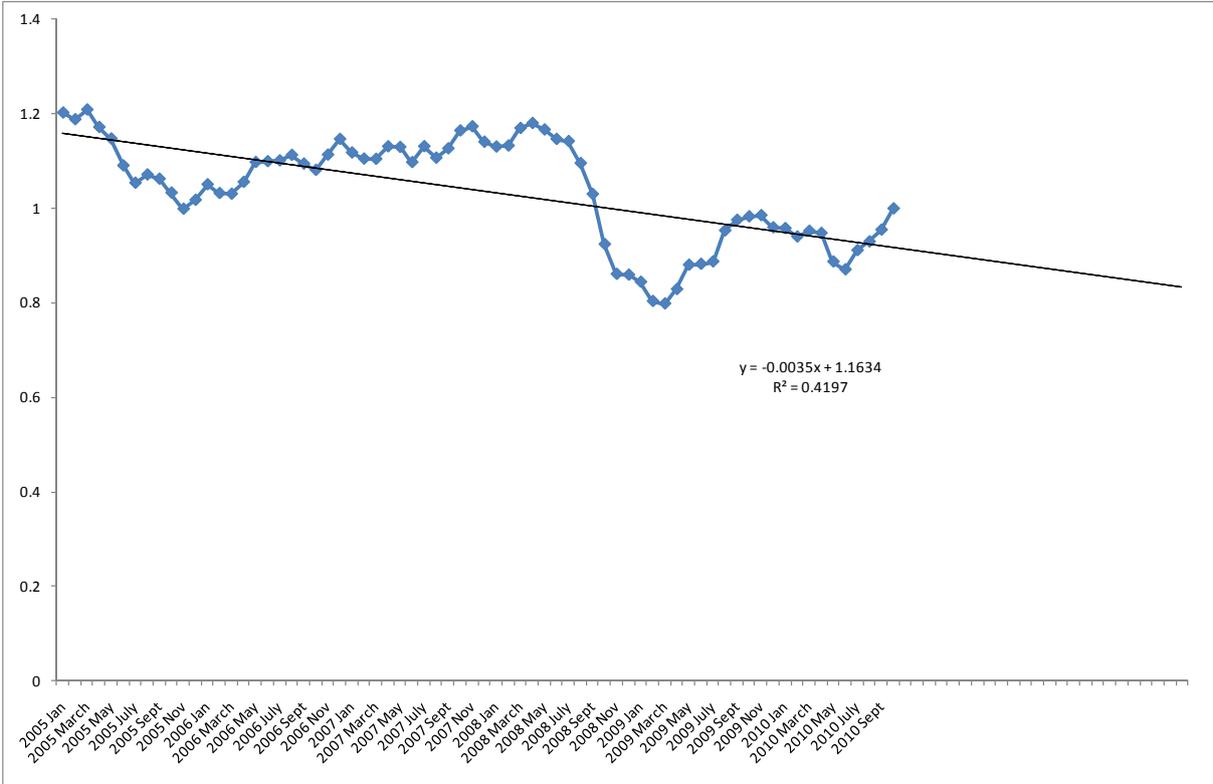


Figure 7 One Swedish Krona as Chinese Yuan during period of 2005.Jan-2010.Oct. Source: Riksbank (2010).

Another factor in improving Chinese economy is logistical. Transportation flows between China and its two most important trade partners, Europe and USA, are severely unbalanced (United Nations, 2005 and 2008; Lun et al., 2009). As was also shown in our case study,

transporting costs of sea containers from China has increased very significantly during recent years. This is mostly caused by the unbalanced transportation situation: Europe will most probably follow USA in development where 75-80 % from containers do return empty to China. Even in the North European level surveys companies (mostly manufacturers) have indicated to use more Chinese manufacturing in the future, which will enforce further this development (Sutela and Hilmola, 2010). So, freight costs from China to Europe will have high probability to increase in the future further.

Among transport flow unbalance, sea based container flows do hold other negative logistics cost implications too. Due to credit crisis, available sea vessel capacity in container business has been too high compared to demand, and this has caused operators to use slower speeds and go around of Africa (instead of using Suez Canal and higher speeds). In low demand environment this will lower total costs of sea vessel operators, and possibly provide some hedge against losses (Stopford, 2009). In the end customers pay the price from this action with longer inventory holding times, and longer delivery lead times. So, end result is higher inventory holding in the supply chain as experienced by Alpha.

Among these above mentioned negative factors, environmental regulations, especially in global transport system will hurt Chinese based sourcing even further. This is due to fact that sea vessel emissions (especially Sulfur) should be radically reduced, which will increase in new investments, slower speeds of vessels in their sea journeys, and in end the lead to higher transportation costs (IMO, 2010).

So, in the supply side we have a lot of harm ahead with Chinese based offshoring and outsourcing strategies. Most probably in medium-term (3-5 years) manufacturing salaries will increase in China, transportation costs to “west” will stay at high levels (or even increase), and inventory holdings in the supply chain are going to increase. This in a time, when demand in west (home markets) is not significantly improving. This in turn greatly questions sustainability of demand-supply chain strategies based on Chinese manufacturing. There exist two ways out of this situation for case study organization type of companies: (1) either further develop demand creation capabilities by attracting high end volumes (more expensive products) from existing home markets, and/or (2) sell more volume to emerging markets (like China, India, Brazil and Russia), instead of old west and current home markets (this latter item is also great challenge for DSCM). Second alternative will most probably lead into products, which are re-engineered from their cost-structure (to attract volumes of emerging markets) – these products could be also sold as “cheap luxury” in old west.

5. Conclusions

This research set out to investigate the occurrence of eight previously identified components of DSCM at a wholesaler in the Swedish furniture industry. The components are (1) market orientation, (2) coordination of the demand and supply processes, (3) viewing the demand and supply chain processes as being equally important as well as (4) value creation, (5) differentiation, (6) innovativeness, (7) responsiveness, and (8) cost-efficiency in the demand and supply processes. This research has contributed to acknowledging the components as important in the furniture industry, except one part of component seven. Of the eight components, three (1, 7, and 8) were fulfilled, and five (2, 3, 4, 5, and 6) were not fulfilled at the case company. Of the ones not fulfilled, three (4, 5, and 6) were almost fulfilled.

The problems experienced by the case company are in line with the potential drawbacks of not fulfilling the components. For example, better balance and coordination between the demand and supply processes could have allowed the case company to undertake DCM with more consideration given to SCM controlling the supply chain related costs. Furthermore, if SCM had higher status it might have been more included in the efforts to create value. Alpha has had major difficulties to handle changes in the market. While the company lost sales it had a cost structure that resulted in negative figures. Hence, with more focus on the supply side (e.g., inventory control, innovative supply chain solutions, better balance between the demand and the supply-side), the company is likely to have been better prepared to face the decline in turnover. This also implies that deficits in DSCM components explain some of the negative effects on the economic performance.

The main theoretical implication is that the DSCM framework has been compared with the furniture industry. The framework was found to be applicable with one minor modification. The main practical implication is that practitioners need to consider the balance between demand and supply processes. They should recognize the importance of organization the firm around understanding how customer value is created efficiently, how customer value is delivered efficiently, as well as how these demand and supply processes can be coordinated. Western companies should recognize that competition through SCM excellence is, in many circumstances, inappropriate and they should instead adopt the principles of DSCM. This generates opportunities to avoid price competition, maintain profit margins, and at the same time, keep production in home market.

In future research, it is important to investigate how the DSCM concept relates to different industries. This may be done with both case studies, and with survey studies. Case studies provide an opportunity to understand the concept in complex settings. However, case studies are time consuming. Survey studies allow researchers to investigate a broad picture. Hence, case and survey studies are great complements in further research. Moreover, there is a lack in research on the business transformation process. The case company clearly displays the uncertainties in how to undertake a transformation process, and what the potential pitfalls may be. With regards to the Swedish furniture industry the two dominant strategies are interesting for further research. That is the wholesaler-retailer industry investigated in this research, and the integrated strategy used by IKEA and Jysk.

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