

# A CONSUMER DRIVEN BUSSINESS MODEL'S IMPACT ON SOURCING AND INVENTORY

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*Increased competition in many markets has forced firms to adopt new business models. One way to differentiate from the competition is to develop products based on implicit consumer needs that may be sold at a premium price. This research uses case study methodology to investigate a Swedish furniture wholesaler, and how their shift to a consumer driven business model has affected sourcing and inventory. The research reveals that the high focus on the demand-side of the company has had detrimental effect on the supply-side. Between 2004 and 2009 the number of stock keeping units increased dramatically, and the sales increased with 22%. Sourcing was affected since the order quantities became smaller, which lead to longer lead times in manufacturing. The inventory levels also increased, as did the average inventory turnover. As the market dropped in 2008 due to the economical situation, the case company was not able to respond to the changes in demand. The main theoretical implication is that the management of the demand- and the supply-side of the firm have to be coordinated on macro level, the main practical implication is that managers needs to devote time to both management directions, and the main social implication is that differentiated supply chain strategies may employ people closer to the consumption market.*

**Keywords:** Consumer driven, sourcing, inventory, furniture,

## INTRODUCTION

During recent decades a new market has evolved to co-exist with the conventional low-cost market. The new market is characterized by rapid and volatile demand changes, short product life cycles, and a high degree of customized products. Companies that want to be competitive in this market need to focus on the needs of the consumers rather than the technology of their products (Christopher et al., 2004). As a result of increased consumer sensitivity consumers have gained power to influence supply chain activities (Leonard and Sesser, 1982; Takuechi et al., 1982). One example of consumers' impact is found in the drug industry as consumer networks' word of mouth became more important than the claimed benefits of the drug (Prahalad and Ramaswamy, 2004). The quest for superior products, however, requires supply chain capabilities that can supply the products (Canever et al., 2008; Hilletoft, 2009; Jüttner et al., 2007; Walters, 2008).

Parallel to the evolution of the marketplace, globalization has changed worldwide business dynamics. Reduction of trade barriers, progress in information technology, and improved transportation infrastructure has facilitated a landscape for global operations (Hilletoft et al., 2007). Countries are no longer isolated entities, but parts of a global trade system (Dreher,

2006). As an attempt to decrease costs and improve competitiveness companies outsource business areas to low-cost countries (Christopher, 2000). The result is complex, world spanning supply chains (Cavinato, 2004). Global supply chains do not only increase geographical distances, but also cultural distances, impairing collaboration (Lowson, 2001; Lowson, 2004, Warburton and Stratton, 2002).

Companies that enter into a consumer driven market environment needs to manage the new market, and the complexity of global sourcing. Activities dedicated to understanding, creating, and stimulating consumer demand is managed with demand chain management (DCM) (Charlebois, 2008; Hilletoft, 2011; Jüttner et al., 2007; Walters and Rainbird, 2004), and supply chain management (SCM) is a set of activities dedicated to the management of supply processes (Gibson et al., 2005; Lummus and Vokurka, 1999; Mentzer et al., 2001). Even though DCM and SCM are of vital importance to all organizations there is a tendency to manage them on micro level, often giving one priority over the other (Hilletoft et al., 2009).

This research investigates a small Swedish furniture wholesaler (Alpha) and how their consumer driven business model has impacted their sourcing, and inventory. In an attempt to differentiate from its competition, Alpha took a strategic decision in 2004 to change their business model. Alpha changed from competing on lowest price, to compete in a premium price range offering added value to their consumers, i.e. from cost driven, to demand driven. The change in business model was primarily focused on DCM capabilities, which has resulted in several innovative furniture solutions, but SCM was given equal attention. The purpose of this research is to investigate how a DCM focused business model affects SCM, more specific sourcing and inventory. The research question is: "How are sourcing and inventory affected by a demand led business model?" The question is investigated through a literature review, and a case study.

The remainder of this paper is organized as follows. In Section 2 a literature review is presented, in Section 3 the research methodology is presented, in Section 4 case study findings are presented, and Section 5 is a concluding discussion.

## LITERATURE REVIEW

Since companies give DCM and SCM unequal attention, it is possible to distinguish demand led and supply led organizations in most industries (Jüttner et al., 2007; Lee, 2001; Piercy, 2002). DCM activities include market intelligence, new product development (NPD), branding, and marketing and sales, SCM activities include sourcing, manufacturing, and distribution (Hilletoft, 2011). Demand chain masters focus on product differentiation, and premium brands and products, and supply chain masters focus on cost reduction (Jüttner et al., 2007). If one management direction is over emphasized it may lead to major difficulties (Walters, 2008). Demand chain activities that not have supply chain support can result in increased costs, and inefficient product delivery, while supply chain activities that lack demand chain support can harm new product development (NPD), cause poor segmentation, and reduce efficiency in product delivery (Jüttner et al., 2007; Piercy, 2002).

It has been proposed that coordination between DCM and SCM should be assigned to either DCM or SCM (Mentzer et al., 2001; Srivastava et al., 1999; Williams et al., 2002), or that DCM and SCM should be coordinated on macro level (Canever et al., 2008; Hilletoft et al., 2009). The latter is called demand-supply chain management (Hilletoft, 2011) and strives to

provide superior value, while minimizing costs (Hilletoft et al., 2009; Jüttner et al., 2007; Walters and Rainbird, 2004). DSCM suggests that DCM and SCM should be aligned, and that they require equal attention (Hilletoft et al., 2010; Jacobs, 2006; Jüttner et al., 2007; Rainbird, 2004). Management may be separated into three levels: long-term strategic decisions regarding structure and design of the chain, medium-term tactical decisions regarding planning of the chain, and short-term executional decisions regarding operation of the chain.

Demand and supply processes are closely related (Eriksson and Hilletoft, 2011; Hilletoft and Eriksson, 2011). Product design, for example, may have an impact on the supply chain performance, but the configuration of the supply chain may help to improve the NPD process (Van Hoek and Chapman, 2006). Cost-efficient creation of superior consumer value relies on: consumer focus in demand and supply processes (De Treville et al., 2004; Heikkilä, 2002; Hilletoft et al., 2009), coordinating value creation and delivery (Canever et al., 2008; Esper et al., 2010; Jüttner et al., 2007; Walters and Rainbird, 2004), a view that demand and supply processes are equally important and manage them in a coordinated manner (Hilletoft et al., 2009; Jacobs, 2006; Langabeer and Rose, 2004; Rainbird, 2004; Walters, 2008), and considering value creation in both demand and supply processes (Hilletoft et al., 2009; Vollmann and Cardon, 1998; Walters, 2008).

One of the most critical DCM processes is NPD, which includes all activities required to present a new or modified product to the market (Cooper et al., 2004; Rogers et al., 2004). The main objective on NPD is to develop products with new or different characteristics as quickly and cost-efficient as possible (Kotler et al., 2009). NPD may result in new products, or upgrades of existing products (Kärkkäinen et al., 2001; Perks et al., 2005). Successful companies develop a holistic NPD process that utilizes a stage gate system (Cooper, 1990). A stage gate system is a process consisting of several stages where the end of each stage is a gate or a checkpoint (Kotler et al., 2009). Empathic design is a technique that may be utilized during early stages of NPD. The goal is, with the use of observation of potential consumers, to identify areas for opportunity that consumers are unable to express (Leonard and Rayport, 1997).

Christopher (1972) was early to point out that differentiated supply chain configurations can make a product appealing to multiple consumer segments. Market intelligence involves activities devoted to collect, analyze and report data related to a certain market situation (Stone et al., 2004), which makes it closely linked to not only the product, but also the supply chain configuration. The importance to look past the product is stressed by MacMillan and McGrath (1997) who suggests that a company should map the consumption chain, i.e. the consumers' whole experience of the product from the time the consumer discovers the product, until it is disposed of. This includes delivery services, storage services, and payment options. The consumers, however, may not perceive the product, and services the same way as the companies intend them. It is thus important to focus on perceived consumer value, and not only the specified value (Parasuraman et al., 1985; Parasuraman et al., 1991).

The most notable taxonomies for supply chain configurations are based on efficient, or responsive supply chains. Lean supply chains focus on removing waste across the supply chain. This includes reduced inventory levels, lead-times, and supplier base, as well as lean manufacturing and just-in-time techniques (Christopher and Towill, 2001; De Treville et al., 2004; Naylor et al., 1999). The agile supply chain focus on the ability to respond to changes in demand. Agility is increased through reduced lead-times, as well as coordinated planning,

improved communication, and sharing of demand information (Christopher and Towill, 2001; De Treville et al., 2004; Mason-Jones and Towill, 1999; Naylor et al., 1999). Lean and agile approaches may be combined to a leagile approach using the Pareto rule (Goldsby et al., 2006), separating base and surge demand (Goldsby et al., 2006), or postponement separating lean and agile approaches in a decoupling point (Alderson, 1950; Buckling, 1965).

Fisher (1997) proposes a taxonomy matching fashion products with agile supply chains, and commodities with lean supply chains. Mason-Jones et al. (2000) suggest that order qualifiers and winners should dictate what supply chain configuration to use. If cost is the order winner, a lean approach should be used, if service level is the order winner, an agile approach should be used. Christopher (2000) proposes that if demanded volume, variety, and variability is stable, a lean supply chain is preferred, and an agile is preferred if the parameters are unstable. Christopher et al. (2006) have a taxonomy based on similar parameters, but add lead-time. If the lead-time is short, and demand is predictable a lean approach based on continuous replenishment is suggested, if the demand is predictable and the lead-time is long, a lean approach based on planning and execution is suggested, if demand is unpredictable and the lead-time is short, an agile approach based on quick response is suggested, and if demand is unpredictable and lead-time is long, a leagile approach based on postponement is suggested. The underlying idea of all models is that agile approaches should be utilized when demand is unpredictable, and lean approaches when demand is predictable.

## METHODOLOGY

This research is devoted to investigating how a demand led business model affects sourcing and inventory. The issue is examined through a literature review combined with findings from an embedded single-case study. The research is explorative, and the researchers have no control over the contemporary events that are examined, which is a suitable setting for case study research (Yin, 2009). Data collection was initiated in 2009 with 60-90 minutes interviews with key informants representing senior and middle management. The interviews have been followed by brief interviews and meetings with all employees. Qualitative data has also been collected from over 20 supply chain partners including manufacturers in China, serving team in China, and retailers in Sweden. Over 600 documents of primary and secondary, qualitative and quantitative, data have been used to provide a broad and rich picture of the studied phenomenon. 96 yearly reports from Alpha and nine of its competitors are used for economical analysis.

The research has been an iterative process with the case company where findings have been discussed, and revisited continuously. Established theories have been used to explain the findings, and to spark new research questions. Several data sources, and theories have been used to triangulate findings and build a chain of evidence. The methods employed have helped to increase validity, and reliability. The generalizability has been increased due to a strong connection to theory (Yin, 2009).

## CASE STUDY FINDINGS

Alpha is a Swedish wholesale furniture company. Its main business activities are design and distribution of furniture. Furniture manufacturing is outsourced to manufacturers in China, and about 400 retailers (customers) are responsible for consumer sales. The retailers are independent from the wholesalers, and each retailer displays furniture from several wholesalers. Alpha had a business model that focused on minimizing costs and prices, but faced fierce competition and decided to change business model to focus on consumer insight.

The company defines consumer insight as a profound understanding for implicit and explicit consumer needs. Consumer insight is gathered during NPD projects and utilized in early stages of NPD when agents from Alpha have been observing and photo-documenting potential consumers in their homes. As a result, the company has developed several furniture collections that provide added consumer value, or cater to a need that was previously unknown.

Since the new business model was adopted in 2004 until 2009, the number of stock keeping units (SKUs) increased with 150%. Between 2007 and 2009 sales figures have dropped for Alpha and its competitors with 39%. The total sales volumes for 2004 and 2009 were almost the same for the investigated companies, while Alpha increased their sales with 22%. During the same time period sales per SKU dropped over 50% for Alpha as a result of the decline in the market place, and the increased amount of SKUs.

The life cycle of products in the furniture industry may span from the time it takes to sell one container, to over 50 years. Due to long life cycles of successful furniture, it is perceived to be more important to have an accurate NPD process, than a fast one. The volume value of furniture is rather low, so companies need to consider filling rates in transportation. Sofas, for example, are often sourced from European manufacturers to reduce transportation cost. The case company's product range includes most furniture for the home, except for office furniture and sofas.

The sourcing side of the case company's supply chain is shown in Figure 1. Alpha monitors its supply chain back to the manufacturer. Manufacturers have the responsibility to source raw material and hardware. However, materials and hardware are chosen in collaboration with the manufacturers to ensure stability in sourcing and to enable monitoring prices. A serving team in China is employed to bridge geographical and cultural distances. The serving team has close collaboration with Alpha. Their main tasks are to perform quality controls in manufacturing, monitor manufacturing facilities, and manage operational tasks with the sending ports. Due to the importance of filling rates in container, the serving team may consolidate products from factories within close proximity.

Containers are shipped from five ports in China to the port of Gothenburg. About 96 % of the containers are then transported by truck to Alpha's distribution center (DC) the rest is shipped directly to retailers. Products that are shipped directly to retailers are key account customers, where Alpha provides knowledge about the Chinese manufacturing market. These products have low contribution margins, but also lower risk since Alpha does not need to consider forecast error. The products that are shipped to the DC are stored there until a consumer places an order in a store, and distribution from the DC is initiated. This research is focused on the products shipped to Alphas DC.

The new business model has resulted in an increase of SKUs, which in combination with decline in sales and the global economical situation has had big impacts on sourcing. The high increase in SKUs compared to sales has made the order quantities smaller. This has had two impacts on manufacturing. Firstly, the orders are too small to fill up a production line, for example painting. Secondly it is troublesome for many manufacturers since they deal with large order sizes from their other customers. The manufacturing environment is not suitable for small order sizes. Some manufacturers have started to produce larger quantities than the actual order quantity and take the risk of inventory in anticipation on future orders. Other manufacturers have down prioritized Alphas orders. In some cases the purchasing manager

has been forced to place orders that are larger than preferred to secure manufacturing, and to hedge against future uncertainty in manufacturing. The average lead-time in manufacturing has increased with 50%.

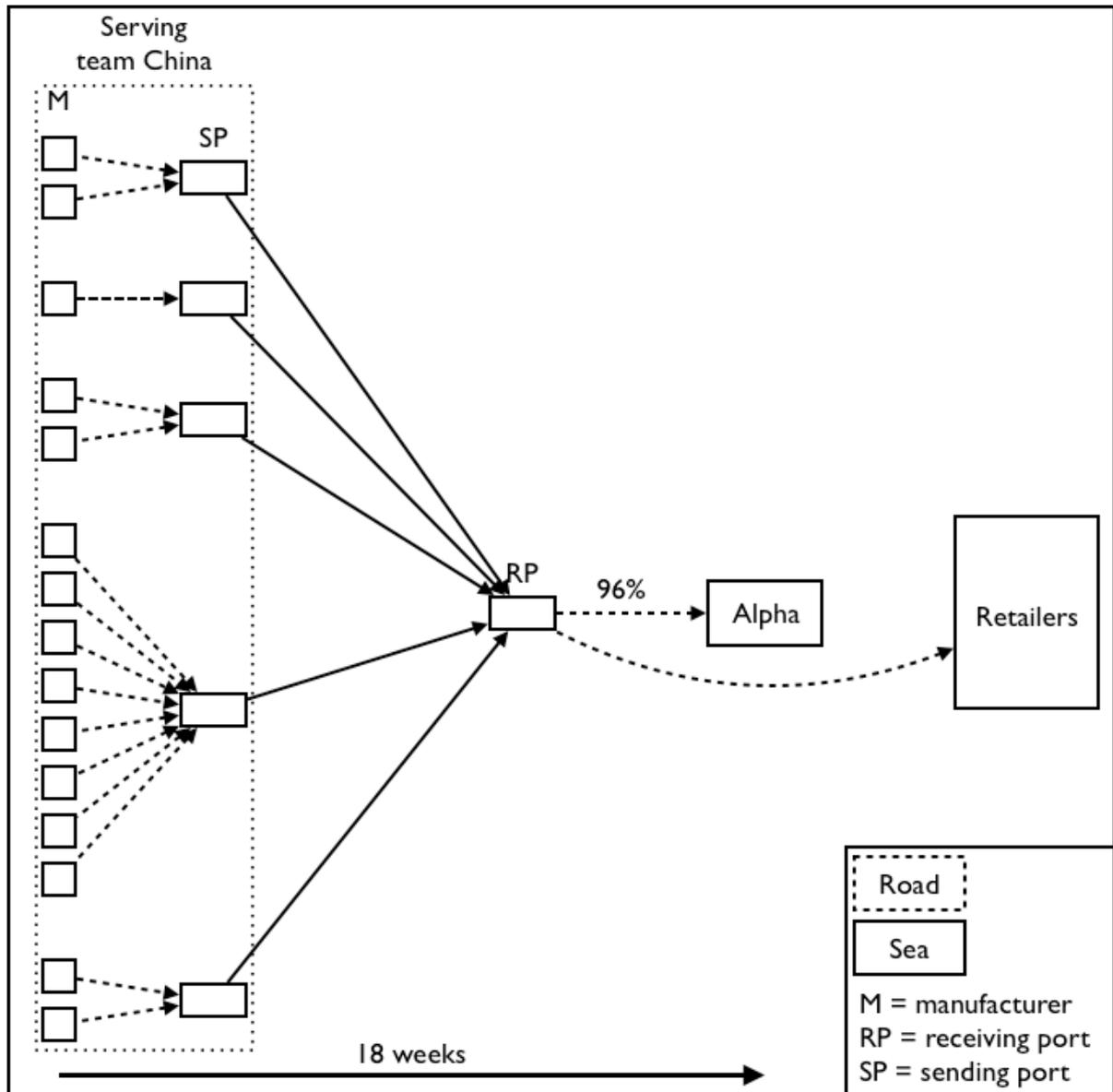


Figure 1: Alpha's sourcing system

One issue with Chinese manufacturing is the quality of the furniture demanded by Swedish consumers. The Swedish market has a demand for furniture in a pristine white finish. In other countries, such as Norway, brown furniture has higher demand, and in the United States, there is big demand for furniture with a distressed look. Brown furniture is not as sensitive to a dirty manufacturing environment as white, and furniture with distressed look is treated with chemicals that produce a dirty finish. A dirty environment is not as expensive as a clean working environment, and since the Swedish market is small for Chinese manufacturers, the manufacturing plants are constructed with a dirty environment. Just before the end of 2009 the serving team called Alphas attention to two containers of furniture with dust grains in the lacquer, which were stopped before shipment.

The increased number of items and smaller order quantities have resulted in longer times to fill a container, and increased the need for consolidation. The result is not only longer lead-times, but has also increased the complexity with more SKUs per container. Furthermore, due to the global economical situation shippers have reduced the speed of their ships to save fuel. The end result is that also shipping lead-times have increased with about 50%. The total lead-time has increased from about 12 weeks, to about 18 weeks.

The case company's inventory has increased with 67% between 2004 and 2009. During the same time period the inventory levels for Alpha and its competitors increased with 28% (Figure 2). Average turnover time in inventory for Alpha increased from 60 to 82 days, and from 52 to 65 days for Alpha and its competitors. The increased turnover time for Alpha is a result of the need to increase order sizes, and poor ability to adopt their business to the market decline.

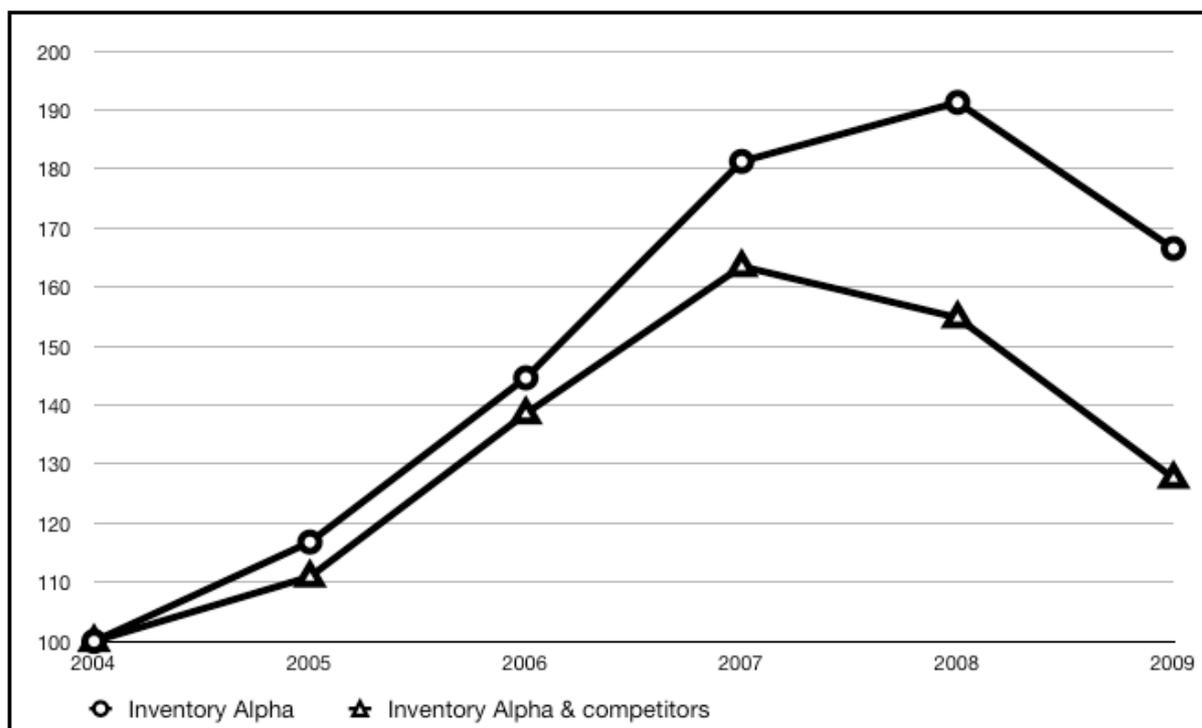


Figure 2: Inventory levels, 2004 indexed 100

A one-year sales period starting in the summer of 2009 was compared with the inventory levels at the time (see Figure 3). To be able to compare the inventory with the sales 60% of the total article number had to be excluded due to discontinued products, and traceability in the data. Albeit a large piece of data is removed one finding is remarkable. 66% of the SKUs had one year or more of the demand in inventory, and the SKU with the longest inventory time would last over 52 years with current demand. In total there were 157 pieces of that particular SKU in stock and 3 were sold.

The case company has been focusing primarily on its demand chain processes, which has resulted in several new products offering added value. The technique for gathering consumer insight is very similar to the observation techniques of empathic design. However, the increase in article numbers, and the inability to adjust the business to changing market conditions have had detrimental effects on both sourcing and inventory. The sourcing

strategy has a lean approach, but limitations and pressure from manufacturers have forced Alpha to place large orders.

The same sourcing strategy is utilized for all products, but the solution does not correspond well to the structure of the supply chain, nor the business model. In essence, there is bad fit between Alpha's DCM, SCM, and its ability to respond to changes in the market. Contrary to proposed models for supply chain configuration, fashionable products in the furniture do not have short product life cycles per se, and NPD does not need to be quick to respond to changes in demand.

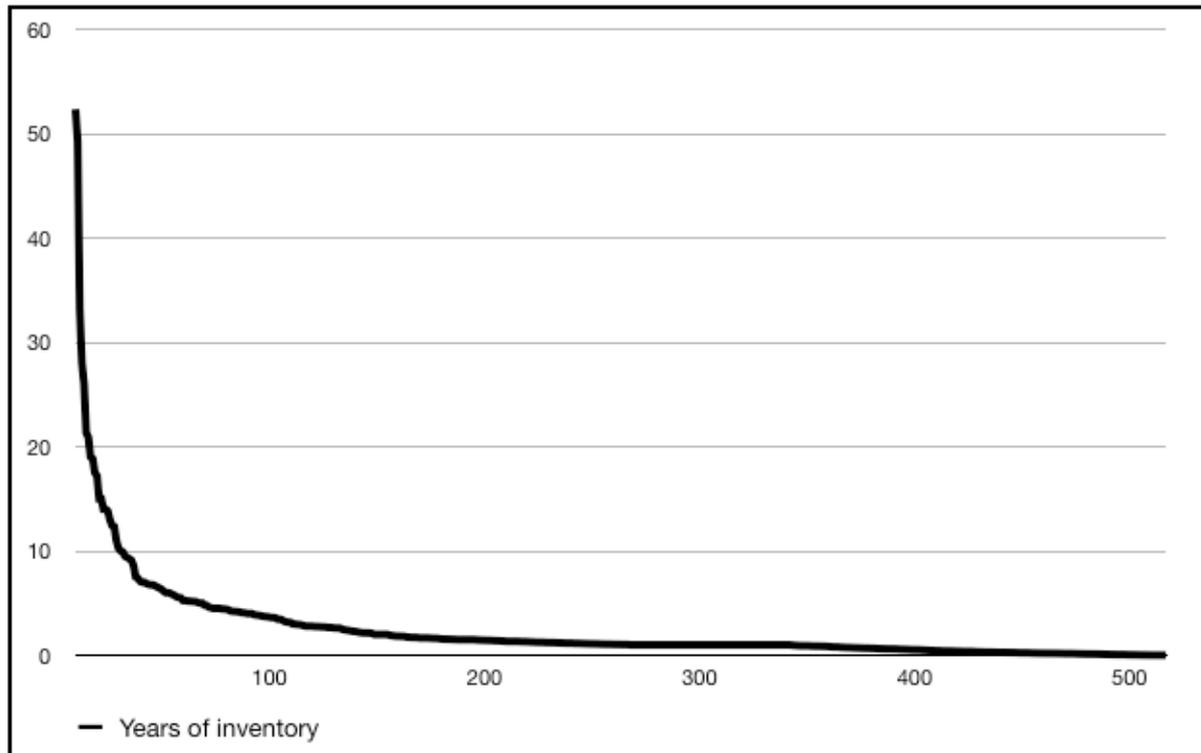


Figure 3: Years of inventory

The connection between market intelligence, NPD, and sourcing is a good example of the close relation between DCM, and SCM. The case company has mainly focused on DCM processes, which has made the SCM processes inefficient. Moreover, the inability to respond to changes in the marketplace stresses the need to not only align processes internally, but in a way that enables them to change according to changes in the marketplace. The rigidity in Alpha's supply chain could be loosened up if leagile principles were adopted, such as using the Pareto rule to differentiate sourcing country based on predicted demand on the individual products.

### CONCLUDING DISCUSSION

This research set out to investigate how sourcing and inventory are affected by a demand led business model. In this case the consumer oriented business approach has shown detrimental effects on both sourcing and inventory. Sourcing lead times has increased, sourcing complexity has increased, and the manufacturing country may not be suitable. Inventory levels has risen in comparison to sales, which has led to longer average turnover time in inventory. The case company is theoretically sampled, and it is not true to say that a consumer driven business model per default causes problems in SCM, but there is strong

support in theory that states that DCM, and SCM needs to be coordinated to create a competitive advantage. If DCM, and SCM were better managed on a macro level many of the problems may have been avoided. If, e.g. sourcing strategies were differentiated the higher cost of manufacturing might be acceptable due to increased responsiveness to changes in demand.

The main theoretical implication is that consumer driven business models needs to be coordinated according to DSCM theories, i.e. on macro level, to avoid sub-optimization of the management directions. The research also highlights that market orientation, or consumer insight as in this specific case, alone is not a path to success. The main practical implication is that managers need to devote time to align DCM, and SCM. Managers that want to pursue a premium market should not only focus on the elegance of their products, but also need to device a SCM strategy that is coordinated with the DCM strategy. The main social implication is that differentiated sourcing may move employments from low cost countries closer to the consumer market. The problems with manufacturing sofas in China is a good example of how supply chain strategy may have a social impact, as manufacturing has been moved to Europe.

Globalization and the quest for lower prices have caused manufacturing companies to outsource production activities to low cost countries. The move to global sourcing, however, may come at a cost that is larger than the cost savings in manufacturing. The case company suffers from several issues due to their sourcing strategy. The manufacturing industry in China is not suitable for the quality demands, nor the requested volumes. The result is poor efficiency in sourcing, and inventory. Alpha's consumer driven business model has increased the number of products, and the more the model is implemented the more it is likely to cause harm to the efficiency in the supply chain. Companies that device a business strategy similar to the one of the case company may need to reconsider the relentless quest for decreased manufacturing cost, and instead consider the total cost. Sourcing from countries closer to the consumption market may increase manufacturing cost, but if the supply chain strategy is differentiated based on the Pareto rule only products with low turnover will be affected.

It has only passed 6 years since Alpha changed their business direction. It is still not possible to say if the shift in business direction was a wise choice, and that the issues caused to SCM might just be an investment cost for the new business direction. However, if the change in business direction was undertaken with stronger theoretical support, it is likely that the investment cost would have been lower. This research has only investigated one company. Even though findings are in line with theory, more research is needed to truly understand how consumer driven business models affects SCM processes. Moreover, to fully understand the case company's situation would require that studies continue for several years.

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