Challenges to the lego group

In the recent times worldwide economy has become highly volatile and was vulnerable to a multitude issues. One such example is the latest financial crisis. Such volatility creates a variety of challenges to small and large enterprises around the globe. One of the biggest challenges for manufacturing companies is to deal with rapidly increasing globalization and competition. The solutions require the development of agile and rapid supply networks in order to cut costs and meet demand. Producers are becoming more aware of supply chain management. This awareness shifts the focus from internal logistics efficiency to the external network of relationships between various parties in the supply chain.

The well-known Danish toy manufacturer LEGO has not been insusceptible to these changes. LEGO has faced major challenges, which required drastic changes within the organization. This included a transformation of the company's supply chain management system. LEGO Group had to deal with probably the most significant financial crisis since the company was founded in 1932. LEGO's crisis was not clearly visible from the outside. In fact LEGO had maintained brand recognition. This earned them the title " Toy of the Century" from the British Association of Toy Retailers and " Fortune" magazine. LEGO was the fourth largest toy manufacturer in the word and had sold US$1. 35 billion worth of toys in 2004. In spite of this success, the company was losing money since 1998. LEGO had various internal operational issues. This included a complex and ineffective supply chain, which at one stage consisted of 11, 000 contractors. In an attempt to address this problem, in 2004 LEGO board of directors set a goal to cut 20 percent of logistic costs. This resulted in the risky decision to outsource a

major part of the production to Flextronics, a Singaporean electronics manufacturing services provider. LEGO also established a single distribution center in the Czech Republic operated by DHL. (M. M. Larsen, T. Pedersen, D. Slepniov 2010; K. Oliver, E. Samakh, P. Heckmann 2007; J. A. Cooke 2009)

Such a risky decision involved a long-term relationship with Flextronics that was not without challenges. In this research paper an overview of challenges and solutions of the case company LEGO Group will be presented. The main focus will be on LEGO's supply chain management system transformation, which was a major step towards success. The following research questions will serve as guidelines for this paper:

- What challenges did LEGO Group face and what decisions were made to address those problems?
- How did Supply Chain Management transformation helped to deal with these issues?

In this paper we will first explore the Supply Chain Management (SCM) concepts. Next the case company LEGO Group will be introduced. We will then present overview of the challenges that LEGO Group has faced. The focus of this paper will be the SCM decisions that were made to deal with these problems.

SUPPLY CHAIN MANAGEMENT CONCEPT

The globalization is increasing competition and forming new conditions for conducting business. This requires companies worldwide to rapidly respond to their customers' demands and develop products. These companies must

also apply information technologies in supply chain collaboration (J. S. Arlbjørn et al. 2006)

Such conditions increased the importance of logistics and SCM role within organizations as it can become a major competitive advantage. Commonly, the major improvements in logistical functions may not be needed within the organization itself. It may be more beneficial to analyze the organization's supply chain. This involves various interdependent parties. SCM co-operation is gaining in major strategic importance and usually includes such characteristics: co-operating is based on end user requirements, long term co-operation and high trust between actors in the supply chains or networks, shared risks and benefits, cross coordination on various levels between companies, shared visions and similar company cultures. The advantage of such close co-operation is a more transparent supply chain. This can lead to reduced lead-time, lower uncertainty, optimization of stocks and higher capacity utilization. (T. Skjoett-Larsen 2000)

The concept of SCM often represents the broader view of logistics as its main function is to ensure the smooth flow of materials from suppliers to organization and then out to customers through the operations within the organization (D. Waters 2003). The purpose of SCM can be described as to remove redundancies and communication barriers through coordination, monitoring and control functions (D. Power 2005). The supply chain usually consists of different organizations and processes, which are aimed to ensure the smooth flow of materials from the initial supplier to the end customer. In many cases, manufacturers get their materials from a large number of suppliers and sell to different customers, which is the case with LEGO Group.

In figure 1, you can see an example of the supply chain around a manufacturer. Materials move from several tiers of suppliers though organization to several tiers of customers, such as wholesalers, retailers and end users.

Figure 1: Supply chain of manufacturer (D. Waters 2003, 9)

The toy industry is one of the oldest creative industries in the word. However, C. Y. Wong, J. S. Arlbjørnand J. Johansen in their study named “ Supply chain management practices in toy supply chains”(2005) state that such creative business is very seasonal and volatile with strongly fluctuating demands, very short and specified selling windows as well as short product life cycles. Moreover, the toy industry can be described as intensely competitive on pricing and innovation, where retailers often start competing with their suppliers. The authors conclude that most retailers and manufacturers use a “ push” business model. This model includes low utilization of technology and information sharing as well as slow implementation of supply chain initiatives.

INTRODUCTION TO THE CASE COMPANY: LEGO GROUP

LEGO can be certainly defined as one of the most famous brands in the toy industry. The Danish company’s toys are enjoyed worldwide by children and adults alike, who use thousands of different pieces to construct buildings, robots and other toy. In 1932, Ole Kirk Christiansen, a Danish carpenter founded a company named LEGO (Danish words “ Leg” and “ Godt”, meaning “ play well”). Originally a woodworking business for furniture, LEGO

began producing children’s toys in 1934. The company presents itself by stating: “ It is LEGO philosophy that “ good play” enriches a child’s life – and its subsequent adulthood. With this in mind, the LEGO Group has developed and marketed a wide range of products, all founded on the same basic philosophy of learning and developing – through play.” In figure 2 the core building blocks of LEGO Group are presented. (M. M. Larsen et al. 2010; LEGO Group, Corporate Communications 2009)

Figure 2: The LEGO Company (LEGO Group 2010)

Pursuing such a philosophy, LEGO has grown tremendously since its establishment. By 2009 the company was the world’s fifth largest toy manufacturer in terms of sale with 290 Million US Dollars in revenues and approximately 7000 employees around the globe. The LEGO brick which is possibly the best known toy was first introduced and patented in 1958. It has since then represented the core success and image of this company. With two just bricks there are 24 different combinations and with six there are 915 million possibilities. This enables limitless creativity. As previously stated, before LEGO brick was named as “ Toy of the century” by Fortune magazine and later by British Association of Toy Retailers as well. (M. M. Larsen et al. 2010; J. Tidd, J. Bessant 2009)

http://cache. lego. com/r/aboutus/-/media/About%20Us/Media%20Assets%20Library/Logos%20Bricks%20and%20Generic%20images/ts. 20120125T101709. 2x4brick_red. jpg

Picture 1: Lego brick (source lego. com)

Segmented product categories include:

Pre-school products – for the youngest children, who had not started the school yet, includes LEGO DUPLO products.

Creative building – sets or buckets of LEGO bricks without instructions.

Play themes products – the products with particular stories, such as airports, racing tracks and hospitals, including LEGO City line and BIONICLE.

Licensed products – related to movies and books, such Harry Potter, Star Wars and Indiana Jones.

MINDSTORM NXT – programmable robot kit.

LEGO education – products that are developed for educational purposes.

LEGO Games – new product line started in 2009 for board games.

LEGO operates in over 130 countries worldwide. The company’s largest market in the U. S., with together Australia, New Zealand and UK accounted for 30 percent of revenue in 2007. Despite constant challenges and growing popularity of consumer electronics, LEGO is continuing to expand. (M. M. Larsen et al. 2010)

Crisis and solutions

In the late 1990’s, the company started to have difficulties. This resulted in a major crisis and almost ended in bankruptcy by 2004. LEGO was losing huge sums of money every day, estimated at economic losses of 375. 4 thousand U. S. dollars per day since 1998. When sales dropped 40 percent in 2004, it

was clear that radical changes had to take place. There are many speculations, why such a well-known and previously successful company started running on tremendous losses. (M. M. Larsen et al. 2010)

One possible reason was increasing competition in their main product area. This was disruptive at its nature. One such example is the Canadian company “ Megabloks”. This company offers a wide range of building toys at a highly competitive price. Also, the increasing popularity of computer games reduced the demand for traditional toys. Another possible factor was the over diversification of product line as LEGO moved into more areas like theme parks , apparel, clothing, television and even computer games. Such diversification was a result of, as the company claims, a loss of confidence in their core product – the Lego brick. The increased complexity of product portfolio confused not just the customers, but employees as well. (M. M. Larsen et al. 2010; J. Tidd, J. Bessant 2009; K. Oliver et al. 2007)

It was mentioned before that LEGO GROUP had around 11, 000 suppliers, which was twice the number that Boeing used to build its aircraft. Such inefficiency and inflexibility was soon recognized and attention was directed to the supply chain, which was 10 years out of date. Moreover, low quality customer service and product availability decreased the value of company’s franchise. Jørgen Vig Knudstorp, newly appointed CEO, stated: “ From my perspective, the supply chain is a company’s circulation system. You have to fix it to keep the blood flowing.” (M. M. Larsen et al. 2010; K. Oliver et al. 2007)

It was acknowledged that solving problems related to global supply chain could build a strong base for major changes in the organization. This could also be the needed step forward towards cost-effectiveness and an improved business model. However, such big changes are not easy to implement and presented significant challenges for LEGO Group

Transformation of supply chain management

LEGO Group decided to optimize their supply chain in order to deal with the most significant crisis in the company's history. LEGO realized that it was dragging behind retail giants such as Wal-Mart and Carrefour. These companies had invested huge amounts of recourses into sophisticated and efficient supply chain management systems. LEGO Group started losing the competition to companies, which optimized their costs and provided just-in-time services to its customers (K. Oliver et al. 2007). Transforming such a gigantic and complex supply chain as well as removing the inefficiencies was a very challenging goal. Keep in mind that by 2004 company had around 7000 employees working mainly in two factories and three packaging centers, located in different countries. Further issues and changes within different areas of supply chain management will be discussed, including product development, distribution and manufacturing.

Product development

Product development and innovation was extremely important for LEGO as it presented the core of what this company was really about. Changes in this field were difficult to implement. This was in part because of its delicate nature and inside resistance from employees. LEGO's development lab called

“ Kitchen” was steadily producing new innovative products and ideas. However, management realized that new products were returning less profit and cost more to produce. Developers and designers did not account for production and supply chain issues, in their designs. Consequently, the variety of various components and features as well as product complexity became overwhelming and started to cause major problems in manufacturing and distribution. LEGO bricks and other elements came in more than 100 color tones. LEGO sets became increasingly elaborate with thousands of different figures. (M. M. Larsen et al. 2010; K. Oliver et al. 2007)

Such cost ineffective creativity caused problems like large stocks. This was because of seasonal demand fluctuations and short delivery times. Moreover, large amount of components and products required large investments in molds, while just 30 products generated 80 percent of company’s sales. Therefore, LEGO decided to drastically cut down the number of components and features. This reduced costs in the supply chain and created a better opportunity for production outsourcing. Management revised a number of daily solutions in order to cut the costs, simplify production and eliminate inefficiencies. The palette was decreased to around 50 colors. A major reduction in variety of pirates, police officers and other figures was recommended as well. Moreover, resin-sourcing analyzes helped to cut its resin costs in half and reduce supplier number by 80 percent. Simultaneously, LEGO Group’s operational team created cost matrixes and revised set of rules concerning creation of new colors, components and ordering of new materials. Such step helped product developers to choose

more cost-effective solutions and recognize the limitations. (M. M. Larsen et al. 2010; K. Oliver et al. 2007)

Distribution

Another area of LEGO's supply chain that required major improvements and cost reductions was distribution. At that time LEGO served thousands of smaller stores with a great responsibility. This came at a very high price, although those shops accounted just for one third of its revenue. Company had increasing amount of inventory and lost sales, because of multiple-tier inventory system to serve smaller customers from different distribution centers. The redefined distribution policies had to be developed in order to avoid costly small deliveries and labor costs associated with " pick-packing" in the distribution centers. (M. M. Larsen et al. 2010; K. Oliver et al. 2007)

In order to serve customers in 130 countries around the world, LEGO had 11 warehouses and distribution centers in high-cost countries like Denmark, France, Germany and Switzerland. LEGO also employed 55 transportation providers for inbound and outbound shipments. In order to move its distributions closer to the customer and reduce exploding transportation costs, the company defined clear service policies. This helped to shift the focus to major retail chains. This also provided for more accurate demand forecasts, reduced complexity and certainly the costs of distribution. Furthermore, LEGO Group decided to centralize its distribution by closing five distribution centers in Europe, and creating a single distribution center near Prague in the Check Republic. The country was mainly chosen because of a high availability of skilled low cost labor. LEGO leased large buildings from the commercial realtor ProLogis. LEGO also decided to outsource operations

to third-party logistics company – DHL supply chain. (M. M. Larsen et al. 2010; K. Oliver et al. 2007; J. A. Cooke 2009)

By 2007 a newly consolidated distribution center was serving all of LEGO's markets except the U. S., where Exel Inc. was responsible for distribution operations. Such changes reduced the complexity of supply chain, simplified the inventory optimization and reduced average distances to the market. This lead to increased customer satisfaction and significantly reduced overall logistics costs. Despite the outsourcing, LEGO maintained close collaboration with its carriers and still makes many decisions. The results of such collaboration are reduced negative effects of market seasonality. Moreover, by applying developed Web-based transportation management system LEGO was able to change the shipment scheduling and improve load consolidation. (M. M. Larsen et al. 2010; J. A. Cooke 2009)

Manufacturing

The improved production in the supply chain was probably the most important and complicated step. The challenges came from the way LEGO organized its production facilities and the complexity of manufacturing operations. In some way chaotic production operations resulted in low 70 percent of overall capacity utilization. There were hundreds of independent production units within the facilities that could place their orders in any manner. This was often without balancing supply capabilities, inventory levels and demand needs. Consequently, such fragmented system did not support long-term planning and resulted in high costs and low efficiency. Moreover, the production sites were located in high-cost countries as Denmark, United States and Switzerland, while just 10 percent of production

was outsourced to China. Production sites mainly operated according the branding strategy, where, for example, Swiss factories only manufactured DUPLO and Technic products. (M. M. Larsen et al. 2010; K. Oliver et al. 2007)

One of the first steps was to set clear production cycles for machines instead of having them available to produce any element at any time. This approach helped to reduce constant and costly retooling as well as balance production operations. Furthermore, orders were set in the monthly meetings in that way eliminating the number of changeovers (K. Oliver et al. 2007). However, the major decision concerning production operations was to outsource large part of the production to external packaging and manufacturing service providers. One of the reasons was to cut the costs by moving the production from high-cost countries. Another reason was to reduce the number of subcontractors and utilize the economies of scale, having in mind that LEGO was producing about 24 billion bricks per year (M. M. Larsen et al. 2010).

Consequently, the production capacity in Denmark was reduced and sites in Korea and Switzerland closed. LEGO Group engaged into cooperation with packaging service suppliers: “ Sonoco”, “ Greiner”, “ Weldenhammer” and “ 2B Pack”. The most risky and complex partnership was made in 2006 with Flextronics, a Singaporean based electronics manufacturer. Several product lines, like Bionicle and Technic was still mainly retained by LEGO, but the higher volume and more simple Duplo and System lines were handed to Flextronics production sites in Hungary, Czech Republic and Mexico. This helped to reduce the distance to customers. However, the relationship was not successful and contract with Flextronics was terminated from January 1, 2009, while LEGO continued with smaller outsourcing contracts. The main

reasons for the failure are connected with delicate nature of toy industry and could be described in short (H. B. Dinitzen, D. Bohlbro 2010, 71-72; M. M. Larsen et al. 2010):

65% percent of production had to be done during the third quarter of the year – main holiday season.

Products have a lifetime of 16-18 month.

Sales uncertainty is around 30%.

In figure 3, the timeline of LEGO and Flextronics cooperation is presented, including goals and challenges. Despite the failure, LEGO Group has learned a lot from this outsourcing attempt, which had a positive impact in the end.

Figure 3: The timeline of LEGO and Flextronics collaboration (M. M. Larsen et al. 2010, 16)

In 2008 LEGO started the process of sourcing back the production, while the first factory in the Czech Republic was taken over, followed by Hungarian and Mexican facilities. In Mexico, LEGO Group eventually moved the production to a new plant, which started operating in first quarter of 2009. The final benefits of collaboration were connected mainly with gained experience in various operational fields. It helped to establish new facilities in Mexico and Hungary, while production units were no longer following branded approach, but instead serving its respective markets. Moreover, LEGO significantly improved documentation and standardization of business processes. Standardization resulted in almost halved size of components,

from 12, 000 in 2004 to 6000 in 2008. This enabled more flexible, efficient and smoothly running supply chain. (M. M. Larsen et al. 2010)

CONCLUSIONS

In the end it can be stated that by taking clearly defined and harsh restructuring strategy, LEGO Group was able to defeat the crisis and become one of the successful and largest toy producers again. This statement can be backed up by financial figures, which indicate that in 2008 and 2009 company reached profit of DKK 315. 6 million and 375 million U. S. Dollars, respectively. This was the highest in LEGO Group's history. (M. M. Larsen et al. 2010)

A significantly restructured supply chain helped to increase the efficiency of major business operations as well as increase the overall customer satisfaction. LEGO managed to reach and, in some levels, even pass its competitors, while still cooperating with biggest retailers in such fields as joint forecasting, inventory management and mass customization. However, such transformations required dealing with many challenges, including terminated cooperation with Flextronics. Nevertheless, it gave LEGO valuable knowledge about outsourcing operations and its inner characteristics. In the end, unsuccessful outsourcing practice resulted in factories in Denmark, Czech Republic, Mexico and Hungary, which gave the needed supply chain flexibility in order to meet the global demands.

Improved parts of supply chain such as product development, sourcing, distribution and manufacturing creates a well developed business model that serves as a major competitive advantage. Finally, after successful supply

chain transformation, LEGO Group can shift more attention to increasing the satisfaction of its customers by developing well-liked toys for children and adults.