THE LEGO GROUP: AN OFFSHORE OUTSOURCING JOURNEY TOWARDS A NEW FUTURE

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Prologue

The last years’ rather adventurous journey had taught the fifth-largest toy-maker in the world — the LEGO Group — the importance of managing the global supply chain effectively. In order to survive the largest internal financial crisis in its roughly 70 years of existence, resulting in a deficit of DKK 1.8 billion in 2004, the management had among many initiatives decided to offshore and outsource a major chunk of its production to Flextronics, a large Singaporean electronics manufacturing services (EMS) provider. In this pursuit of rapid cost-cutting sourcing advantages, the LEGO Group planned to license out as much as 80 percent of its production besides closing down major parts of the production in high cost countries. Confident with the prospects of the new partnership, the company signed a long-term contract with Flextronics. “It has been important for us to find the right partner,” argued Niels Duedahl, a LEGO vice president, when announcing the outsourcing collaboration, “and Flextronics is a very professional player in the market with industry-leading plastics capabilities, the right capacity and resources in terms of molding,
assembly, packaging and distribution. We know this from looking at the work Flextronics does for other global companies.”

This decision should eventually prove itself to have been too hasty, however. Merely three years after the contracts were signed, the LEGO management announced that it would phase out the entire sourcing collaboration with Flextronics. In July 2008, executive vice president for the global supply chain, Iqbal Padda, proclaimed in an official press release that “we have had an intensive and very valuable cooperation with Flextronics on the relocation of major parts of our production. As expected this transition has been complicated, but throughout the process we have maintained our high quality level. Jointly we have now come to the conclusion that it is more optimal for the LEGO Group to manage the global manufacturing set up ourselves. With this decision the LEGO supply chain will be developed faster through going for the best, leanest and highest quality solution at all times.”

This sudden change in its sourcing strategy posed the LEGO management with a number of caveats. Despite the bright forecasts, the collaboration did not fulfill the initial expectations, and the company needed to understand why this had happened. Secondly, what could the LEGO management have done differently? Arguably, with little prior experience in outsourcing this large amount of production, the LEGO Group had a limited knowledge base to draw on to manage a collaboration like this. Yet, with Flextronics’ size and experience with original equipment manufacturers (OEMs), this should in theory not have been a problem. Lastly, one could ponder whether the unsuccessful collaboration with Flextronics had been a necessary evil for the LEGO Group. The LEGO management’s ability to handle its global production network after Flextronics

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had surely changed, and aspects like standardization and documentation had to a much larger extent become valued.

**Introducing the LEGO Group: Only the Best is Good Enough**

The LEGO Group’s vision was to “*inspire children to explore and challenge their own creative potential*”. Its motto, “*Only the Best is Good Enough,*” had stuck with company since 1932 when Ole Kirk Christiansen, a Danish carpenter, established the company in the small town of Billund in Jutland, Denmark, to manufacture his wooden toy designs. As the company itself stipulated it: “*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.*”\(^3\) With this simple idea, the company had through its history grown into becoming a major multinational corporation, and was by 2009 the world’s fifth largest manufacturer of toys in terms of sale. The same year, the Group accounted DKK 11.7 billion in revenues and DKK 2.2 billion in profits, and had a workforce of approximately 7,000 employees around the world (see Exhibit 1).\(^4\) Its corporate management consisted, besides the chief executive officer and the chief financial officer, of four executive vice presidents with respective business areas (markets & products; community, education & direct; corporate centre; and global supply chain) (see Exhibit 2).

**Products and Markets**

\(^3\) LEGO Company Profile 2009.
\(^4\) LEGO Annual Report 2009.
The LEGO brick was the company’s main product (see Exhibit 3). The iconic brick with the unique interlocking tube principles offering unlimited building possibilities was first introduced in 1958 and had basically remained unchanged ever since. The underlying philosophy of the brick was that it would stimulate creative and structured problem-solving, curiosity, and imagination. In the company’s own words: “*In the hands of children, the products inspire the unique form of LEGO play that is fun, creative, engaging, challenging — all at the same time. [...] We strive to accomplish this by offering a range of high quality and fun products centred around our building systems.*”\(^5\) The simple, yet multi-functional and combinational structure of the brick (there were as many as 915 million possible combinations to choose from with six eight-stud LEGO bricks of the same color) had therefore been core to the company’s history and success. In fact, the LEGO brick had been rewarded the “*Toy of the Century*” by both Fortune Magazine and the British Association of Toy Retailers.\(^6\)

To segment the products, however, a number of categories had been created: First, *pre-school products* comprised products for the youngest children who had yet to start school. The LEGO DUPLO products were examples of this. Second, the *Creative Building* category targeted sets or buckets of traditional LEGO bricks without building instructions. Third, *play themes products* were the products that had a particular story as their basis. This could be themes as airports, hospitals, and racing tracks. The classic LEGO City line and futuristic BIONICLE theme products were examples of this. Fourth, and related to the play themes, were the *licensed products* which were built up around movies or books that the LEGO Group had acquired the rights for. Harry Potter, Star Wars and Indiana Jones were such themes. Fifth, *MINDSTORM NXT* was a programmable robot kit, where consumers could construct and program robots to perform different tasks and

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\(^6\) LEGO Company Profile 2009.
operations. Sixth, *LEGO Education* comprised products that had been specifically developed for educational purposes.⁷ And last, in 2009, the LEGO Group made its first move into the board game category with the launch of the *LEGO Games* product line. The underlying logic of the entire product portfolio was to reflect the fact that children grow older and develop, and thus demand more challenging stimulations.

LEGO products were sold in over 130 countries. The largest single market was the U.S., which in 2007 accounted 30 percent of the revenue in combination with Australia, New Zealand, and the United Kingdom.⁸ Central and Southern Europe represented 27 percent, while Scandinavia, Benelux, Eastern Europe, and Asia 26.5 percent. The remaining revenues came from community, education, and direct sales (see Exhibit 4).⁹

*Dealing with a Crisis*

In 2004, radical changes should take place within the LEGO organization as consequence of a major internal crisis which drew the company next to bankruptcy. The crisis, which could be traced back to the end of the 1990s, had accumulated with net losses worth DKK 888 million and DKK 1.8 billion in 2003 and 2004, respectively. Sales had equally fallen by 30 percent in 2003 and 40 percent in 2004. These results had been the most disappointing in the history of the company. Measured in alternative costs, the toy maker had on average accounted economic losses equivalent to DKK 2.2 million per day in the period from 1998 to 2004.

⁷ LEGO Company Profile 2009.
The reasons for the crisis had been many. The immediate explanation was the company’s general loss of confidence in its core product — the LEGO brick. As an initiative to create new engines of growth and to address a decline in the traditional toy market, LEGO had over the last decade sought to broaden its portfolio into new, rather discrete, areas, including computer games, television, and clothing. This act of diversification had resulted in vast complexity, inefficiencies as well as highly confused customers and employees. For instance, with the surge of licensed products like Harry Potter and Star Wars, the LEGO Group produced a range of unique bricks for each single new product. The LEGO Group had at the time roughly 11,000 suppliers – a number almost twice to what Boeing used for its planes.\(^\text{10}\) Unfavorable developments in the global toy market as well as in the exchange rates of key currencies of important markets had not made matters easier. As former chief executive officer (CEO) Kjeld Kirk Kristiansen argued, “we have been pursuing a strategy which was based on growth, increase in market shares and growth by focusing on totally new products. This strategy did not give the expected results”.\(^\text{11}\) Moreover, he noted that “we shifted the focus from our actual core product, which at the same time faced difficulties in a more competitive and dynamic market”\(^\text{12}\).

In October 2004, Jørgen Vig Knudstorp was appointed as Kjeld Kirk Kristiansen’s successor. Kristiansen, who was the grandson of the founder Ole Kirk Christiansen, had been the president and CEO of the LEGO Group since 1979. Jørgen Vig Knudstorp was only the second person outside the founding family who held the position as CEO, and his primary task was to steer the company back on track. “I don’t have any miracle cure,” he explained as to how he would put an end to the financial turmoil. “LEGO shall first and foremost drop its arrogance. We have been too sacred with

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\(^\text{12}\) LEGO Life (Quarterly staff magazine), “There is more life in the brick than ever” September 2007, p. 10.
our own virtues, not open enough, and not willing to listen to what other people say. We shall now listen to customers and consumers; simply drop the sacredness. We must be aggressive in the market; work closely with retailers; and manage LEGO very tightly, also financially."\textsuperscript{13} Accordingly, a strategy titled “Shared Vision” was soon implemented, and was defined around three core principles\textsuperscript{14}:

- “Be the best at creating value for our customers and sales channels."
- “Refocus on the value we offer our customers.”
- “Increase operational excellence.”

After divesting its theme parks and receiving an extraordinary loan from the founding family of 800 million DKK\textsuperscript{15}, the LEGO Group embarked on the comprehensive strategy of right-sizing its activities, the cost base and the many assets. Particularly, a careful scrutiny of the organization made the LEGO Group aware of the fact that its ineffective and inflexible supply-chain was a key problem to the creation of a sound business platform. The degree of organizational complexity on multiple layers had basically undermined an otherwise sound business platform. Following Knudstorp: “From my perspective, the supply chain is a company’s circulation system. You have to fix it to keep the blood flowing.”\textsuperscript{16}

\textit{Learning from Offshore Outsourcing: A Story in Three Parts}

1. Preparing for Outsourcing

\textsuperscript{13} Politiken, ”Lego i krise: ”Jeg er den mindst ringe””, 23.10.2004.
\textsuperscript{14} http://www.lego.com/eng/info/default.asp?page=futuredirection.
\textsuperscript{15} Ingenøren, ”Strategi: Hvad Lego lærte om outsourcing”, 24.10.2008.
A key revelation of the comprehensive analysis that was initiated in 2004 was that urgent transformations in all major areas of the supply chain were needed. This included the development function, production, and distribution.

In the development function, the main focus was to simplify the LEGO sets which over years had grown highly elaborate. One LEGO senior director noted: “This excessive complexity of shapes and colors of LEGO elements that was coming from the development was badly hitting the supply chain”\textsuperscript{17}. A major challenge was to ensure that the right components were constantly in stock. High forecast errors and seasonal demand fluctuations paralleled with customer’s expectations of short delivery times resulted in large stocks of many different components. The high numbers of components also required heavy investment in molds. The decision was therefore made to limit the growth in the number of product components and then to gradually reduce it. This was not only supposed to drive costs out of the supply chain but also had to prepare the company for the new scenarios of outsourced production setup.

In the area of distribution, the analysis uncovered the need for major changes in how the company approached its retailers. Describing the situation, a senior director quoted that “it was impossible to be efficient and manage the supply chain with the level of flexibility we had towards all retailers, including the smallest outlets. We clearly needed to put certain rules here”\textsuperscript{18}. To manage this, clearly defined service policies were established. The new policies distinguished explicitly between different approaches to the retailers and helped the company to focus more on the large retail chains that were increasingly gaining dominance on the toy market. This immediately helped to drive

\textsuperscript{17} Interview Chresten Bruun, 27.08.2007 (DS/BW)
\textsuperscript{18} Interview Chresten Bruun, 27.08.2007 (DS/BW)
down the cost of distribution, provided a more reliable overview of demand and, as well as in the
case of reducing the complexity, took some pressure away from the supply chain. Moreover, the
company’s five European distribution facilities (Flensburg and Hohenwestedt in Germany, Billund
in Denmark, and Lyon and Dunkerque in France) were all centralized in Jirny, 10 km east of
Prague, the Czech Republic. Occupying 51,000 m², the new European distribution centre was in full
operation in the beginning of 2007 and handled customers in Europe and distribution centers
throughout the world (except North America). The operation was outsourced to DHL Solutions. In
addition, the distribution of LEGO products in the U.S. and Canada was outsourced to Exel Inc., a
contract logistics provider operating in Alliance, Texas.

However, no matter how significant were problems in product development and distribution, sub-
optimizing only those areas without improving various aspects of the actual production could hardly
bring the company back on track. The LEGO Group’s production value chain was divided into the
following steps: the development of the molding machine, molding, assembling, pre-pack, post-
pack (see Exhibit 5). The assembling and post-packing were the most cost-intensive parts of the
value chain. Prior to the crisis, the company owned and operated production plants in Denmark, the
U.S., Switzerland, the Czech Republic and South Korea. Allocation of roles and responsibilities to
most of these factories followed a branding strategy, in which one of the Swiss factories only
produced DUPLO toys and another produced Technic products. The Danish factory only
manufactured LEGO System products, while the U.S. facility predominately served the American
demands. The vast majority of the production took place in the Danish and the U.S. site, while
roughly 5 to 10 percent of the LEGO Group’s total production was outsourced to Chinese contract
manufacturers.¹⁹

¹⁹ Keith Oliver, Samakh Edouard, and Peter Heckman, “Rebuilding Lego, Brick by Brick”, s+b, Autumn 2007,
With the new strategic directions of achieving a lighter production portfolio, however, the company started to look for external partners to carry out a larger bulk of its production. There were mainly two strategic rationales for this. First of all, it was the cost-saving rationale. With the majority of the production in high-cost countries, the management saw a major potential of cutting costs by relocating production to low-cost countries. “We were basically turning the 50 year old idea that Denmark and Switzerland were good countries for automatic production upside down,” recalled Niels Duedahl, a LEGO vice president. “The new mantra was: aggressive outsourcing to low-cost countries.”

In spite of the fact that up to 95 percent of global toy production was located in China, the LEGO Group decided to avoid relocating production facilities to Asia to rather emphasize proximity to its main markets in Europe and the U.S. Based on the fact that European market accounted for approximately 60 percent of the company’s sales, the Czech Republic and Hungary, two low-cost Eastern European countries, fulfilled both market proximity and cost saving criteria. These countries were supposed to accommodate most of the capacity transferred from Denmark and Switzerland. In addition, the decision was made to move the company’s U.S. plant in Enfield to Mexico for supplying the North American market, constituting approximately 30 percent of the LEGO Group sales.

Secondly, with a production of approximately 24 billion bricks per years, the LEGO Group recognized the sourcing rationale through potential economies of scale as well as the opportunity to

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21 Interview Chresten Bruun, 27.08.2007 (DS/BW)
drastically reduce production complexity by targeting large subcontractors.\textsuperscript{22} Thus, besides scaling down production in Denmark and closing sites in Switzerland and Korea, it was decided that production should be outsourced to a number of partners. These included: \textit{Sonoco} (a global manufacturer of consumer and industrial packaging products and provider of packaging services); \textit{Greiner} (a global manufacturer of consumer and industrial packaging products); \textit{Weldenhammer} (packaging products and services); \textit{2B Pack} (packaging products and services); and \textit{Flextronics} (an electronics manufacturing services company). While the Technic and Bionicle product lines to a large extent were to be retained in-house, the Duplo and System lines (characterized by their high volume production) were predominantly outsourced to Flextronics.

Flextronics, a leading multinational electronics manufacturing services (EMS) provider based in Singapore, had a long history in offering services to original equipment manufacturers (OEMs), and was going to be the LEGO Group’s absolute largest partner in terms of production undertaken. Flextronics was actually founded in Silicon Valley, California, in 1969, and was in 1981 the first U.S. manufacturer to formally start offshoring production by establishing a manufacturing facility in Singapore. In 1990, however, the company moved its headquarters to Singapore, and had since succeeded in building a network of manufacturing facilities in 30 countries on four different continents.\textsuperscript{23} By 2009, Flextronics’ net sales accounted 31 billion USD, and it had a workforce of approximately 160,000 employees (see Exhibit 6).\textsuperscript{24} Flextronics’ major clients included large multinational companies like Cisco Systems (consumer electronics products), Hewlett-Packard Company (inkjet printers and storage devices), Microsoft Corporation (computer peripherals and consumer electronics gaming products), and Sony-Ericsson (cellular phones).\textsuperscript{25} The company had

\textsuperscript{22} Interview Thomas Nielsen, 07.10.2009 (TP/BW).
\textsuperscript{23} http://www.flextronics.com/about/default.aspx
\textsuperscript{24} Flextronics Annual Report 2009.
\textsuperscript{25} Flextronics Annual Report 2009.
focused its segments into six core areas — Automotive, Computing, Industrial, Infrastructure, Medical, and Mobile & Consumer — and it operated with five business units that consisted of “strategic technologies and augmented services that are leveraged across all segments and customer product categories to create scalability and to add flexibility and speed to our segments.” The five business units were: Multek (multi-layer printed and flexible circuit boards, interconnected technologies and complex display technologies); Vista Point Technologies (unique product solutions for camera modules); Global Services (logistics, reverse logistics and repair operations); FlexPower (design and manufacturing of semi-custom and custom power supplies and battery chargers); and Retail Technological Services (competitive and flexible field services for customer operations) (see Exhibit 7 for Flextronics’ service model).

2. A Troubled Marriage

Following the decision to outsource major parts of production to Flextronics, a contract with Flextronics was finalized in June 2006. This was, according to the Danish company, a “brilliant idea” as it locked the prices over a longer period, and thus eliminated the risk of production price fluctuations. In the period from 2004 to 2006, the following was outsourced to Flextronics: parts of the production facilities capacity in Denmark and Switzerland were relocated to Flextronics’ plants in Nyíregyháza and Sarvar, Hungary; the operating control of the LEGO Group’s Kladno site in the Czech Republic was handed over to Flextronics; and the Enfield plant in the U.S. was closed in favor of using Flextronic’s newly opened site in Juarez, Mexico. Throughout the transition phase, the LEGO Group was intensely working towards reducing its in-house production capacity from 90-95 percent to the set targets of approximately 20 percent. Actually, the 20 percent target had

26 http://www.flextronics.com/about/pages/backgrounder.aspx#segments
27 Interview Chresten Bruun, 08.01.2010 (TP).
never been a strategic goal in itself. “It is very difficult to give such an estimate,” a LEGO vice president explained. “Right from the beginning, the 80/20 percent [outsourcing/in-house] ratio was more a communication way. What we have decided is that there are two competences that we need to keep in-house in Billund; that is molding and packing competences. Whether it is 20 or 10 percent of production it doesn’t matter; what matters is that in the future we will still be able to do what we are doing from the production point of view”.28

Flextronics had indeed been the LEGO Group’s preferred partner to undertake this task. Particularly with its long history and vast experience in standardizing and documenting work routines and processes to move business activities from site to site, the LEGO management was convinced that Flextronics would excel in reducing the complexity of the LEGO production and organization in general. CEO Jørgen Vig Knudtrup commented the following after ramping up the collaboration: “We have come to know Flextronics as a very professional partner in connection with the outsourcing of our DUPLO products, which has taken place over the past year. They understand and appreciate the unique values that LEGO products represent, not least the importance of quality and safety which are fundamental to the good play experience.” 29 In an equal manner, Matt Ryan, executive vice president of Flextronics’ worldwide operations, exerted that the relationship “is characterized by intense supply chain collaboration that provides strategic and efficient cost-savings to help improve the company’s competitive market positioning. We are excited to expand our partnership with the LEGO Group as this allows Flextronics further market diversification and enhanced plastic molding capabilities in low-cost regions.”30 A large part of Flextronics’ motivation for getting into business with the LEGO Group had thus been the interest in getting

28 Interview Claus F. Pejstrup, 27.08.2007 (DS)
more competencies and knowledge about plastics, which constituted an important part of their electronics manufacturing activities.

However, the collaboration did not last for long. Despite its promises of optimizing the global supply chain, the outsourcing collaboration was cancelled after merely three years. As became evident, the result of attempting to manage and overcome the complexity of the production network by outsourcing it to external providers was actually only a more complex global manufacturing footprint. Particularly, the collaboration with Flextronics presented the LEGO Group with some rather daunting and unexpected challenges. Considering the extreme pace of the transition, it eventually turned out problematic for LEGO to coordinate, control and specify the growingly global and complex network of production facilities as well as to ensure a reliable and seamless transfer of production knowledge between the two. For example, there was the challenge of aligning the LEGO products’ seasonal fluctuations and unpredictable demand with Flextronics’ business model. About 60 percent of the LEGO production was made in the second half of the year, the product had an average lifespan of 16 to 18 months, and the demand uncertainty fluctuated with plus/minus 30 percent.31 The LEGO Group’s need for flexible and market responsive business solutions presented a strategic misfit to Flextronics’ more stable and predictable operations in which economies of scale was a key word. Divergence and misalignments between the two had therefore become the outcome.

3. *A Bounded New Start*

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In 2008, as the LEGO Group announced that it would phase out the cooperation with Flextronics, the process of sourcing back the production was initiated. This was embarked by the LEGO Group taking over the control of the Kladno factory in the Czech Republic in February 2008. Flextronics was still in charge of molding LEGO products at two sites in Hungary (Sarvar and Nyíregyháza) and one site in Mexico (Juarez) until July 2008 when the LEGO management affirmed that these would follow suit of the site in the Czech Republic. In Hungary, LEGO concentrated its activities at the Nyíregyháza facility by taking over the plant and its work force. During first quarter of 2009, the Juárez production moved to a new site, fully owned by the LEGO Group, in North Mexico in Monterrey, and the site was up and running in the second quarter of 2009.

“We are not satisfied with the effectiveness in the outsourced facilities,” commented Jørgen Vig Knudstorp briefly after the decision to end the cooperation was made. “It takes more time to educate people than we had expected, and that means that we are still more effective in Billund.”

Niels Duedahl, however, argued that it might just as well have been the LEGO Group which had not been correct for Flextronics as well as it could have been the other way around: “All in all, we had to realize that our contract also made it difficult for Flextronics to carry out the responsibilities of the collaboration with LEGO in a sound manner. The supplier, like us, has the same need for a profitable business model.”

Looking back, the attempt to cut costs and reduce complexity quickly had, in fact, complicated matters for the worse, and thus hindered a conducive foundation for creating profitable synergies. At a glance, the Flextronics adventure therefore looked like a failure. “We have learned that even though everything points at outsourcing, it might still not be the best solution,” said Niels

Duedahl. Still, however, the collaboration had brought along a number of positive externalities. The engagement had first of all helped LEGO to expand its global operations footprint despite its difficult financial situation. Prior to Flextronics, it was hardly possible to establish the new and needed operating bases in Mexico and Hungary. Flextronics had thus provided the Danish company with the necessary impetus for altering its global production network to serve important markets while saving costs.

Perhaps more importantly, the collaboration had given the LEGO Group an indispensable lesson in understanding its own processes and structures. As Duedahl exerted it: “We have learned that we are more special than we expected to be.” In addition, Flextronics possessed valuable experience and knowledge in relation to the documentation and standardization of the production. Previously, the LEGO Group had to a large extent carried out its production processes without paying too much attention to the documentation of it. “We had had the pleasure of being in Billund for 40 years with many loyal colleagues,” said Thomas Nielsen, a LEGO manufacturing vice president. “The downside to this, however, is that you become rather lazy on the documentation side as everybody with many years of experience knows exactly what to do.” As the LEGO Group went from producing the absolute majority in-house to become highly dependent on external partners, changes were unavoidable. And with the Flextronics collaboration, the LEGO management came to realize not only the need, but also the value, of documenting work processes, communication lines, and interfaces between activities and tasks in the production. “Production in another country — even within the same company — requires ten times more documentation than in the company that it is moved from,” rationalized Michael Vaag, a LEGO supply chain manager. The increased

35 Interview Thomas Nielsen, 07.10.2009 (TP/BW).
employment of process documentation had given the LEGO Group transparency and control, and thus ample room to manage challenges of complexity and to identify the stronger and weaker parts and links of the production network. In this respect, the LEGO management had in 2005 introduced a deliberate sales and operations planning (S&OP) process to monitor and coordinate the different production facilities’ roles, capacities and responsibilities in relation to the supply. This approach had stuck with the company also after the break up with Flextronics, and was considered “a strong fundament for the process.”

Before being introduced in 2005 as a global process covering all LEGO in-house and outsourced sites, S&OP was running at the company’s site in Enfield, USA for a year resulting in significant operations performance improvements. Michael Kehlet, a LEGO flow planning director, described S&OP as “a process gluing all operations’ work flows together.”

The global S&OP process at LEGO was organized around three key areas: sales, production and product development. Monitoring and coordination of these areas was taking place through a multi-stage cycle which started with data consolidation at the site level and was concluded at a global executive S&OP meeting. The S&OP cycle was taking place every month providing LEGO with the reliable and constantly updated overview of global operations for the following 12 months. Gradually, the S&OP process evolved into a rather critical tool for creating transparency and supporting management efforts in a relatively fragmented and globally distributed operations set-up, which involved numerous capacity groups and outsourcing partners.

Similar and related to the surge of documenting business processes, the LEGO Group had also through Flextronics recognized the strength of standardizing its processes. Actually, standardizing the business processes had always been an integral part of the LEGO Group’s approach to production. With the production of around 24 billion bricks per year, a high degree of

38 Interview Thomas Nielsen, 07.10.2009 (TP/BW).
39 Interview Michael Kehlet, 13.09.2007 (DS/BW)
standardization was obviously imperative for the extreme accuracy required. The collaboration with Flextronics had, however, illuminated the LEGO management’s perception of how standardization could be used more strategically in the firm. Chresten Bruun, a production senior director, explained how the virtues of standardization had been taken to new frontiers within the company:

“We are standardizing on three levels,” he clarified; “the upper level: that is our way of thinking, our mindset, values, attitudes; on the mid level: how we operate our planning processes, follow-up processes, etc; and the lower level: that is more the hardware part, the machines, lines, and the layout in the production.”

The total number of component portfolio had accordingly decreased from approximately 12,000 in 2004 to roughly the half in 2008 (reaching levels which existed before 1996), with the final target of 5,500 for year 2011. The LEGO mini figure policeman, for instance, was reduced from 16 different versions to only four. The standardization had implications throughout the whole value chain starting with the design of new products – as every new product should contain at least 70 percent “evergreen” bricks – i.e. bricks that could be used in more products. By reducing the more unique and product specific bricks to only 30 percent of all bricks allowed for a more flexible and smooth supply chain.

Its international network of production facilities had also changed from mainly branding factories, where each facility had been responsible for one single product, to become more standardized in which their main purpose was to serve their respective markets. This gave the company considerable room to benchmark the factories, and thus optimize the total cost advantage of the production facilities in which the reaction time to market was a decisive parameter. In the aftermath of Flextronics, Michael Vaag, supply chain manager, summarized his success criteria for global production in four ways: “1) It is easy to move technology – it takes more time to build

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40 Interview Chresten Bruun, 08.01.2010 (TP).
41 Interview Thomas Nielsen, 07.10.2009 (TP/BW).
42 Interview Chresten Bruun, 08.01.2010 (TP).
competences; 2) a clear plan for training and education shall be present; 3) there shall be local leaders who know the working culture in the country; and 4) there shall be a clear key figure structure which ensures actual benchmarks/KPI between the factories.”

In sum, the LEGO Group read the collaboration with Flextronics in three different stages — before, during and after — each stage with different challenges and opportunities (see Exhibit 8). What seemed to be the recurring theme throughout the entire process, however, was how the LEGO management continuously increased its stock of knowledge concerning how to optimize its processes and organization to overcome and manage the multitude of issues of complexity deriving from having a global network of production.

**Epilogue**

The LEGO Group’s recent financial record showed that CEO Jørgen Vig Knudstorp and his executive management had indeed been successful with the turnaround strategy: the profit of the year 2008 and 2009 of DKK 1.85 billion and DKK 2.2 billion, respectively, were the largest in the Group’s history. Commenting on this, Knudstorp said that “our results for 2008 have been extraordinarily good. And this applies not only to the financial results. During 2008 we also took over two factories in the Czech Republic and Hungary, and we began the construction of a factory in Mexico. The successful change to increased own production, combined with strong sales increases, is attributable to the impressive performance by all our employees.”

The backsourcing from Flextronics had played an inevitable part in achieving this. The new dominantly in-house production network consisting of factories in Denmark, Hungary, Czech Republic and Mexico

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seemingly gave the LEGO Group the amount of controllable flexibility to balance market demands with its network of offshoring activities. However, the LEGO executive management knew not to rest on its laurels. Although looking promising, the new production network was, in fact, a mere result of avoiding the emerging unexpected costs from having outsourced the production. A central question was therefore: What had the LEGO Group learned from Flextronics collaboration and how could it use this knowledge constructively in the future?


**Exhibit 1**

**THE LEGO GROUP FINANCIAL FIGURES**

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<td>(8,659)</td>
<td>(7,522)</td>
<td>(6,556)</td>
<td>(6,393)</td>
<td>(6,605)</td>
</tr>
<tr>
<td>Operating profit</td>
<td>3,002</td>
<td>2,002</td>
<td>1,471</td>
<td>1,405</td>
<td>423</td>
</tr>
<tr>
<td>Financial income and expenses</td>
<td>(15)</td>
<td>(248)</td>
<td>(35)</td>
<td>(44)</td>
<td>(51)</td>
</tr>
<tr>
<td>Profit before tax</td>
<td>2,887</td>
<td>1,852</td>
<td>1,414</td>
<td>1,281</td>
<td>329</td>
</tr>
<tr>
<td>Net profit for the year</td>
<td>2,204</td>
<td>1,352</td>
<td>1,028</td>
<td>1,290</td>
<td>214</td>
</tr>
<tr>
<td><strong>Balance sheet</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total assets</td>
<td>7,788</td>
<td>6,496</td>
<td>6,009</td>
<td>6,907</td>
<td>7,058</td>
</tr>
<tr>
<td>Equity</td>
<td>3,291</td>
<td>2,066</td>
<td>1,679</td>
<td>1,191</td>
<td>563</td>
</tr>
<tr>
<td>Liabilities</td>
<td>4,497</td>
<td>4,430</td>
<td>4,330</td>
<td>5,716</td>
<td>5,495</td>
</tr>
<tr>
<td><strong>Cash flow statement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash flow from operating activities</td>
<td>2,655</td>
<td>1,954</td>
<td>1,033</td>
<td>1,157</td>
<td>587</td>
</tr>
<tr>
<td>Investment in activities, plans and equipment</td>
<td>1,042</td>
<td>368</td>
<td>399</td>
<td>316</td>
<td>237</td>
</tr>
<tr>
<td>Investment in intangible assets</td>
<td>216</td>
<td>75</td>
<td>34</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash flow from financing activities</td>
<td>(906)</td>
<td>(1,682)</td>
<td>(467)</td>
<td>597</td>
<td>(656)</td>
</tr>
<tr>
<td>Total cash flow</td>
<td>501</td>
<td>128</td>
<td>592</td>
<td>1,925</td>
<td>1,570</td>
</tr>
<tr>
<td><strong>Employees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of employees</td>
<td>7,058</td>
<td>5,388</td>
<td>4,199</td>
<td>4,908</td>
<td>5,302</td>
</tr>
<tr>
<td><strong>RATIO</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Financial ratios (in %)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross margin</td>
<td>70.3</td>
<td>66.8</td>
<td>65.0</td>
<td>64.9</td>
<td>58.0</td>
</tr>
<tr>
<td>Operating margin (ROS)</td>
<td>24.9</td>
<td>22.0</td>
<td>18.1</td>
<td>17.0</td>
<td>5.4</td>
</tr>
<tr>
<td>Net profit margin</td>
<td>18.9</td>
<td>14.2</td>
<td>12.8</td>
<td>16.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Return on equity (ROE)</td>
<td>82.3</td>
<td>72.2</td>
<td>71.6</td>
<td>147.1</td>
<td>44.2</td>
</tr>
<tr>
<td>Equity rate</td>
<td>42.3</td>
<td>31.8</td>
<td>27.9</td>
<td>17.2</td>
<td>8.0</td>
</tr>
</tbody>
</table>

*Source: The LEGO Group Annual Report 2009*
Markets & Products (M&P) has global responsibility for product development, marketing and sales.

Community, Education & Direct (CED) is responsible for direct contact with consumers via brand retail stores, online sales, and mail order. In addition this business area handles contacts with fans and the development of new business concepts aimed directly at end-users. And it is this unit that is responsible for the Group’s development, marketing and sale of educational materials.

Corporate Centre (CC) covers the administrative service departments: IT, Human Resources, Corporate Communications, Corporate Governance & Sustainability and Corporate Legal Affairs.

Global Supply Chain (GSC) is the business area responsible for the Group’s supply chain - from procurement and production to shipping and distribution to the retail trade.

Corporate Finance is responsible for financial management and controlling as well as follow up on business planning and strategic initiatives.

Source: The LEGO Group Annual Report 2009
Exhibit 3

The LEGO Brick

Source: www.lego.com
Exhibit 4

REVENUE SPLIT 2007

The U.S., Australia, New Zealand, and the U.K.; 30%
Scandinavia, Benelux, Eastern Europe and Asia; 27%
Central and Southern Europe; 27%
Community, education and direct sales; 16%

Source: The LEGO Group Annual Report 2007
Exhibit 5

PRODUCTION VALUE CHAIN

Development function
Development of molding machines
Molding
Assembling
Pre-pack
Post-pack
Distribution

Source: Authors’ own creation
Exhibit 6

FLEXTRONICS IN BRIEF

- $31 billion in annual sales
- 160,000+ employees worldwide
- 120,000 employees in Asia (90,000 in China)
- Operating in 30 countries
- 27 million m² of capacity (9 industrial parks)
- Large customers: Casio, Cisco Systems, Dell, Eastman Kodak, Ericsson, Hewlett-Packard, Microsoft, Motorola, Research in Motion, Sony, Sony-Ericsson, Sun Microsystems, and Xerox.

Flextronics' market segment portfolio 2007:

Source: www.flextronics.com
Exhibit 7

FLEXTRONICS’ SERVICE MODEL

<table>
<thead>
<tr>
<th>Design</th>
<th>Build</th>
<th>Ship</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Flextronics employs over 4,000 design engineers.</td>
<td>• Flextronics runs 9 industrial parks around the world focused on building the world’s leading technology products.</td>
<td>• Flextronics is involved in doing BTO and CTO for many of the most complex technology products in the world from industry leading companies such as Cisco, HP, Huawei, and Lenovo.</td>
<td>• Flextronics Global Services is the global repair leader for electronic products servicing 3M cell phones, 2M laptops, 9M PCBAs, and 2M game consoles every year.</td>
</tr>
<tr>
<td>• Flextronics owns 364 patents.</td>
<td>• PCB/Flex circuits</td>
<td>• Build-to-order (BTO)</td>
<td>• RTS Technicians handle 600,000+ customer transactions per month.</td>
</tr>
<tr>
<td><strong>Capabilities</strong></td>
<td>• Optomechatronics</td>
<td>• Configure-to-order (CTO)</td>
<td>• Global Services’ sites dedicated to Service Parts Logistics process and ship over 12M spare parts for customers every year.</td>
</tr>
<tr>
<td>• Industrial design</td>
<td>• LCD displays</td>
<td>• Distribution and direct fulfilment</td>
<td><strong>Capabilities</strong></td>
</tr>
<tr>
<td>• Systemic architecture</td>
<td>• Cables</td>
<td>• Outbound logistics and hubbing</td>
<td>• Repair/refurbishment and warrant support</td>
</tr>
<tr>
<td>• Mechanical design</td>
<td>• Machining</td>
<td></td>
<td>• Service parts logistics</td>
</tr>
<tr>
<td>• Embedded systems design</td>
<td>• Plastics</td>
<td></td>
<td>• Remarketing</td>
</tr>
<tr>
<td>• Software systems design</td>
<td>• Metal fabrications</td>
<td></td>
<td>• Retail technical services</td>
</tr>
<tr>
<td>• Product launch/NPI</td>
<td>• SMT assembling</td>
<td></td>
<td>• Asset recovery</td>
</tr>
<tr>
<td>• DFx Services</td>
<td>• System integration and final test</td>
<td></td>
<td>• Reverse logistics</td>
</tr>
</tbody>
</table>

Source: www.flextronics.com
### Exhibit 8

**THE THREE STAGES OF THE LEGO GROUP’S OFFSHORE OUTSOURCING**

<table>
<thead>
<tr>
<th>Pre Flextronics</th>
<th>Flextronics</th>
<th>Post Flextronics</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>2004</td>
<td>2005</td>
</tr>
<tr>
<td>Tight control of all elements of the value chain</td>
<td>Planned to outsource up to 80% of production capacity to external partners</td>
<td>Backsourcing of the plants operated by the strategic external partner Flextronics</td>
</tr>
<tr>
<td>Challenges:</td>
<td>Challenges:</td>
<td>LEGO maintains relationships with a number of smaller external suppliers</td>
</tr>
<tr>
<td>Cost of production located in predominantly high-cost countries</td>
<td>Fast pace of transition</td>
<td></td>
</tr>
<tr>
<td>Over-diversified and complex products portfolio</td>
<td>Production know-how transfer to external partners</td>
<td></td>
</tr>
<tr>
<td>Underperforming in-house supply chain</td>
<td>Brand vulnerability and dependency on partners</td>
<td></td>
</tr>
<tr>
<td>Negative financial results</td>
<td>Supply uncertainty</td>
<td></td>
</tr>
<tr>
<td>High capital investment requirements</td>
<td>Developing new capabilities</td>
<td></td>
</tr>
<tr>
<td>High fixed costs</td>
<td>Maintaining knowledge about production</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management of new relationships</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increasing complexity of production footprint</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stabilising and optimising the operations after another stage of transition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Balancing predominately internal supply capacity with market demands</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Authors' own assessments*