Lego: Embracing Change by Combining Business Intelligence with a Flexible Information System

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The LEGO Group, which is headquartered in Billund, Denmark, is one of the largest toy manufacturers in the world. LEGO's main products have been the bricks and figures that children have played with for generations. The Danish company has experienced sustained growth since its founding in 1932, and for most of its history its major manufacturing facilities were located in Denmark.

In 2003, LEGO was facing tough competition from imitators and manufacturers of electronic toys. In an effort to reduce costs, the group decided to initiate a gradual restructuring process that continues today. In 2006, the company announced that a large part of its production would be outsourced to the electronics manufacturing service company Flextronics, which has plants in Mexico, Hungary, and the Czech Republic. The decision to outsource production came as a direct consequence of an analysis of LEGO's total supply chain.

To reduce labor costs, manually intensive processes were outsourced, keeping only the highly skilled workers in Billund. LEGO's workforce was gradually reduced from 8,300 employees in 2003 to approximately 4,200 in 2010. Additionally, production had to be relocated to places closer to its natural markets. As a consequence of all these changes, LEGO transformed itself from a manufacturing firm to a market-oriented company that is capable of reacting fast to changing global demand.

LEGO's restructuring process, coupled with double-digit sales growth in the past few years, has led to the company's expansion abroad and made its workforce more international. These changes presented supply chain and human resources challenges to the company. The supply chain had to be reengineered to simplify production without reducing quality. Improved logistics planning allowed LEGO to work more closely with retailers, suppliers, and the new outsourcing companies. At the same time, the human resources (HR) department needed to play a more strategic role inside the company. HR was now responsible for implementing effective policies aimed at retaining and recruiting the most qualified employees from a diversity of cultural backgrounds.

Adapting company operations to these changes required a flexible and robust IT infrastructure with business intelligence capabilities that could help management perform better forecasting and planning. As part of the solution, LEGO chose to implement SAP's business suite software. SAP, a company that specializes in enterprise applications, is one of the leading software vendors worldwide. SAP's software products in applications designed to enhance a company's essential functions and choices to implement SAP's Supply Chain Management (SCM), Product Life Cycle Management (PLM), and Enterprise Resource Planning (ERP) modules.

The SCM module includes essential elements such as supply chain monitoring and forecasting, planning, and inventory management. The PLM module enables management of development processes and systems, including among other applications, Capital Management (HCM), and Enterprise Resource Planning (ERP). SAP's business suite is based on a tier client-server architecture and adapted to the new Service-Oriented Architecture (SOA) available in the latest versions. In the first tier, a client interface graphical user interface (GUI) laptop, desktop, or mobile device requests to the application server. The application servers—the second tier in the process clients' requests. In turn, application servers send the processed request to the third tier—the system—the third tier—a more relational database. SAP stores databases from different sources, those offered by Oracle, Microsoft, among others. The relational databases are used to store data on LEGO's products, supply chain, and thousands of customers. LEGO can easily use the SAP query language to access the database systems located in various locations, including the United States, Europe, and Asia.

SAP's ERP-HCM module includes features such as "Talent Management", "Employee Administration", and "Time Management. These