

Integration of SCM and ERP for Competitive Advantage

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Abstract

In order to survive and stay ahead in today's competitive world companies are expanded to their limits in search for organizational skills and technologies. Out off those Supply chain Management and Enterprise Resource Planning are the two most primarily used terms. The utmost important factors here are to improve the speed of production with least cost and with more efficiency in order to stay and survive in the competition in the present globalised economic scenario. There is a serious need for integration of information across the supply chains and proper planning of enterprises' resources. One hand the supply chains will enhance the efficiency of movement of various inputs and on the other hand the ERP will improve the overall efficiency of the resources to bring down the cost of production and operations. Once a firm is able to achieve the best quality output with least cost, it could attract more consumers towards its production. This research paper troughs light on how the integration of SCM(Supply Chain Management) and ERP(Enterprise Resource Planning) would be beneficial to the company to achieve greater Competitive Advantage with the Case Examples of Cadbury and Nokia.

Keywords: Enterprise Resource Planning, Supply Chain Management, Firm Performance, Competitive Advantage

Originality/value: The researchers has followed the deductive research approach as the basic methodology of the research is to deduct the results from the available literatures that are available on the impact of Enterprise Resource Management (ERP) on the Supply Chain Management (SCM) through two case studies..

Introduction

The web is having a significant impact on how firms interact with each other and their customers. Past stumbling blocks for supply chain integration such as high transaction costs between partners, poor information availability, and the challenges of managing complex interfaces between functional organizations are all dissolving on the web. In this paper, we examine how the web is changing supply chain management. We present a survey of emerging research on the integration ERP and Supply Chain Management including descriptive frameworks, analytical models, empirical analysis, and case studies. The researchers have found how the ERP and SCM could be integrated as seen the below Fig-1.

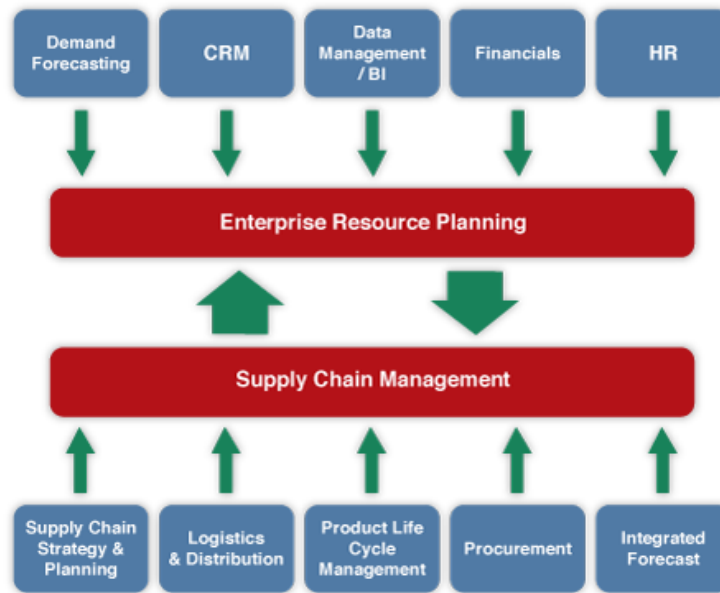


Figure-1

Source; <http://www.mainward.com/mw/consulting/scm.jsp.html>

The benefits as shown in the above figure are to help identify, quantify and integrate ERP and SCM implementation process and scalable transformation. Thus, this integrations helps the company to Improve business responsiveness and communications, Lower costs (operational and IT infrastructure), Employ state-of-the-art supply chain planning methods, Improve logistics planning. Improve decision-making and strategy, Achieve strategic procurement solutions. Achieve transformation and operations expertise and Integrate all enterprise solutions. We need to understand that the integration of the supply chain refers to the internal and external integration in the sense that internal business processes are to be integrated and better organizational processes to be incorporated. This integration of the internal chain explains that the assimilation of intra-organizational activities such as purchase, warehousing, material management, transport and production (Croom et. al. (2001). Indeed, the question pertaining to the degree to which these processes are integrated should also address the information systems supporting them. Even if intra-organizational processes are thoroughly integrated, the competitive advantages of an organization may not persist independent of external integration and cooperation with partners. Information integration within an organization takes place through supporting core processes by the same system and database. Information integration in

the supply chain is a higher-order sharing of information because while it is likely to share information using any communication device (e.g., telephone, fax, etc.), information integration often denotes systematic methods of information exchange (Figure-1).

The Foundation of ERP

After conducting and extensive desk research the researchers have found that Gartner Group first used the acronym ERP (Gartner Group, April 12, 1990) as an extension of material requirements planning (MRP), later manufacturing resource planning (Anderegg, Travis2013"ERP". Retrieved 2009) and computer-integrated manufacturing. However, we found that without replacing these terms, ERP came to represent a larger whole that reflects the evolution of application integration beyond manufacturing (Sheilds, Murell G. (2005). It is interesting to note that not all ERP packages developed from a manufacturing core. ERP Vendors variously began with accounting, maintenance, and human resources. Subsequently, by the mid-1990s ERP systems addressed all core enterprise functions. Governments and non-profit organizations also began to use ERP systems (Chang, SI; Guy Gable; Errol Smythe; Greg Timbrell (2000). We need to understand that ERP provides an integrated view of core business processes, often in real-time, using common databases maintained by a database



management system. ERP systems track business resources—cash, raw materials, production capacity—and the status of business commitments: orders, purchase orders, and payroll. It is clear to understand that the applications that make up the system share data across the various departments (manufacturing, purchasing, sales, accounting, etc.) that provide the data. (<http://searchsap.techtarget.com/definition/ERP>). According to researchers like Bidgoli, Hossein, ERP facilitates information flow between all business functions, and manages connections to outside stakeholders (Bidgoli, Hossein, (2004). Enterprise system software is a multi-billion dollar industry that produces components that support a variety of business functions. IT investments have become the largest category of capital expenditure in United States-based businesses over the past decade. Though early ERP systems focused on large enterprises, smaller enterprises increasingly use ERP systems. (Rubina Adam, Paula Kotze, Alta van der Merwe. 2011). For error-free transactions the ERP system is considered a vital organizational tool because it integrates varied organizational systems and facilitates error-free transactions and production. The researchers have identified that the ERP system development is different from traditional systems development. (SHAUL, L. AND TAUBER, D. 2012) ERP systems run on a variety of computer hardware and network configurations, typically using a database as an information repository (Khosrow-Puor, Mehdi. (2006).)

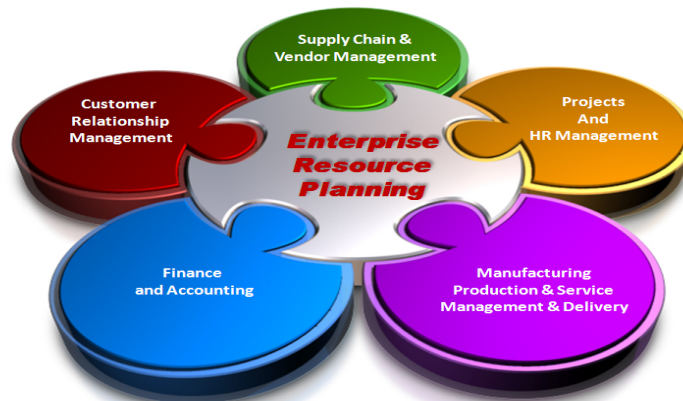
The Foundation of SCM

The researchers of this paper have conducted extensive literature review on SCM. Out of that review it was found that the supply chain encompasses organizations and flows of goods and information between organizations from raw materials to end-users (Handfield and Nichols, 2002). More Interestingly, the practical field of supply chain management (SCM) is constantly changing, as the competitiveness of international companies is more and more dependent on their capability to produce and deliver customized products and services fast and efficiently all over the world. At the same time, an increasing percentage of the value creation takes place outside the boundaries of the individual firm (see, for example, Bruce et al., 2004). This induces higher complexity and diversity into management decisions regarding the structure of the operations, the positioning of activities and processes, the role and power of the participants, and the most efficient forms of collaboration between all members in a transformation chain between production and consumption, which we call a supply chain. It was noted that these issues also impact on research in the field of operations management. In order to understand and to explain decision-making and practices in a complex network of collaborating firms (see also Rudberg and Olhager, 2003), we need to draw on several behavioral and organizational theories and frameworks in combination. Our approach is therefore important, as this coupling of organizational theories with SCM is not often discussed within the audience of this journal. Lamming (1996) introduces the theory of SCM as an extension of logistics, though referring to the extended need of relationship issues to be considered in the theory of SCM. However, the notions still remain on a more applied than theory-building level. Larson and Halldorsson (2004) discuss four unique perspectives on the relationship between logistics and SCM. We need to know that the supply chain is a meta-organization built up by independent organizations that have established inter-organizational relationships and integrated business processes across the borderlines of the individual firms. Apparently, a supply chain can also be characterized as a borderless organization (e.g. Picot et al., 2001), a value net (Bovet and Martha, 2000), a virtual supply chain (Chandrashekar and Schary, 1999), an interactive firm (Johansen and Riis, 2005), a multi-organization/single-site coordinated operations network. Thanks to Persson who has made earnest attempt as early as in 1997 and current literature on SCM seems to agree on the nature of the phenomena (e.g. Persson, 1997).

Method

The researchers has followed the deductive research approach as the basic methodology of the research is to deduct the results from the available literatures that are available on the impact of Enterprise Resource Management (ERP) on the Supply Chain Management (SCM). We have deduced the results from the case examples of Cadbury and Nokia. The main aim of this research study would be more focused on the deducing results rather than inducing the new results based upon the assumptions. The researchers have

made an attempt how the integration of SCM and ERP would be beneficial to any company to gain competitive advantage. Therefore, this research would not only be beneficial to academics but also to industry.



Source: <http://www.slideshare.net/ChitrangadaRoy1/case-study-on-erp-successcadbury-and-failurehersheys>

Enterprise resource planning (ERP) is business management software—usually a suite of integrated applications—that a company can use to store and manage data from every stage of business, including:

- Product planning, cost and development
- Manufacturing
- Marketing and sales
- Inventory management
- Shipping and payment

ERP Implementation Success

The Case Example of Cadbury in India Pvt. Ltd.

Company Background

Cadbury is a British multinational confectionery company owned by Mondelez International.

It is the second largest confectionery brand in the world after Wrigley's.

Founder: John Cadbury

Founded in: 1824, Birmingham, United Kingdom

ERP Implementation

Cadbury was left with a glut of chocolate products at the start of the year, after the installation of a new SAP-based enterprise resource planning (ERP) system led to an excess of chocolate bars building up at the end of 2005. The new U.K. computer system is part of a five-year IT transformation project, called "Probe", aimed at integrating the Cadbury Schweppes' supply chain, purchasing, manufacturing, distribution, sales and marketing systems on a global, SAP-based ERP platform. Cadbury Schweppes is aiming for an ultimate savings from the Probe project, but its implementation has been far from smooth. The project was beset by problems and delays when it was first introduced in Australia in 2002.

Benefits of ERP

Cadbury was on a fast paced growth and could not continue with the existing systems and the pace was too slow due to added inefficiencies. ERP added efficiency and guided the led all the issues fast paced growth. The initial implementation took time and then the successive implementations took lesser time and cost and there is a huge advantage in saving cost while in the implementation phase itself. The reaction from competition does not matter in this because this is not a change that was advertised to the

market. This is an internal process restructuring and was a welcome change within the company which badly needed the change. The company also has built in a robust regular feedback system to monitor the changes and check if they go according to the initial plan. The entire implementation is cross functional and hence it is important that there is a high increase in the efficiency. The ERP vendor was also selected from among the best in class vendors which helped the process occur in a streamlined fashion and avoided any possible chances of hiccups during the initial implementation phase. The system has also been deployed up to the vendors. They have a portal called vendor connect where they can see their inventory movement and make plans accordingly. Hence the restructuring happens not only internally but also across to the supplier which will add on to the benefits that are accrued. It was considered at low cost and high result implementation which by itself highlights the success and the benefits.

Case Example of Business Integration at NOKIA, Finland

The researchers have identified the case study of Nokia, as a leading manufacturer of telecommunication equipment, expands into new markets by following a strategy of mergers and acquisitions. It was found that the main challenges of expansion is how to integrate acquired companies into Nokia's business units and supply chain. To overcome this organizational challenge Nokia makes extended use of automated process integration to integrate suppliers and customers

Case study fact sheet

Full name of the company: Nokia Corporation

Location (HQ / main branches): HQ: Helsinki, Finland

Production Units / Networks Technology : Brazil,

China, Germany, Great Britain, Hungary, India,

Mexico, South Korea

Sector (main business activity): Manufacture of telecommunications equipment and apparatus (NACE Rev. 1.1 DL 32.2)

Year of foundation: 1865

Number of employees: n.a.

Turnover in last financial year: 34.191 Billion Euro

Primary customers: Operators, distributors, retailers and corporations

Most significant market area: Mobile phones

Main e-business applications studied: Integration of inter-organisational processes;

Use of standards

Background and objectives

Nokia is a world leader in mobile communications. It provides equipment, solutions and services for network operators and corporations. Nokia has a world market share of 35%. Its main competitor is Motorola (USA) with a market share of 17.7%. Number three in the market is the South-Korean producer Samsung, followed by LG Electronics and the Japanese-Swedish cooperation Sony-Ericsson. The importance of smaller producers continues to decline. Producers not belonging to the largest five have even experienced a reduction in turnover.

Nokia's growth strategy – the answer to convergence

The communications industry, being Nokia's most significant market area, continues to undergo significant changes as more users in growth markets gain access to mobile communications, enterprises becomes increasingly mobile, the importance of end-to-end solutions increases and technology continues to evolve. Another trend is an increased emphasis on the role of customization in mobile devices. These changes have demanded agility and flexibility from industry players to adapt to new market conditions rapidly. Thus, Nokia aims at capitalizing on efficiency and its skill in execution as well as demand supply chain management to respond to these requirements. The company enters new product and service niches, as technologies from diverse industries start to converge. Keeping



pace with convergence requires offering more comprehensive products and entering into new business areas. Pursuing these goals, Nokia intensively expands by endogenous growth and acquisitions. However, acquiring new companies creates a challenge of *seamless integration* of separate organizational entities, ICT infrastructures and business processes. Nokia's approach to business integration is to use standardized interfaces and business processes facilitating the cooperation between Nokia and its suppliers and subsidiaries.

e-Business activities

Nokia is a devoted user of e-business applications. In nearly every business area, the company has an operating ICT application, e.g. ERP, SRM, SCM, which has been in place for a relatively long time. For example, the ERP system has been used for over 10 years. However, the increasing complexity of supply chain management and the pressure to increase the efficiency of operations at every stage of the production process, also requires the company to extend the capabilities of ICT applications to external operations. This is particularly visible whenever a new company is acquired and has to be integrated into Nokia's value chain. Since a successful integration of business processes is a condition for a successful merger, Nokia adapted three alternative solutions, which can be used side by side to facilitate process integration with entities belonging to its network: *Web access tools*, which are deployed to facilitate operations and integrate applications between Nokia and its customers and suppliers. *Interfaces* and *standardized processes*, which are based on RosettaNet standards, Nokia's chosen de-facto standard for automating system-to-system integration.

Electronic Data Interchange (EDI), which is the most common standard in manufacturing industries for business-to-business transactions. Nokia actively drives the development and adoption of standardized business processes and interfaces based on its demand-supply network's business priorities. These priorities are derived from needs that arise for either Nokia or any of the suppliers while using standards for communication and process integration. By applying standardized business processes and system interfaces, Nokia is able to change proprietary solutions into a common system supporting communication across multiple platforms, applications and networks. This guarantees seamless communication and information exchange between companies or business units cooperating with each other. Nokia currently has standardized connections in its production network covering almost all critical business areas and 75 of its most important suppliers. The focus thus lies on integrating the suppliers that play a crucial role in the value chain.

Impact

Miika Andersson, Nokia's RosettaNet Champion, stated that "building a common connection has minimal requirements for implementation. Yet, making own back-end processes and system standards compliant is very critical to be able to realize benefits from process integration, and sometimes requires flexibility internally to make compromises in own back-end processes. However, once done this is not needed anymore for further implementations with other trading partners." Today, using standardized business processes and interfaces is a "business-as-usual" procedure within Nokia, although not the same processes are used with all suppliers. Furthermore, still new processes are constantly adopted. Although Nokia did not share any particular number, Mr. Andersson stated that "communication and processes, handled via the RosettaNet standards, is a 'quite big part' of the business volume." Nokia states that implementing standardized interfaces and processes forced both Nokia and its trading partners to 'clean' their own back-end business processes and systems. This is, according to Miika Andersson, the biggest and most important impact. Nokia maintains that the deployment of standard-based automated processes between systems operating between various organizations and business units is key enabler for: speed, visibility and collaboration in the extended value chain, transparency and efficiency in each business transactions, and efficiency and speed in implementing new business processes with trading partners. Unfortunately, Nokia did not give any numbers to make the advantages and impacts on their business processes and demand-supply network more tangible. This is also due to the fact that Nokia's focus is on integrating processes to make them



work well rather than going into detail by modifying and analyzing business processes. Thus, the company has not conducted a deeper analysis on the impacts, especially concerning any organizational issues.

Lessons learned

According to the company's speaker, two main issues emerge as particularly important in the process of business integration. The adoption of standard processes and interfaces was a natural choice of many suppliers and business units. The company did not need to encourage any supplier to adapt them. Instead it was the suppliers that encouraged Nokia to apply them in the first place. Suppliers who need to deal with many other costumers saw the significant advantages of using one communication framework before Nokia encountered them for itself.

Process integration is a journey rather than just switching on a system, which requires patience and ongoing attention. In order to improve the communication and information exchange between the members of Nokia's value network, the company is still in the process of adding new applications, processes and suppliers.

Conclusion

It is true that Internet-based software products developed by start-up companies have recently experienced a major setback. However, while the Internet bubble may have burst as an opportunity to make quick money, we believe the influence of Internet on supply chain management is still alive and well. Rather than disappearing, it is expanding in breadth and depth alike. More companies are opening Internet channels and more buyers are ordering over the Internet. Also, applications are getting more sophisticated. For example, industry exchanges do not only handle transactions, but also generate data. The researchers have concluded that at Cadbury, the implementation of ERP brought in a new way of warehouse management system and brought in structure to branch offices and the depots. It was successful in integration of the practices of SCM while implementing the ERP systems, the company has built it upon the past strengths of the company thereby not losing out on its competitive advantage. The researchers have concluded that at Nokia, the critical factor for the success of business process integration is to understand the need to ensure back-end processes and system readiness. Nokia says that underestimating the importance of these back-end processes by integrating ERP with the SCM for the system readiness is often a cause in delaying the implementation of a process with certain partners. Thus Nokia also successful in gaining Competitive advantage by this integration. We therefore, direct the future researchers could conduct similar research in the this field as this field is more dynamic in nature.

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