

Strategic Information Management

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Abstract

In this paper on an example of a standard company we identify a strategic information system (IS) issues in an organization. We critically analyze and critically evaluate the organization's practice to solve the problems connected with the implementing strategic information systems. We try to discuss the wider organizational implications of the steps taken by the organization in the use of IS and their consequences.

Introduction

In this paper we will consider a company in Slovakia, with above average industry performance. Geographic accessibility of the company's major markets in WE and CEE, together with low cost operations, represent the major competitive advantages of the firm. Declining markets, existing production, overcapacity in Europe, and increased imports from Asian low cost countries intensify competition and enhance further industry consolidation.

The company has a long-term history of local 'big successful enterprise operating in a mature industry and stable CEE environment, with all implications on organizational structures, systems, company culture, processes, leadership and peoples' mindset. After privatization of the company in mid 1990's, international company took-over management control (50% shareholder). The company became strategic business unit (SBU) of the multinational enterprise (MNE). The integration of the company into MNE structures triggered massive restructuring and downsizing processes within this SBU and implied cultural clashes. On the other hand the integration created the opportunity to utilize the synergies from common distribution channels, procurement and production planning.

Core thesis

Lack of the company's emphasis on information systems integration with customers and suppliers, and the resulting poor/inefficient information and information exchanges within the value system, represents the major missed opportunity for value creation and was one of the underlying reasons for company's takeover. The company's over reliance on internal value chain optimization as a source of competitive advantage has proved to be an unsustainable source of competitive advantage.

Business Strategy

The company's competitive strategy can be characterized as a hybrid strategy (Johnson and Scholes 2002), where the low cost base (cost leadership), reinvested in low price, is merged with differentiation based on quality, reliability, flexibility, innovation and sustainable value creation for all key stakeholders. The company's current business strategy can be characterized as a turnover strategy (Gerstein 1983) that followed the company's take-over and subsequent integration of this SBU into MNE structures. The turnaround strategy has not been driven by poor financial performance (SBU has enjoyed sound financial performance), but rather by the desire of new shareholders to increase productivity and to change organizational culture and structure, which are necessary measures asserting sustainable competitive advantage of a low cost, lean and entrepreneurial enterprise. Despite the management rhetoric (Carter and Jackson 2004) expressed in MNE's business strategy, in reality the cost cutting and strong centralization are dominant in SBU, in the context of a mature industry, severe price competition and the SBU's background.

This paper examines the alignment of IS and business strategy and the contribution of IS practices towards business objectives.

IS strategy

From strategic point of view the issue is the extent to which the improvements in information processing capability can improve and assist the way in which knowledge is created and shared both within and around an organization (Johnson and Scholes 2004).

The competitive pressures have resulted in the takeover of company by MNE. The company, as a SBU of a large multinational enterprise is in a position of Implementor (Gupta 1991—see Figure 1) and its IS strategy making process could be plotted on Whittington model (2001) as classical (Grant 2002), where over reliance on higher-level strategies (from MNE) is apparent. The company is ‘forced’ to accept systems from other units

(located in Austria) for largely economic (or even political) reasons, without recognition of their differing business situations and organizational competencies (Ward and Pappard 2004). The resulting application portfolio of the company is shown in Figure 2, with focus on Key operational and Support systems. The strategic IS are designed centrally and rolled over to the SBU, so that the approach to corporate strategic information system planning could be identified as an incremental one (Salmela and Spil 2002). Overall IS strategy focuses on the integration of existing IS within SBU’s, as well as external integration with wider value chain partners (SCM) with the aim of supporting both the cost leadership and differentiation strategy.

Outflow of knowledge from MNE to the company	High	Global Innovator	Integrated Player
	Low	Local Innovator	Implementor
Figure 1		Low	High
		Inflow of knowledge from MNE to the company	

Analysis of IS procedures and practices

Porter and Miller (1985) assert that management of information systems can no longer be the sole province of the EDP function such as accounting and record keeping, focused on cost control and reduction. The use of advanced information systems in value chain activities allows companies to enhance competitive differentiation as well as attain cost leadership and consequently gain sustainable competitive advantage. In other words, the ability to pursue cost reduction and differentiation simultaneously should be a criterion for IS utilization. Earl (1998) asserts that IS must have the potential to be a strategic weapon in at least one of the following: (1) gaining competitive advantage; (2) improving productivity and performance; (3) enabling new ways of managing and organizing; (4) developing new businesses. These views suggest that the utilization of IS in strategic and managerial activities is more important than their use in operational contexts (Soo 2002). The following part of this paper analyzes and critically evaluates the company’s practice in addressing the issue of low internal and external integration of its information systems and its negative impact on upstream and downstream value creation.

Internal value creation

The company has consistently tried to enhance its business efficiency and effectiveness by reassessing its internal business operations such as purchasing, warehousing, materials management and distribution. This has involved using techniques such as Manufacturing Resource Planning (MRPII) and Just-In-Time (JIT) to improve internal value chain effectiveness and efficiency. The company has implemented its major ERP system (SAP R3) in early 1990’s (comprising FI, CO, HR, MM, SD and other modules). The company achieved relatively high internal integration of the processes within the company’s value chain towards the end of 1990’s.

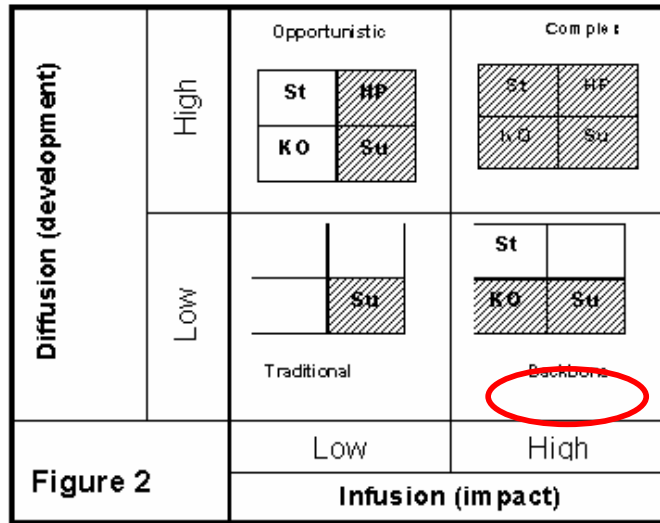
However, after takeover by MNE, many non-integrated applications were implemented replacing SAP’s existing functionalities (e.g. for sales, Cost controlling, etc.), as the parent enterprise had implemented SAP only to a limited extent. The situation for the company represents a step back in their internal integration efforts for sake of uniformity of the group IS. The major barrier towards full internal integration of the company’s information systems therefore represents the variety of applications used for different processes. This shows poor strategic information system planning (SISP) at MNE level, in the context of a fast growing group (through external acquisitions) where IS was considered not a strategic weapon, but rather an operational information processing tool. The cost versus value added quantification of IS integration has been problematic (topic is

beyond the scope of this paper). Moreover, the integration of IS in the context of MNE has the additional dimension of intra SBU/corporate integration, which is considered a major issue at the corporate level.

The clear decision on the major platform for integration has still not been taken, but a feasibility study undertaken by a team of internal and external experts has shown that the most beneficial medium-term solution lies in building the data warehouses on the top of existing applications ensuring the gathering, integration, storing and sharing of the available information for users. Moreover, historically strong focus on internal value chain integration reduces opportunities of whole value chain in which the company operates for cost savings and leads to duplication of effort, maintenance of redundant systems, and investment in inefficient processes such as manual entry of data when machine sources are available.

External value creation

The company is in today’s highly competitive global market place required to reassess its business operations and examine both internal processes and external linkages with business partners to satisfy the changing needs of their customers, react to the actions and new business models of their competitors and opportunities afforded by new technologies (Chaffey 2002). Therefore the process of re-engineering the whole supply chain and examining the linkages between internal and external functions has started at MNE level. The project is facilitated by an external consultant company and comprises a wide range of information systems applications on both the supplier and customer sides of the value chain. The major part of the report will analyze the external upstream IS integration.



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The company moved from the first phase of Inter-organizational information system (IOS) development (Shore 2001), where paper copies of purchase orders, bills and invoices represent most of the information flows over the last decade. The company currently processes purchase orders and invoices as well as provides its customers with order status, pricing enquiries and scheduling transactions via Electronic data interchange (EDI) using value added network (VAN) and heading towards the third phase of IOS development where there is integration between information management systems of the company and the Web (Shore 2001). The company is now in process of integrating its current applications into Enterprise Resource Planning (ERP) systems (Haiwook 2001).

The major barriers towards the smooth integration in the company are both poor internal integration of applications used for different processes, and lack of industry standards (supplier and customers using variety of different systems), making value system management difficult.

Upstream value creation using integration of IS

Contribution of the company’s practice in respect of IS improvements towards their higher integration is analyzed and critically evaluated using an example of systems integration of the company and its packaging materials supplier. The targets of the project called Supply Inventory Management (SIM) were defined as follows: increase forecast accuracy and delivery performance, reduce supply chain planning cycle time, synchronize inventory supply/demand schedules, automate inventory replenishment, proactively identify and resolve exceptions, eliminate unnecessary administrative burden and drive continuous improvement with integrated intelligence (Zuckerman 2005). The Project is part of the wider MNE group movement CSC aiming for building collaborative supply chain system based on utilization of synergies from information sharing via integrated supplier/customer information systems.

Cost reduction

The presented project contribution towards the cost leadership could be found in improved planning processes, where the information about demand is shared with the supplier. In particular the sales information system of the company is providing demand level information based on booked orders from the company's final customers. This information is combined with the company's SAP MM module information on standard consumption of packaging materials. The transfer of information is supported by an Extensible Mark-up Language (XML) standard. The solution provides the intelligence feature of automatic safety stock levels calculation which, in combination with current stock levels of packaging materials (as per MBP MM SAP module), enables automatic planning of replenishment of packaging materials. The cost benefit therefore at this stage comes from replacing non-integrated (mainly human, excel based) planning processes with automatic system based processes, saving administration costs (headcount, paper, etc). In addition, it eliminates redundant planning processes (on the supplier side, as the system is providing plans based on shared data from the company). The accuracy of plans also increases, as well as planning flexibility where automatic changes are executed following the changes in final customer demands. The cost benefits are shared though between both parties involved.

The intelligence features of the new systems enable the trigger of automatic ordering process, once inventory level reaches the predefined floor. Based on production planning data it then generates the optimal order quantity by item. The tentative or real electronic order report is generated and fed into the suppliers SD SAP module. The system therefore recognizes whether the delivery is to be made at a specified date or just held available as part of supplier's stock (supplier managed inventory). Subsequently, automatic order procedure is executed on the side of both the company's and the suppliers' MM or SD modules with updates of all relevant ledgers. No manual input is needed for standard items representing as much as 98% of transactions. Major direct cost savings impact of the automatic ordering process is in administration (no paper orders, no confirmations by human, headcount reduction, accuracy). These intelligent data sharing system features provide the opportunity for supplier inventory management (SMI) where it eliminates reasons for buffer stock on the company's side (responsibility is based on SLA on the supplier), and also enables the optimization of stock levels on the suppliers' side, based on accurate and timely information on demand for packaging material. The new quality of data exchange enables management of the consignment inventory model. The cost savings are therefore in working capital reductions, lower storing and ordering costs for both parties. Moreover, the financial part of standard packaging delivery procedures (invoicing and settlement are also covered by the SMI project. Invoicing process is triggered by the company's SAP MM module information on consumption of an item (i.e. customer does not own any packaging materials at all). The invoices are electronic, issued based on SLA prices agreed per period without human confirmation (except discrepancies identified by SAP), where automatic updates of AP and AR ledgers are ensured by SAP on both sides. Payments are processed based on automatic procedures, where both companies share a cash pooling system facilitated by an electronic payment system. The new level of systems integration enables indirect savings in the area of financial processes (lowering outstanding balances of AP/AR leading to improved working capital and cash flow and lowered administration costs of maintaining AP/AR ledgers).

Other sources of Differentiation Advantage

The new level of systems integration enabling better information exchange between both partners within the industry supply chain also supports the differentiation advantage of the company's both partners. More specifically, improved production planning enhances better utilization of production capacities, and increases the flexibility (volume and time) of the supplier. Resulting shorter lead times and improved delivery accuracy, enables the company to react to ultimate customer requests more promptly therefore creating differential advantage. The quality of final products is enhanced due to lower rate of human based errors in the processes and improved planning and control mechanisms implemented, as well as enhanced quality of service received from supplier (due to the company being perceived as a good customer). Supplier power is being decreased as they share common benefits from closer cooperation, however their switching costs are increased, balanced by opportunities for additional revenue creation. In addition, the upstream value chain analysis and subsequent restructuring identified the possibility of eliminating an intermediary from the chain. The new model, using extensive information exchange in real time with intelligent features, reduced the value added of this value chain component dramatically. The elimination of the intermediary meant exclusion of its margins from the chain as well as reducing total lead-time, making the supply chain it less costly and more flexible.

The targets fully support the cost (business process re-engineering eliminates redundancies, improves/streamlines processes and increases their transparency, and enables stock level reductions on both the company and supplier side, automation of human based processes, brings less administration and errors) as well as the differentiation competitive strategy (shorter lead times, higher flexibility, knowledge sharing). This information sharing has allowed the company and the supplier to improve operational efficiency and has resulted in substantial benefits. The company has reduced stock-holding costs by about SKK 20 million and improved stock management. The supplier has benefited by increasing service levels and thereby increasing sales by up to SKK 2 million per annum. Unfortunately, quantification of targets has not been performed and evaluation/monitoring/control mechanisms are not established.

Downstream value creation using integration of IS

Sales and Marketing functions are fully centralized at MNEi level, therefore the company has very limited chance to influence the ISPS used to integrate our systems with downstream value chain. The CSC project at MNE level is aiming to improve the integration of internal value chain with the major customers, however it is still in its planning stage. The project is still very much focused on integration of IS among SBUs and corporate level. The successful internal integration is a necessary precondition for the next stage of integration.

The competition moves are signaling the establishment of a strong alternative industry value system, based on downstream vertical integration of a major manufacturer with a major merchant company. The manufacturer aims to achieve advantages from being closer to its customers. This acquisition provides the manufacturer with excellent distribution network fit in terms of additional geographical market coverage, as well as access to IS expertise of this distributor. The integration of the merchant company into existing manufacturer structures and information systems will be crucial and will shape this industry in Europe.

Following Porter's (2001) argument SCM and CRM are starting to merge, as end-to-end applications involving customers, channels and suppliers link orders to manufacturing, procurement and service delivery. This situation represents a major challenge for MNE. There are several options open to respond to this competitor move: to build up an alternative competitive supply chain, follow the move and acquire a similar distributor, or enter into a collaborative relationship with other players (or even the abovementioned manufacturer) and further develop and share benefits of a unified distribution channel. In any case IS will play an important role regardless of what path MNE selects. While it is more dangerous than ever to ignore the power of IOS, it is even more dangerous to believe that on its own an IOS can provide an enduring business advantage (Keng 2003). Keng also suggests that new competitive philosophy should be: to compete on the use of electronic tools not on their exclusive ownership. This represents value creation proposition that might match the competitor's move – eliminate the merchants from the value chain by building an end-to-end customer IS based on internet technology that would save costs, generate value and increase flexibility of the chain.

Application of network-based coordination and optimization are the collaborative process-outsourcing possibilities available when enough members are connected to the network (Christiaanse 2005). Opportunities to optimize transportation and logistics arrangements are presented by MNE's alliance with logistics company, which capitalize on expertise of the partners. Basis for collaboration is utilization of IS and infrastructure (Cross Docking Centers, Warehouse Management Systems). Detailed analysis of the project is beyond the scope of this paper.

Conclusion

The company became part of MNE competing on global markets within global industry value chain with strong competition. The resources used by competitors are to high extent similar (technology, people, money), difference makes how those resources are employed/managed. Nowadays financial markets are looking at a broader picture in order to understand the perspectives of businesses that are often not obvious from its financial statements. Intellectual capital that includes company information systems management abilities is often the distinguishing factor of perspective and profitable companies and drives companies' value (Couger 1995). IS at the company has been traditionally focused on supporting internal efficiency. Firms must have trusting long-term relationships with each other and with the B2B marketplace itself to allow members to penetrate this deeply into each other's internal business processes. IS potential to generate value is in inspiration, creation and support of collaborative value networks rather than reducing internal data processing costs. The company realized the challenge and is moving in the right direction in terms of integrating their IS into the changing industry value chain to generate additional value for all stakeholders.

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