

Title	Building Interorganizational Systems Using Supply Chain Management and B2B Technologies
Topic area	Commerce and Competitiveness
Abstract	Supply chain management is an integrated system in managing business processes across organizations. Rather than just coordinating traditional functions, SCM systems are identifying and managing activities that cut across all of the organizations involved in delivering a product to the customer. In a traditional channel of distribution, even if logistics activities are well managed, there is still a lack of coordination and integration between organizations which may lead to increased costs and a decreased level of service. The solution to this problem is the integration in interorganizational systems by developing different forms of ePartnerships like value chains or virtual network alliances.

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Today's commercial environment offers companies many business opportunities. The new Internet based markets have grown a lot over the last decade, and it is expect for the B2B eCommerce sector to climb into the trillions of dollars worldwide in the next few years. Commercial transactions using Internet technologies can be different from business to business. Example appear in electronic data interchange (EDI), auction and procurement markets or in distribution and logistics systems. Also, in business-to-consumer markets, electronic commerce tries to increase the access to products and services in order to fulfill consumer needs, and to improve customer relationship management services.

Supply Chain Management (SCM) is a well-known and accepted concept in logistics and operations management theory and it is defined by Strader as a set of management techniques that are used to improve coordination and competitiveness beyond the enterprise level to include interorganizational relationships. Practically, SCM exists in every industry and generally involve all the procurement processes, including the transformation of materials into final products and delivery of the products to clients through a distribution channel. Managing the SCM system involves the coordination of the materials inventory and the production capacity availability in order to satisfy forecasted market demand.

Recently, there have been significant changes to the traditionally supply management techniques, changes that utilize information and communication technology in new ways in order to enable organization to satisfy orders and coordinate the modifications needed to make the new supply chain work. This can be done by selling products directly from the Internet, through a set of low-cost and high-performance complex solutions. In this context, the IT technologies with major impacts for the supply chain management functionality are the one based on B2B platforms. The most significant SCM operations that can be performed in custom forms by using eCommerce solutions can be divided in three categories: execution by synchronizing all the resources associated with any transaction, planning by forecasting how to distribute for the next period and monitoring by tracking orders and shipments in order to confirm the deliveries.

The specialists defined this type of supply chain management in relation with the managerial processes and relations and with the functional and structural organization of companies by introducing the concept of “SCM organisation”. This referred to the fact that all organizations must have strategic initiatives in order to increase the capability and efficiency of the supply management systems by developing long-term strategies involving procurement, supplier management and by increasing the focus on the strategic management of information and communications via B2B channels. Looking from the supplier perspective, implementing this kind of technologies allow many benefits like: the improvement of supplier’s competitiveness by increasing efficacy and efficiency; lower costs; improved customer satisfaction; it allows the suppliers to differentiate themselves on the market; it assures better use of the organization strengths in the field of technology investments, business intelligence and decision-making abilities.

Although implementing business-to-business technologies brings some benefits to the SCM organization, many specialist consider that the impact of Internet on supply chain management has been “evolutionary rather than revolutionary”. The Internet has made possible new ways to buy and sell products. However, because the process of distribution is not directly influenced, the manufacturer’s supply chain itself has not fundamentally changed, and therefore, supply-chain management is not essentially affected. The key factor to increase the benefits of using B2B on SCM systems is to double the effort of implementing those technologies with the one of developing of new management methods and techniques, integrating the organizations into interorganizational systems (IOS) and redesigning of all existing processes.

The advantages of IOS integration is that it make possible new ways of competing in the market through enabled virtual alliances. Also, the creation of new forms of IT-enabled alliances can radically transform the management of the companies by using business process reengineering techniques. Generally, IOS integration increase interorganizational interdependency, linking information systems and creating relations between strategies and organizational structures. Furthermore, the companies that adopt IOS alliances need to consider the need of an long-term strategic plan and must establish guidelines and policies in order to provide maximum benefits from the IOS implementation.

The general opinion of specialists is that, in order to develop a successful integration of the organization in an IOS system, the management of the company must consider the impact of the following problems: the details of the partnership between organizations (ePartnership), the ethics and technology trust issues, the value system integration and the way of developing the value chains.

E-Partnerships are business transaction protocols in which participating organizations communicate with each other mainly through electronic technologies. The web-based resources and systems are essential for the ePartnerships and virtual organizations. However, like all B2B technologies, ePartnership is also confronting with many issues related to the use of Internet platforms in interorganizational relations. Most of the specialist consider that the key problems are: opportunities and risks of developing ePartnerships, the profit sharing, the way of transferring and sharing knowledge between the partner organizations, quality and effectiveness of communication. Each of these issues in an important task for e-managers in order to assure interorganizational collaboration through electronic technologies. Secondly, running ePartnerships requires the implication

of decision-making structures from each participating organization and fundamental principles for managing collaborative activities.

A very important issue related to the IOS integration is the ethic and technological trust problem. Interorganizational cooperations using business-to-business technologies implies the notion of trust in the transaction infrastructure and the control mechanisms, with implications in the transaction integrity, confidentiality, authentication, and business best practices. This type of institutional-based trust was described by McKnight and Chervany as a critical part of Internet transactions. In their opinion, the term of technology trust is related to a set of technical standards, security procedures and protection mechanisms.

Technology trust increase eCommerce performance in many different ways. The economic benefits from technology trust are based on increasing efficiency by reducing transaction costs, which is the result of the eCommerce technologies automation. In addition, these applications allow organizations to log to the supplier's extranet website, analyze shipment details, and forecast arrival dates of the goods they ordered. Also, trustworthy firms are able to satisfy their customers by delivering the goods on time, contributing to increased customer satisfaction and business value. The increased satisfaction obtained from technology trust leads to perceived economic benefits derived from increased volume, diversity, and value of eCommerce transactions.

Also, developing interorganization systems requires value system integration, that can be defined as a the process by which multiple organizations within a shared market segment collaboratively plan, implement and manage the flow of goods, services and information along the value system in a way that increases customer-perceived value and optimizes the efficiency of the chain (Dobbs,1998). Company value chains are transformed into integrated value systems if they are designed to act as an extended virtual organization. The benefits of integrating company values in an IOS system are inventory reduction, cost savings, improved value added goods and services to customers, and better relations with participating organizations. The infrastructure needed to support integrated value chains include eServices and computer-supported negotiation agent systems. A common technology for solving problems of this kind is intelligent software agents, that are computing component capable to perceive the environment and make necessarily adjustments on the communication with clients and suppliers according to the negotiation strategy of the company. In many cases, intelligent agents use an decision selection mechanism based on the multi-attribute utility theory in order to make decisions in the negotiation process.

The development of IOS systems and the necessary business process reengineering must start from Porter's theory(1980) who considered these concepts when he derived his classic internal value chain showing primary activities which a business must do to exist, and the secondary activities required to control and develop the business and which are common across the primary activities. The value chain of the organization is a part of the industry value system, and the whole value system is formed from the value chains of customers and suppliers. A common example of value chain in IOS systems is the demand chain, which is the fundament of the supply chain management system, composed from production planning, inventory management and actual purchase, and has two important points: the order penetration point and the value offering point.

Furthermore, the IOS system can be electronically integrated in virtual network alliances. This represents the basis for a virtual organization where the alliance combines products and services in one package, forming one single supply chain. Participants may come together on a project-by-project basis, but generally the general coordination is provided by the general contractor.

The key factor is the total quality ePartnership which embodies the fundamental principles for managing collaborative activities. In this context, business-to-business and supply chain management can support cross-enterprise collaboration and provide the technological frame needed for interorganizational integration. Depending on the organization strategy, this integration can be done at three levels: supporting short-term activities between small teams working across enterprise functions and participating in small business processes; enabling tactical decisions at a business unit level in order to profit from a market opportunity or to react to a competitive threat; sustaining long-term activities that integrate an enterprise's core processes in the supply and value chain, creating a complex multiorganizational virtual market.

References

1. Khosrowpour M. *The Social and Cognitive Impacts of e-Commerce on Modern Organizations*. Ed. Idea Group Publishing, Londra, Anglia. 2004.
2. Loshin P., Vacca J. *Electronic Commerce, Fourth Edition*. Ed. Charles River Media, Londra, Anglia. 2004.
3. Radu I., Ursăcescu M., Cioc M. *Informatică și management*. Ed. Universitară, București, România. 2005.
4. Reynolds J. *The Complete E-Commerce Book: Design, Build, & Maintain a Successful Web-based Business, Second Edition*. Ed. CMP Books, New York, SUA. 2004.
5. Singh M., Waddell D. *E-Business Innovation and Change Management*. Ed. Idea Group Publishing, Londra, Anglia. 2004.
6. Warkentin M. *Business to Business Electronic Commerce: Challenges and Solutions*. Ed. Idea Group Publishing, Londra, Anglia. 2002.
7. Wincel J.P. *Lean Supply Chain Management: A Handbook for Strategic Procurement*. Ed. Productivity Press, New York, SUA. 2004.