Chapter XIII

Dynamic Digital Process Integration in Business-to-Business Networks

Merrill Warkentin
Mississippi State University, USA

Transparent end-to-end business process integration is the leading edge of today's business-to-business electronic commerce revolution. Firms enter into electronic inter-organizational networks not only to conduct procurement-oriented transactions (supply chain management), but increasingly, they are strategically outsourcing business processes and activities which are not part of the their distinctive competence (strategically core activities) and provided by a new breed of digital process specialists.

The evolution of agent-based inter-organizational systems enables complex direct interaction between heterogeneous information systems, which allow Web-based eServices to act autonomously, communicate independently, discover each other, provide dynamically configured services to one another, and establish composite business systems.

INTRODUCTION: STRATEGIC OUTSOURCING AND INTER-ORGANIZATIONAL SYSTEMS

Early traditional businesses were vertically integrated. Many companies owned or controlled their own sources of materials, manufactured components, performed final assembly, and managed the distribution and sale of their products to consumers. Over time, nearly all firms began to contract with other firms ("outsource") to execute various activities along the chain from raw materials and

components supply to manufacturing to distribution and sale in order to concentrate their activities on their core competence. In every industry, new business service providers emerged to fill the need for this outsourcing activity.

The eCommerce system design process includes steps for planning, designing, building, hosting, and operating eBusiness systems. A firm may execute all the activities in this process internally (in-house) or it may choose to utilize the experience and expertise of appropriate specialist firms who can assist in achieving success in eCommerce. For example, an eCommerce firm must design and operate its order fulfillment system and outbound logistics (delivery) functions, or must identify and partner with an external provider of these services. It must provide customer service to the new customers of its Web site. Most eCommerce-related enterprises practice extensive outsourcing of various business processes. While concentrating on core competencies, they develop strategic alliances with partner firms in order to provide activities such as payment processing, order fulfillment, outbound logistics, Web site hosting, customer service, and so forth.

One of the greatest impacts of information technology has been its ability to create linkages between companies. Inter-organizational systems (IOS) are networks of information systems that allow organizations to share information and interact electronically across organizational boundaries (Kaufman, 1966). These systems "enable firms to incorporate buyers, sellers, and partners in the redesign of their key business processes, thereby enhancing productivity, quality, speed, and flexibility" (Applegate et al., 1999). Historically, most IOS were designed to share narrowly defined data and information, such as inventory information, not rich valuable knowledge. The processes had limited ability to adapt, share unusual information, or create new business models. IOS range from simple routine messaging to totally integrated business processes, supported by shared databases and applications. This end-to-end integration is the ultimate form of business-to-business electronic commerce.

Inter-organizational systems exhibit three successive levels of control (Applegate et al., 1999). At the data-control level, IOS participants merely send or receive data or both. EDI systems are primarily data-control IOS. Some systems are unidirectional, while others may allow interactive data sharing. Process-control IOS maintain software that controls the underlying interactivity with partner firms and the related information. However, firms deploying these systems also incur coordination costs. Finally, network control IOS are owned and operated by one or more participants, who incur considerable costs along with the control. Costs arise from activities related to maintenance of integrity, security, and reliability. The Internet has created

Related Content

E-Books in Higher Education: Technology, E-Marketing Prospects, and Pricing Strategy
Norshuhada Shiratuddin (2005). *Journal of Electronic Commerce in Organizations (pp. 1-16).*
www.irma-international.org/article/books-higher-education/3452

E-Learning Business Models: Framework and Best Practice Examples
Sabine Seufert (2002). *Cases on Worldwide E-Commerce: Theory in Action (pp. 70-94).*
www.irma-international.org/chapter/learning-business-models/6503

Buying and Selling Prescription Drugs on the Internet: Canada-United States Trade
Phillip Rosson (2004). *Journal of Electronic Commerce in Organizations (pp. 47-63).*
www.irma-international.org/article/buying-selling-prescription-drugs-internet/3440

Mobile Banking and Payment System: A Conceptual Standpoint
Aijaz A. Shaikh, Payam Hanafizadehand Heikki Karjaluoto (2019). *Digital Currency: Breakthroughs in Research and Practice (pp. 66-82).*
www.irma-international.org/chapter/mobile-banking-and-payment-system/207540

E-Commerce and Mobile Commerce Application Adoptions
Charlie Chenand Samuel C. Yang (2006). *Encyclopedia of E-Commerce, E-Government, and Mobile Commerce (pp. 284-290).*
www.irma-international.org/chapter/commerce-mobile-commerce-application-adoptions/12551