

# Business-to-Business Networks

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## INTRODUCTION

Business-to-business networks in a broadest sense are inter-organizational systems (IOSs). In the literature, the term IOSs and inter-organizational information systems (IOISs) are often used interchangeably. An inter-organizational system (IOS) is an information and management system that transcends organizational boundaries via electronic linkages with its trading partners to share data, information, and business applications. It provides the capabilities of electronic transactions including buying and selling goods and services, and also facilitates communications and decision making to increase efficiency, effectiveness, competitiveness, and profitability for participating organizations. The electronic linkage is established by the Internet, extranets, intranets, groupware, electronic data interchange (EDI), workflow systems, mobile communication technologies, and other information and communication technologies.

Since the invention of the first computer in the mid-1940s, the computing technology continues to evolve in response to the changing business and technological environments. One way of tracing the evolution of organizational computing patterns since the mid-1940 is to classify the five distinct eras of computing: (1) mainframe, (2) mini-computer, (3) personal computers (PCs), (4) interpersonal computing, and (5) Internet-working. In the late 1980s, many organizations began to link their PCs and other computing devices that were dispersed over a relatively confined area (e.g., a building, a building complex, a university campus, etc.). This network is called a local area network (LAN). Another important networking type within a geographically confined area is the private branch exchange (PBX); PBX is a network of telephones, faxes, and computers that enables users in an organization to place calls to each other and exchange data and voice without going through the public telephone network. The LANs and PBXs are connected to the mainframe and mini-computers.

The next step of networking is the creation of WANs that connect two or more LANs, which are dispersed over much longer distances (e.g., among many cities, states, and countries). WANs often include enterprise networks, a network of all LANs of a single organization in a country, or more than a country (global networks). Multiple computers are being linked together to work together over a network to accomplish a common task via sharing processing activities.

The corporate LANs and WANs have become an inseparable part of the Internet. The emergence of the Internet has transformed the computer and information industry and the way people use computers. The Internet is the world's largest public network linking commercial and public networks from more than 200 countries around the world. Using Internet technology, business organizations have implemented private (closed), proprietary networks for organizational members' use within a corporation to distribute documents (e.g., newsletters, memos, employee handbooks, phone directories, etc.) and software, access to database, and so forth. Intranet usually employs applications associated with the Internet, such as Web pages, Web browsers, FTP site, e-mail, newsgroups, and mailing lists, and so forth. In addition, the intranet can also provide functions and services to support collaborative activities of work groups such as information sharing, group scheduling, and computer conferencing, and so forth. The software that provides those functions and services is also known as groupware. The intranet offers an inexpensive way for communicating, disseminating information, carrying out cooperative activities such as designing products, writing project reports, electronic conferencing, making group decisions, and so forth, within an organization.

There are several forces in the environment to which a business organization must respond (business drivers). To compete at a global level, business organizations are under the constant pressure to produce better products and services in response to the changing customer demands on time. Consequently, business organizations

have to concentrate on several critical objectives that must be achieved to survive in the new era of global competition. They include increasing productivity, maintaining superior quality, improving responsiveness, and focusing on core business activities. In an effort to further rationalize their operations, some organizations are shifting their strategy from product innovation to scale economies through merger and acquisition, from optimising the value chain in each firm to optimising the value chain of the entire organization and industry (Laudon & Laudon, 2006). In doing so, global networking of business organizations and the networked environment are partly attributed to several technology drivers such as expanded public network infrastructure, development of the Internet, and World Wide Web technologies, rapid development of client/server computing technology, and evolution of relational database technology.

The cornerstone of B2B networks is the Internet, extranets, and intranets. In a narrow sense, B2B networks have been used as a synonym for extranets. In this entry, an extranet is defined as a Web-based wide area network that links a company's employees, suppliers, customers, and other business partners in a secure, electronic online environment for the purpose of conducting business. An extranet is created if more than two companies open part of their intranets to each other. The extranet is an extended corporate intranet using Internet technology operating over the Internet

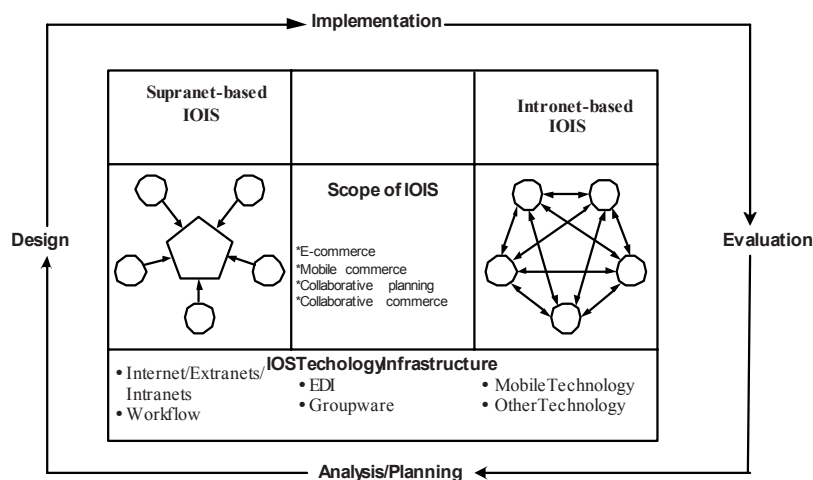
for a wide range of applications to optimize the entire business process. Secured extranets allow trading partners to gain limited (controlled) access to companies' intranets and thereby increase profitability and competitive advantages through managing important organizational activities in the most timely and cost effective manner.

## INFRASTRUCTURE OF B2B NETWORKS

B2B networks, in a broadest sense, are information and management systems that transcend organizational boundaries via electronic linkages with its trading partners. The electronic linkage is established by a host of information and data communication technologies. Supporting IOS activities requires the following:

- The Internet/extranets/intranets
- Mobile computing/multimedia platforms
- Coordination technologies for coordinating resources, facilities, and projects
  - Workflow management systems
- Monitoring technologies
  - executive information systems/executive support systems
- Filtering and negotiating technologies
  - Intelligent agents

Figure 1. B2B networks and inter-organizational information systems management framework (Source: Eom, 2005)



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