The Electronic Commerce Enterprise Environment

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ABSTRACT
The Electronic Commerce (EC) enterprise environment includes networks, relationships, and tools. This paper examines how these subjects work together.

1. INTRODUCTION
Electronic Commerce is the sharing of business information, maintaining business relationships, and conducting business by means of telecommunication networks. Principle technologies involved in EC include: telecommunications and networking, client/server technologies, multimedia and hypermedia technologies (WWW), Electronic Data Interchange (EDI), database management systems (DBMS), message handling and work flow management systems, electronic meeting systems, and cryptography ([25]. The first three levels deal with the communications infrastructure. These levels relate to the communication backbone of the system that provides the functionality. The fourth and fifth levels, secure messaging and services, enable a secure means of search, retrieval, and information delivery. These levels include the tools and services needed to conduct the secure communications. The last two levels describe the products and structures. These levels contain the tools that grant the provision of goods and services to consumers and business partners.

2. THE NETWORK ENVIRONMENTS
Computer networks are used to support the business operations and must be designed to support the business relationships. The requirements for a successful network system include performance, consistency, flexibility, availability, reliability, recovery, and security [10, 24]. These attributes must be monitored and managed to ensure that the network achieves the prerequisite requirements of the business.

As a company’s network expands, the network becomes much more difficult to manage. Topics such as user support, performance, and cost-effectiveness must be constantly maintained, monitored, updated, and planned. Most client/server architectures will expose businesses to distributed environments. Network management becomes even more complex when businesses start dealing with distributed data and replication. For this reason, [7] foresees extensive growth over the next few years for larger, professional services companies that build centralized network management systems. These companies will allow network administrators to monitor highly heterogeneous and geographically dispersed networks from centralized locations.

Firewalls are used extensively to erect access barriers to and from corporate networks. Firewalls consist of computers and/or software that sit between the Internet and the protected business network. It controls and monitors the traffic through the passageway, effectively filtering unprivileged access attempts in both directions (Stamper, 1990). Firewalls can prevent attacks against internal systems; however, they can only provide trivial security assurance against attacks through the Web [24].

The most intriguing development in corporate networks lies in the use of intranets and extranets. Intranets are private networks built on the underlying network structure using Internet technology for the purpose of allowing common data representation mechanisms. Most mon-
aries. They advise companies to “Think globally, build regionally, and operate locally,” and thus, setting the stage for inter-organizational system relationships.

4. THE INTER-ORGANIZATIONAL SYSTEMS (IOS)

To understand how companies can form and nurture successful relations in the competitive marketplace, one must study the underlying concepts behind the different organizational models. The organizational models provide frameworks for business-to-business relationships.

EC transactions depend on cooperation between two or more systems. [9] presents a classification framework for the different types of inter-organizational relationships. His classification in comprised of three major classes: Inter-Organizational Systems (IOS), Multi-Organizational Systems (MOS), and Extra-Organizational Systems (EOS). The first class, IOS relationships, involves two organizations in which a degree of trust and commitment exists. These relationships are usually in the form of a partnerships or alliances. The second class, MOS relationships, occurs between two or more organizations through different types of system connections. The third class, EOS relationships, cross organizational boundaries, but also include key participants who are not organizations, such as consumers and unincorporated enterprises. The type of relationship will help define the types of transaction environments required to support the company’s operations.

The relationships listed above can include varying levels of control and interaction, and they can overlap. Companies may maintain any number of relationships involving one or more of the above classifications. Many of the relationships may directly or indirectly impact other relationships held by the company or those held by its participants. The rule in organizational relationships is that they be beneficial to all participants. At any point when one party does not benefit, the strength of the relationship is endangered. The most important objectives of commercial relationships are cooperation, coordination, and differentiation [8].

5. THE INFORMATION PARTNERSHIPS

There are four types of information partnerships that can evolve through the execution of an enterprise strategy. [2] defines these partnerships as joint-marketing, intra-industry, buyer-seller, and IT vendor-driven. In joint-marketing partnerships, participating companies gain access to new customers and new territories. They expand their borders by sharing the cost of transacting, coordinating, and controlling market changes. Intra-industry partnerships evolve among competitors who see an opportunity or need to pool resources in order to keep up with the competition. This type of partnership is potentially difficult-to-manage because they are driven by the need to survive. Buyer-seller partnerships are those set up by sellers to serve their customers. Through a partnership agreement, the manufacturer or supplier is bound by a performance contract to provide a service, such as maintaining stock levels. An IT vendor-driven partnership allows a technology vendor to bring its technology to new markets by providing a platform for industry participants to offer new, technologically sophisticated customer services.

6. THE ENTERPRISE TOOLS

The growth of enterprise tools is attributable to the drastic increase of competition on a global scale. Corporate decision-makers require accurate information about production, sales and marketing, finance, research and development, and personnel. They require timely information about their corporation and their business environments. How does one retrieve information that is dispersed throughout many corporate business structures, on a wide variety of platforms, and in many types of applications? Information retrieval in an enterprise environment is complex and time-consuming. Once the information is attained, it still must be analyzed [22].

The enterprise tools of today have become multi-dimensional. They focus on achieving an overview of a landscape with ever-changing borders that extend beyond the intellectual grasp of managers. Business intelligence concepts attempt to bring quicker data-to-information conversions and apply methods to format the results for accurate decision-making. These tools integrate many technologies to provide end-to-end business intelligence solutions to enterprises. These tools are classified in two groups: back-end and front-end [4].

6.1. The Back-End Tools

Back-end tools are large, complex software and hardware configurations that encompass a large area of information processing, analyzing, formatting, and presentation. The tools mainly focus on streamlining back-office operations. The back-end tools being implemented include Enterprise Resource Planning (ERP) systems, Supply Chain Management (SCM) tools, data warehouses, and data mining technologies [10]. ERP systems are modular-based, real-time systems that integrate information from many organizational functions. They are designed to tie together dissimilar company functions to create more efficient operations. These tools have been successfully applied in the automation of processes along a supply chain [5, 12].

SCM tools facilitate negotiations between different functional areas competing for communal resources. Typical negotiations arise between manufacturing, research and development, and finance. SCM tools attempt to apply customer information as strategic capital. Even though most companies store large amounts of customer information, they are not able to generate, retrieve, research, and analyze this information in an efficient manner. The challenge of CRM is to help the company use their customer information to endow their customers with a feeling of importance, show the customers that the company understands their predicaments, and to ensure customer satisfaction.

CRM tools are designed to support the organization and customers through all stages in the customer relationship life cycle. These tools retain historical data on each relationship as they evolve through contact, and they allow organizations to share this data across functions. Since many teams may be involved with the same customer for different purposes, they still need to coordinate their actions [11].

As EC companies move more towards automation, they begin to lose spontaneity in business decisions. Workflow automation has two sides. It reduces time and cost, but it also takes away the “personal touch.” At the business procurement level, there are new businesses appearing using electronic “business agents” to control business-to-business procurement transactions. The agents link various sites in an industry. These links create “e-markets,” or Java Agent-Enabled Marketplaces [21]. JAMs form 24-hour, real-time automated markets and are programmed for bartering, quality estimations, and reputation management.

7. SUMMARY AND CONCLUSION

The EC environment must fully support the business enterprise. This support is achieved through telecommunication networks, network-type relationships, and tools requiring networks. All
three of the above aspects require teamwork, sharing, cooperation, and integrated processes. The networks provide a means of distributed communication to support the tools and relationships. The relationships enable the pooling of resources that can be beneficial to many parties simultaneously. And, the tools provide decision support for large areas of responsibility with ambiguous borders and many areas of uncertainty.

8. REFERENCES

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