

Unit 1 Electronic Commerce Theory

Text A Overview of Electronic Commerce

The term electronic commerce is heard frequently in corporate boardrooms, in management meetings, on the news, in newspapers (both hard copy and online), and on Capitol Hill. Electronic commerce is one of the most common business terms in use as we embark on the 21st century. So what exactly is electronic commerce and will the term still be important in the years to come, or will it be just another overused and discarded buzzword? In this text we will examine the definition of electronic commerce, categories and the impact on business models and value chain.

1. The definition

Different scholars define electronic commerce in different way. Marilyn Greentein and Todd M. Feinman define electronic commerce as: The use of electronic transmission mediums (telecommunications) to engage in the exchange, including buying and selling, of products and services requiring transportation, either physically or digitally, from location to location. They think electronic commerce is different from electronic business in that the former is restricting, however, and does not fully encompass the true nature of the many types of information exchanges occurring via telecommunication devices. Whereas, the term electronic business also includes the exchange of information not directly related to the actual buying and selling of goods. Increasingly, businesses are using electronic mechanisms to distribute information and provide customer support. These activities are not “commerce” activities; they are “business” activities. Thus, the term electronic business is broader and may eventually replace the term electronic commerce. Although the term electronic commerce is used throughout this text, many of the activities described are more accurately classified as electronic business.

Kalakota and Whinston (1997) define EC from these perspectives:

From a communications perspective, EC is the delivery of information, products/services, or payments over telephone lines, computer networks, or any other electronic means.

From a business process perspective, EC is the application of technology toward the automation of business transactions and work flow.

From a service perspective, EC is a tool that addresses the desire of firms, consumers, and management to cut service costs while improving the quality of goods and increasing the speed of service delivery.

From an online perspective, EC provides the capability of buying and selling products and information on the Internet and other online services.

Lou Gerstner, IBM's CEO: "E-business is all about cycle time, speed, globalization, enhanced productivity, reaching new customers and sharing knowledge across institutions for competitive advantage."

Li Qi, a professor and expert in this field, defines EC from the perspective of productive force. He thinks there should be two definitions. The broader definition is that electronic commerce is the use of electronic tools in commercial activities. These electronic tools range from telegram, telephone of early times to NII, GII and INTERNET of modern times. The commercial activities here refer to all lawful activities of demand and consumption except for typical production process. The narrower definition is that electronic commerce is the whole process in which people, who master information technology and business regulations and rules, systematically use electronic tools and efficiently and low-costly engage in all kinds of activities centering on the exchange of commodities and services in a highly technically and economically advanced society. The first definition can be simplified as commercial electronic application, the second can be shortened as electronic commercial system.

EDI is a subset of electronic commerce. A primary difference between the two is that electronic commerce encompasses a broader commerce environment than EDI. Traditional EDI systems allow pre-established trading partners to electronically exchange business data. The vast majority of traditional EDI systems are centered around the purchasing function. These EDI systems are generally costly to implement. The high entry cost precluded many small and mid-sized businesses from engaging in EDI. Electronic commerce allows a marketplace to exist where buyers and sellers can "meet" and transact with one another.

2. Classification of the EC Field by the Nature of the Transactions

A common classification of EC is by the nature of transaction. The following types are distinguished:

Business-to-Business (B2B). Most of EC today is of this type. It includes the IOS transactions and electronic market transactions between organizations.

Business-to-Consumer (B2C). These are retailing transactions with individual shoppers. The typical shopper at Amazon. com is a consumer, or customer.

Consumer-to-Consumer (C2C). In this category consumer sells directly to consumers. Examples are individuals selling in classified ads (e.g. , www.classified2000.com) and selling residential property, cars, and so on. Advertising personal services on the Internet and selling the knowledge and expertise is another example of C2C. Several auction sites allow individuals to put items up for auctions finally, many individuals are using intranets and other organizational internal networks to advertise items for sale or services.

Consumer-to-Business (C2B). This category includes individuals who sell products or services to organizations, as well as individuals who seek sellers, interact with them, and conclude a transaction.

Nonbusiness EC. An increased number of nonbusiness institutions such as academic institutions, not-for-profit organizations, religious organizations, social organizations, and government agencies are using various types of EC to reduce their expenses (e. g. , improve purchasing) or to improve their operations and customer service.

Intrabusiness (organizational) EC. In this category we include all internal organizational activities, usually performed on intranets, that involve exchange of goods services, or information. Activities can range from selling corporate products to employees to online training and cost-reduction activities.

Note that what we described as IOS is a part of B2B. Electronic markets, on the other hand, can be associated either with B2B or with B2C.

3. The impact on business models and the value chain

Electronic commerce is forcing businesses to rethink their traditional business models. Today's forward thinking CEO recognizes the challenge of eCommerce as a strategic business issue, not just one more technical issue to be delegated to the IS department, perhaps the existing EDI group. Although a company may have reengineered its internal business process and perhaps painfully installed an ERP system to bring inefficiencies to the back office, eCommerce is about reengineering outward-facing processes—industry process reengineering.

Thus, electronic commerce is not just a technology, it is a way of conducting business that has the potential to impact every aspect of the firm's value chain. Implementing full-scale, innovative applications of electronic commerce requires management teams to view the marketplace beyond the typical physical boundaries. Enix Consulting Limited thinks the biggest problem that electronic commerce pioneers encounter is the limited set of mental models that constrain our thinking. We tend to think of the web in our "industrial age" paradigm—here everything must be described and related to the physical world.

If electronic commerce applications are not placed in the proper business context and the strategy aligned with the business' overall business strategy, then the electronic commerce application is likely to fail. Thus, new business models are necessary that integrate electronic commerce initiatives with overall business goals.

The traditional view of the value chain is no longer rich enough to encompass the true relationships underlying the flows of information between a firm, its customers, and its suppliers. The traditional value chain typically depicts the information system data as flowing sequentially through the processes with inputs/outputs to the supplier at the back-end stage and to the customer at the front-end stage. In reality, firms engaging in electronic commerce may share information with their customers and suppliers at many

stages of the value chain. The firm's information system is the "glue" that links all phases of its processes together. This customer-oriented value chain enables the customer to access the firm's (the supplier's) information system at virtually every phase in order to assess the progress of the order. A customer may link to the firm's inventory data such as price, quantity, and availability, prior to entering into a sales contract. Further, the customer may be able to electronically receive design and product specifications prior to entering into a sales contract. The actual sales may be placed electronically and a promised or expected shipping date given by the supplier's information system to the customer. Once the order is placed, the customer may be able to check the status of the order/service placed.

The customers can also check the shipping status of orders placed with a supplier that have been completed and are in the shipping process. The customer's use of the supplier's information system to help provide better customer service after the sale is complete is another positive use.

The customer-oriented value chain also needs to link its procurement information systems to those of the firm's supplier. The supplier needs to access its supplier's information system in order to best serve its own customers. The supplier becomes the customer to its suppliers and should be able to interface its procurement systems with its suppliers' information systems to receive the same types of information that it provides to its own customers.

The Internet is enabling companies to fully integrate their supply chains, and this integration has a dramatic influence on the structure of participating companies to fully integrate their supply chains.

New Words

1. embark [im'ba:k] *v.* 上船, 上飞机, 着手, 从事, 装于船上, 登上
2. impact ['impækt] *n.* 碰撞, 冲击, 冲突, 影响, 效果
3. encompass [in'kʌmpəs] *v.* 包围, 环绕, 包含或包括某事物
4. via ['vaiə, 'vi:ə] *prep.* 经, 通过, 经由
5. engage [in'geɪdʒ] *v.* 使忙碌, 雇佣, 使从事于, 使参加
6. subset ['sʌbset] *n.* [数]子集
7. preclude [pri'klu:d] *v.* 排除
8. residential [ˌrezi'denʃəl] *a.* 住宅的, 与居住有关的
9. implement ['ɪmplɪmənt] *v.* 贯彻, 实现, 执行
10. innovative ['ɪnəuveɪtɪv] *a.* 创新的, 革新(主义)的
11. encounter [in'kauntə] *v.* 遭遇, 遇到, 相遇
n. 遭遇, 遭遇战
12. constrain [kən'streɪn] *v.* 强迫, 抑制, 拘束
13. paradigm ['pærədaim, -dɪm] *n.* 范例

14. sequentially *adv.* 继续地, 从而
15. procurement [ˈprəʊkjʊəmənt] *n.* 获得, 取得

Notes About Terms

1. Capitol Hill: 美国国会山。
2. NII(National Information Infrastructure): 国家信息基础设施(国家信息高速公路)。
3. GII(Global Information Infrastructure): 全球信息基础设施(全球信息高速公路)。
4. Business-to-Business (B2B): 企业对企业的电子商务。
5. Business-to-Consumer (B2C): 企业对个人的电子商务。
6. Consumer-to-Consumer (C2C): 消费者对消费者(个人对个人)的电子商务。
7. Consumer-to-Business (C2B): 企业对个人的电子商务。
8. Nonbusiness EC: 非商业性电子商务。
9. Intrabusiness (organizational)EC: 企业内部或组织内部电子商务。
10. Amazon: 亚马逊网站, 总部位于美国的一家著名电子商务网站, 最初只经营图书。

Exercises

I. Fill in the blanks according to the text.

Nowadays it seems everybody talks about E-Commerce, but 1 really knows how define it precisely. What is exactly E-Commerce? E-Commerce is doing 2 through electronic media or the practice of buying and selling products and services over the 3, utilizing technologies such as the Web, Electronic Data Interchange (or EDI for short), email, electronic fund transfers and smart cards, without 4 meeting between the two parties of the transaction. In brief, it is the online exchange or sale and 5 of goods and services. E-Commerce, in other words, refers to business transactions on the web 6 all it takes is a click of your mouse button and a 7 of your finger and you are on your way to 8 the proud owner of anything under the sun. E-Commerce is expected to boom 9 limits in near future, and it will 10 a major role in the way that small, medium and large companies conduct business either with their consumers, other businesses, or both.

II. Translate the following sentences into Chinese.

1. As human beings embark on the 21st century, some people think the electronic commerce will be just another overused and discarded buzzword.
2. Electronic commerce is different from electronic business in that the latter encompasses the true nature of the many types of information exchanges occurring via telecommunication devices.
3. Electronic commerce is not just a technology, it is a way of conducting business that has the potential to impact every aspect of the firm's value chain.
4. Electronic commerce allows a marketplace to exist where buyers and sellers can "meet" and transact with one another.

5. When the marketplace is electronic, the business center is not a physical building but rather a network-based location where business interaction occur.

III. Translate the following sentences into English.

1. 人类历史上的创新几乎没有哪一个比电子商务更具潜力。
2. 电子商务使得越来越多的人在家就可以工作,并且几乎不用走路就可购物。
3. 电子商务应用极为广泛,比如网上购物、购买股票、找工作、进行拍卖等。
4. 运用互联网,制造商能够直接与客户获得联系而不用通过中间人。
5. 电子商务通过电话、计算机网络或其他任何电子方式来传送信息,提供产品(或服务)及完成支付。

IV. Answer the following questions.

1. How many types of E-Commerce do you know? And what are they?
2. What benefits can be brought to business with E-Commerce?

Text B Advantages and Disadvantages of Electronic Commerce

1. Advantages of Electronic Commerce

Firms are interested in electronic commerce because, quite simply, it can help increase profits. All the advantages of electronic commerce for businesses can be summarized in one statement: Electronic commerce can increase sales and decrease costs. Advertising done well on the Web can get even a small firm's promotional message out to potential customers in every country in the world. A firm can use electronic commerce to reach small groups of customers that are geographically scattered. The Web is particularly useful in creating virtual communities that become ideal target markets for specific types of products or services. A virtual community is a gathering of people who share a common interest, but instead of this gathering occurring in the physical world, it takes place on the Internet.

Just as electronic commerce increases sales opportunities for the seller, it increases purchasing opportunities for the buyer. Businesses can use electronic commerce to identify new suppliers and business partners. Negotiating price and delivery terms is easier in electronic commerce because the Internet can help companies efficiently obtain competitive bid information. Electronic commerce increases the speed and accuracy with which businesses can exchange information, which reduces costs on both sides of transactions. Many companies are reducing their costs of handling sales inquiries, providing price quotes, and determining product availability by using electronic commerce in their sales support and order-taking processes.

Cisco Systems, a leading manufacturer of computer networking equipment, currently sells almost all its products online. Because no customer service representatives are involved in making these sales, Cisco operates very efficiently. In 1998, the first year in

which its online sales initiative was fully operational, Cisco made 72 percent of its sales on the Web. Cisco avoided handling 500,000 calls per month and saved \$500 million in that year alone. Today, Cisco conducts more than 99 percent of its purchase and sales transactions online.

Electronic commerce provides buyers with a wider range of choices than traditional commerce because buyers can consider many different products and services from a wider variety of sellers. This wide variety is available for consumers to evaluate 24 hours a day, every day. Some buyers prefer a great deal of information in deciding on a purchase; others prefer less. Electronic commerce provides buyers with an easy way to customize the level of detail in the information they obtain about a prospective purchase. Instead of waiting days for the mail to bring a catalog or product specification sheet, or even minutes for a fax transmission, buyers can have instant access to detailed information on the Web.

Some digital products, such as software, music and video files, or images, can even be delivered through the Internet, which reduces the time buyers must wait to begin enjoying their purchases. The ability to deliver digital products online is not just a cost-reduction opportunity. It can increase sales, too. Intuit sells its TurboTax income tax preparation software online and lets customers download the software immediately if they wish. Intuit sells a considerable amount of TurboTax software late in the evening on April 14th each year (April 15th is the deadline for filing personal income tax returns in the United States).

The benefits of electronic commerce extend to the general welfare of society. Electronic payments of tax refunds, public retirement, and welfare support cost less to issue and arrive securely and quickly when transmitted over the Internet. Furthermore, electronic payments can be easier to audit and monitor than payments made by check, providing protection against fraud and theft losses. To the extent that electronic commerce enables people to telecommute, everyone benefits from the reduction in commuter-caused traffic and pollution. Electronic commerce can also make products and services available in remote areas. For example, distance education is making it possible for people to learn skills and earn degrees no matter where they live or which hours they have available for study.

2. Disadvantages of Electronic Commerce

Some business processes may never lend themselves to electronic commerce. For example, perishable foods and high-cost, unique items, such as custom-designed jewelry, might be impossible to inspect adequately from a remote location, regardless of any technologies that might be devised in the future. Most of the disadvantages of electronic commerce today, however, stem from the newness and rapidly developing pace of the underlying technologies. These disadvantages will disappear as electronic commerce matures and becomes more available to and accepted by the general population.

Many products and services require that a critical mass of potential buyers be equipped and willing to buy through the Internet. For example, online grocers such as Peapod offer their delivery services only in a few cities. As more of Peapod's potential customers become connected to the Internet and begin to feel comfortable with purchasing online, the business might be able to expand into more geographic areas. But even the expansion of online grocery shopping is subject to limits; most online grocers focus their sales efforts on packaged goods and branded items. Perishable grocery products, such as fruit and vegetables, are much harder to sell online because customers want to examine and select specific items that are still fresh and appealing.

Peapod is a good example of how challenging it can be to build a business in an industry that requires this kind of critical mass. Although it was one of the first online grocery stores, Peapod has had a difficult time staying in business, and was even offline for a few weeks in mid-2000. Peapod was then acquired by a European firm that was willing to invest additional cash to keep it in operation. Two of Peapod's major competitors, WebVan and HomeGrocer, were unable to stay in business long enough to attract a sufficient customer base. Three of the most successful online grocery efforts in the world are Grocery Gateway in Toronto, Disco Virtual in Buenos Aires, and Tesco in the United Kingdom. Grocery Gateway and Disco Virtual operate in densely populated urban environments that offer sufficiently large numbers of customers within relatively small geographic areas, which make their delivery routes profitable. Tesco started its operations in London, which offers a similar densely populated urban area. However, Tesco has also expanded its operations to selected rural areas that are near a Tesco supermarket.

Established traditional grocery chains in the United States such as Albertsons and Safeway also now offer online ordering and delivery services in a second wave of using Internet technologies in the grocery business. By using their existing infrastructure (including warehouses, purchasing systems, and physical stores in multiple locations), they are able to avoid having to make the large capital investment in facilities that led to the demise of dot-corn grocers such as WebVan and HomeGrocer.

One online grocer that has successfully implemented an updated version of the WebVan and HomeGrocer operational approach is FreshDirect. By limiting its service area to the densely populated region in and around New York City, FreshDirect has found the right combination of operating scale and market. The company started in 2002 and achieved profitability in 2004 on sales of \$90 million. This is a much smaller sales volume than either WebVan or HomeGrocer would have needed to be profitable.

Businesses often calculate return on investment numbers before committing to any new technology. This has been difficult to do for investments in electronic commerce, because the costs and benefits have been hard to quantify. Costs, which are a function of technology, can change dramatically even during short-lived electronic commerce

implementation projects because the underlying technologies are changing so rapidly. Many firms have had trouble recruiting and retaining employees with the technological, design, and business process skills needed to create an effective electronic commerce presence.

Another problem facing firms that want to do business on the Internet is the difficulty of integrating existing databases and transaction-processing software designed for traditional commerce into the software that enables electronic commerce. Although a number of companies offer software design and consulting services that promise to tie existing systems into new online business systems, these services can be expensive.

In addition to technology and software issues, many businesses face cultural and legal obstacles to conducting electronic commerce. Some consumers are still fearful of sending their credit card numbers over the Internet and having online merchants-merchants they have never met-know so much about them. Other consumers are simply resistant to change and are uncomfortable viewing merchandise on a computer screen rather than in person. The legal environment in which electronic commerce is conducted is full of unclear and conflicting laws. In many cases, government regulators have not kept up with technologies. Laws that govern commerce were written when signed documents were a reasonable expectation in any business transaction. However, as more businesses and individuals find the benefits of electronic commerce to be compelling, many of these technology and culture-related disadvantages will be resolved or seem less problematic.

Reading Materials

IT Producing Industries—Hopeful Sighs in 2003

After two years of retrenchment, IT-producing industries now show signs of resuming the dynamic role they played during 1996—2000. Based on evidence through the third quarter of 2003, we estimate that, during 2003, IT-producing industries, which account for about 8 percent of U. S. GDP, contributed 0.8 percentage points of the estimated 2.9 percent rate of real U. S. economic growth.

Published data on recent spending for IT goods and services, and our estimates of IT production for 2002 and 2003 indicate: (1) while computer and semiconductor manufacturers have begun to rebound from major output losses suffered in 2001—2002, communications equipment makers show continued weakness; (2) IT service industries, which grew faster than IT manufacturing industries during 1996—2000, continued to grow during the economic slowdown of 2001—2002 though at a reduced rate, and contributed to the mildness of the recession; and (3), in 2003, IT producing industries became once again an important ingredient in an overall U. S. economic expansion.

The following sections examine: the growth and recomposition of output of IT industries; recent indicators of increasing demand for IT goods and services (i.e., investment patterns and manufacturers' shipments, new orders and inventories); IT industries' contributions to output growth; and IT industries' contribution to U.S. research and development spending.

IT Producing Industries Weather the Recession and Recover Slowly

On average, between 1996 and 2000, IT producing industries, which represented between 8 and 9 percent of the economy,⁴ supplied 1.4 percentage points of the Nation's 4.6 percent annual average real GDP growth.⁵ In 2001, IT-producing industries grew a scant 0.9 percent, though in a recession year that was still enough to account for practically all of the Nation's 0.3 percent economic growth. Overall, continued strength in IT producing industries, particularly communications services, helped to keep the recession comparatively mild.

In 2002, the U. S. economy gathered momentum, growing at over 2 percent. Unlike the 1996—2000 period, however, developments in IT producing industries were not a driving force. Losses in these industries, which had begun in 2001, accelerated in 2002; in the sector as a whole, revenues declined almost as rapidly in these two years as they had increased in the prior four. The poor showing was due largely to the slow recovery of

business spending for capital equipment. Unlike the investment-led expansion of 1996—2000, growth in 2002 was driven mainly by increases in personal consumption, changes in private inventories, and government spending. Almost none of the real growth of the U.S. economy in 2002 reflected output growth from the IT-producing industries.

Happily, the investment picture has begun to change. Recent evidence indicates that businesses are once again investing in IT capital equipment. However, the pattern of recovery in 2003 contrasts with experience in 1996—2000. In the goods producing sector, renewed strength is concentrated in computers and semiconductors; while shipments of communications equipment have continued to decline.

The services and software component of the IT-producing sector—which continued to grow during the economic slowdown of 2001 and the slowly developing recovery of 2002—continued to grow as well in 2003. But because IT service industries weathered the recession and its aftermath without sharply declining output, they are unlikely to rebound to the doubledigit growth rates achieved during 1997—2000 as the current recovery gains strength. (A possible exception is the communications services industry, which appeared to grow at about the same rate in 2003 as it did during 1997—2000.)

As a consequence of continued, if slower growth in IT service industries, and the period of negative growth in IT goods industries, the composition of IT-producing industry output has become significantly more concentrated in services. In 1996, IT software and computer services and communications services represented about 59 percent of the total output (nominal dollars) of IT-producing industries. We estimate that in 2003, the output share of software and IT services industries increased to 71 percent.

The shift toward services in the composition of IT output suggests that future growth in the IT sector may be more modest and less volatile than in the past. We estimate that, between 2001 and 2003, the output of the IT Software and Computer services sector, on average, increased by 1.3 percent per year. The IT Communications services sector increased, on average, 4.8 percent per year. In contrast, output growth in the IT Hardware and IT Communications equipment sectors fluctuated between double-digit declines and single-digit increases.

Our estimates of IT-producing industries' 2003 output are based on available first-, second-, and third-quarter data on demand for IT goods and services, and industry production indicators through the first nine months of the year. This section of the chapter and the one that follows look at available demand data and production indicators. A third section uses these data and indices to estimate the performance of IT producing industries for the year as a whole.

From Digital Economy 2003 of U.S. Department of Commerce.