

On Chosen Aspects of Modern E-Commerce

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ABSTRACT

Electronic commerce (EC) involves conducting transactions electronically. There are many different categories of EC, including B2B, B2C, C2C, collaborative commerce, etc. These different approaches are realized in different business models, e.g., “name your price”, “affiliate marketing”, etc. There are numerous benefits of EC to organizations, consumers, and society, which prove that EC is here to stay and cannot be ignored. There are some limitations of EC, as well, but, as time passes, they should diminish significantly.

INTRODUCTION

The world of business has been experiencing one of the most important and visible changes so far. This is a reflection of the move to the Internet-based society. The major concern of many companies today is how to transform themselves in order to take part in the digital economy, where electronic business is the norm. Electronic commerce describes the manner in which transactions take place over networks, mostly the Internet.

This paper revisits the notion and basic characteristics of electronic commerce, and points to the fact, that this new and dynamic phenomenon is the most recent and promising practical application in the area of human-computer interaction.

THE NOTION OF E-COMMERCE

Electronic commerce (EC) is a concept that describes the process of buying, selling, or exchanging products, services, and information via computer networks, including the Internet.

The term *commerce* is defined as describing transactions conducted between business partners, so the term *electronic commerce* may be found to be fairly narrow. Thus, many use the term e-business, which refers to a broader definition of EC. E-business is not just buying and selling of goods and services, but also servicing customers, collaborating with business partners, and conducting electronic transactions within an organization. Usually, however, these two terms are used interchangeably.

The form e-commerce can take depends on the degree of digitization of the product (service) sold, the process, and the delivery agent (or intermediary). These components can be physical or digital. Pure physical organizations are referred to as **brick-and-mortar organizations**, pure EC organizations are referred to as **virtual organizations**. **Click-and-mortar organizations** conduct some e-commerce activity, yet their primary business is done in the physical world.

EC can be defined from different perspectives (Schneider, 2006; Turban et al., 2006):

1. **A communications perspective.** EC is the delivery of goods, services, information or payments over computer networks or by any other electronic means.

2. **A business process perspective.** EC is the application of technology toward the automation of business transactions and work flow.
3. **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.
4. **An online perspective.** EC provides the capability of buying and selling products and information over the Internet and other online services.
5. **A collaborations perspective.** EC is a framework for inter- and intra-organizational collaboration.
6. **A community perspective.** EC provides a gathering place for community members, to learn, transact, and collaborate.

BUSINESS MODELS IN E-COMMERCE

Electronic commerce enables the creation of new business models. A **business model** is a method of doing business by which a company can generate revenue to sustain itself (Turban et al., 2006, p. 6). There are many types of EC business models. The following list includes some of the most common or visible models (Timmers 2001; Applegate 2001).

Name your price. This model allows a buyer to set the price he is willing to pay for a specific product or service. Customers may submit several bids before they get the product. It was pioneered by *Priceline.com*, and most of *Priceline.com*'s products and services are travel-related.

Find the best price. A consumer specifies his needs and then the company locates the lowest price for that service or product (e.g., *hotwire.com*).

Dynamic brokering. In this model, customers can specify requirements and these are Webcasted to service providers in an automatic invitation to tender. Bids can be automatically offered, amended, and considered, all without any additional input from the customers (e.g., *GetThere.com*).

Affiliate marketing. A marketing partner has an arrangement with a company to refer customers to the company's Web site so that a customer can purchase a service or a product. The marketing partner receives a 3 to 15 percent commission on the purchase price. This is a virtual commissioned sales force (*Amazon.com* has close to 500,000 affiliates).

Group purchasing. Discounts are usually available for quantity purchasing. In the concept of *electronic aggregation* a third party finds the individuals or small, medium size enterprises (SMEs), aggregates orders, and then negotiates for the best deal (e.g., *aphs.com*; *etrana.com*).

Electronic tendering systems. Large buyers usually make their purchases through a tendering (bidding) system, which nowadays can be done online (e.g., *gegxs.com*).

Online auctions. It was pioneered by *eBay.com*, and now there are several hundred other companies which conduct online auctions, including *Amazon.com* and *Yahoo.com*.

Customization and personalization. Although these are not new models, what is new is the ability to quickly perform them at prices not much higher than their non-customized counterparts.

Electronic marketplaces and exchanges. There were electronic marketplaces before, but they existed in isolated applications, like stock exchanges. Today there are thousands of them, and they introduce

efficiencies to the marketplace. Of special interest are *vertical marketplaces* (*vertical portals, vortals*), which concentrate on one industry (e.g., e-steel.com).

Supply chain improvers. The improvement of supply chain management is one of the main contributions of EC in the world of business.

The initial analysis of the list above points to the main characteristics of business models for electronic commerce:

- digitize as much as you can; eliminate paper and other physical transactions,
- digitize at the beginning of the transaction process,
- change the supply chain from a linear model to hub-based model,
- aggregate many business partners into one place,
- savings are in cost, cycle time, quality, and customer service (Turban et al., 2006, p.9).

CLASSIFICATION OF THE EC FIELD

The EC field is a comprehensive one, and it involves many activities, organizational units, and technologies. Successful EC implementation depends on five major areas: people, public policy, marketing and advertisement, business partners, and support services. These basic components are bonded by management (Shaw, 1999).

The most common classification of EC is by the nature of transaction. The following types of transactions are distinguished (Turban et al., 2006; Unold 2005):

- business-to-business (B2B), which is the most EC today;
- business-to-consumer (B2C), also called e-tailing,
- consumer-to-consumer (C2C), e.g., individuals selling residential property, cars, and so on in classified ads,
- people-to-people (P2P), which is a special type of C2C, where people exchange CDs, videos, software etc. (e.g., *napster.com*),
- consumer-to-business (C2B), e.g., *Priceline.com*,
- intra-business (organizational) EC, including all internal organizational activities, usually performed on intranets or corporate portals,
- business-to-employees (B2E), a subset of intra-business category, where the organization delivers services, information, or products to individual employees,
- government-to-citizens (G2C) and to others,
- exchange-to-exchange (E2E), a formal system that connects exchanges,
- collaborative commerce (*c-commerce*), an application of inter-organizational information systems (IOS) for electronic collaboration between business partners and between organizational employees,
- mobile commerce (*m-commerce*), electronic commerce in a wireless environment.
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As an example of the phenomenal growth of the volume of transactions in cyberspace, in 2007 Canadian people spent 62.7 billion dollars online - 62 % in B2B and 32 to 38 % in B2C. This is 26 percent increase over the preceding year (Canadian, 2008).

THE BENEFITS OF EC

Many potential benefits of EC to organizations, individuals, and society, result from the global nature of the technology, its interactive nature, the variety of possibilities for its use, the resourcefulness and rapid growth of its supporting infrastructures, especially the Web. According to Clinton and Gore (1997) the EC revolution is just as profound as the change that came with the industrial revolution.

Today, we can identify a lot of major benefits of EC to organizations. Electronic commerce expands the marketplace to national and international markets. A company can easily, quickly, and with minimal capital outlay, locate more customers, the best suppliers, and the best business partners worldwide. For example, online retail powerhouse Amazon posted a strong first quarter of earnings. For the quarter ending March 31, 2008, Amazon reported \$4.13 billion in net revenue, toward the high end of its own guidance and ahead of analysts' consensus of \$4.08 billion. Quarterly revenue was a 37 percent jump from the same period a year before (Corbin, 2008).

EC decreases the cost of creating, processing, distributing, storing, and retrieving paper-based information. By introducing an electronic procurement system, a company can cut purchasing administrative costs by as much as 85 percent (Turban et al., 2006).

EC can minimize supply chain inefficiencies (excessive inventories or delivery delays). This benefit is based on the concept of pull-type production, which begins when an order is placed.

The approach mentioned above allows for inexpensive customization of products and services and provides a competitive advantage for a company (e.g., a pull-type processing applied successfully by Dell Computer Corp.).

EC allows for the introduction of many innovative business models that provide strategic advantages and increase profits.

EC allows for a high degree of specialization that is not economically feasible in the physical world.

EC reduces the time between the outlay of capital and the receipt of products and services.

EC lowers telecommunications costs.

EC enables efficient e-procurement that can reduce administrative costs by 80 percent, reducing purchasing prices by 5 to 15 percent, and reducing cycle time by more than 50 percent. There are many other examples of savings. It costs a bank \$1.08 to perform a simple teller transaction at a branch. On the Web, the same transaction costs only \$0.10. The cost of issuing an airline ticket on the Web is \$1, whereas with a physical system the transaction costs \$8 (Turban et al., 2006).

EC promotes better CRM and increases customer loyalty by enabling companies to interact more closely with customers.

Turban et al. (2006) identify basic benefits of EC to consumers, as well. EC allows consumers to perform transactions 24/7 and year round, from any location.

EC provides consumers with much more choices, and in some cases, especially with digitized products, allows for quick delivery.

EC provides consumers with less expensive products and services by allowing them to shop in many places and conduct quick comparisons.

They can locate relevant and detailed product information in seconds, rather than days or weeks.

EC enables the participation in virtual auctions.

EC allows customers to interact with other customers in electronic communities, exchange ideas, and compare experiences.

EC facilitates competition, which results in substantially lower prices.

Basic benefits to society are also significant. More individuals can work at home.

Some merchandise can be sold at lower prices, allowing less affluent people to buy more and increase their standard of living.

People in less developed countries and rural areas have access to products and services that otherwise are unavailable. Of special importance is the access to distant learning.

Public services can be delivered at a reduced cost and improved quality.

Other benefits include (What, 2008):

- Instant product updates, including descriptions and pricing
- 24-hour store visibility to anyone with an Internet connection
- Large portals enable large product bases, manufacturers and prices
- Search utilities far surpasses the speed used to find products through catalogs
- Encourages competition between small and large online retailers

THE LIMITATIONS OF EC

Major limitations of EC belong to two main groups: technical and nontechnical. Technical limitations have many aspects (Turban et al., 2006). One of the issues is that system security, reliability, standards, are still evolving. So are software development tools.

In many areas, telecommunications bandwidths are insufficient. Very often it is difficult to integrate the Internet and EC software with some existing applications and databases.

Vendors may need special Web servers, network servers, and other infrastructure developments. Some EC software might not fit with some hardware, or it may be incompatible with certain operating systems or components.

Turban also identifies main nontechnical limitations of EC. Internet access is still expensive and inconvenient for many potential customers. The cost of developing EC in-house can be very high and mistakes made due to lack of experience may result in delays. As a discipline, EC is still evolving and changing rapidly. EC does not have enough support services. Many legal issues are as yet unresolved. As a result, many people are looking for EC to stabilize before they enter into it.

Customers think the issues of security and privacy are very important. At the same time, customers do not trust an unknown, faceless seller, paperless transactions, and e-money. The EC sector has a difficult task of convincing customers that online transactions are, in fact, very secure.

There are other psychological issues involved. Some customers like to touch items, so they know exactly what they are buying. Some people fear that as EC reduces face-to-face social interactions, there could be a breakdown in human relationships.

In many areas there is not enough critical mass for EC to be successful, there may be not enough sellers and buyers for profitable EC operations in many areas.

CONCLUSIONS

The driving forces of EC are multidimensional. Market (economics), technological, and societal pressures force organizations to respond to new business pressures. Traditional responses may not be sufficient because of the magnitude of the pressures and the frequent changes involved. Therefore, organizations must innovate and reengineer their operations. In many cases, EC is the major facilitator of those organizational responses.

Electronic commerce, which involves conducting transactions electronically, is the most recent and cutting-edge application within the area of human-computer interaction. Electronic marketplaces, called marketspaces, allow for the selling and buying of products electronically, which can be realized in many different modes, B2B, B2C, C2C, etc. The applications of EC, and there are many of them, are based on infrastructures and supported by people, public policies, technical standards, advertising, logistics, and business partners – all bonded by proper management.

There are still some limitations of EC, and they can be categorized as technological and non-technological. As time passes, these barriers should have less and less meaning, as capacity, security, accessibility continue to improve through technological innovations. On the other hand, there are numerous benefits of EC to organizations, consumers, and society. Because these benefits are substantial, it proves that EC is here to stay and cannot be ignored.

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