Electronic Commerce Technologies Management

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ELECTRONIC COMMERCE

The first e-commerce (EC) applications were started 30 years ago, in the early 1970s. The original applications were in the form of electronic fund transfers (EFT). These applications were limited to larger corporations and financial institutions (Turban, Lee, King & Chung, 2000). This type of transaction later included electronic data interchange (EDI). There is a marked difference between EDI and EC in that EC involves much more than EDI (Greenstein & Feinman, 2000).

There is no standard definition for EC, although a number of researchers have attempted to define it (Greenstein & Feinman, 2000; U.S. Department of Commerce, 1999). In principle, however, most authors are in agreement that EC uses some form of transmission medium through which exchange of information takes place in order to conduct business (Barnard & Wesson, 2000).

TYPES OF EC

There are different types of classifications of EC; for instance, by participants, task and technology.

Classification According to Participants

Turban, King, Lee, Warkentin and Chan (2002) provide the following definitions for the different types of EC, together with additional types that researchers have identified:

- **Business-to-Business (B2B):** This includes inter-organizational information systems and electronic transactions between organizations. An example of B2B is General Electric's Trading Process Network (TPN)(www.tpn.geis.com).
- **Business-to-Consumer (B2C):** B2C transactions are mostly retailing transactions with individual customers or consumers. An example of B2C is Amazon.com (www.amazon.com).
- **Consumer-to-Business (C2B):** In this category one will find consumers who sell to organizations. It also includes individuals who seek sellers with whom they may interact in order to conclude a transaction. An example of C2B is Priceline (www.priceline.com).
- **Consumer-to-Consumer (C2C):** C2C involves consumers selling directly to other consumers. This type of application includes auction sites and advertising personal services on the Internet. It can also include intranets and other organizational networks to advertise items and services. An example of C2C is eBay (www.eBay.com).

The additional types of EC identified by the above researchers are:

- **People-to-people (P2P):** This type of transaction is a special type of C2C where people exchange CDs, videos, software and other goods (www.napster.com).
- **Non-business EC:** Many institutions or organizations also use EC to improve their operation and customer services.
- **Intrabusiness (organizational) EC:** All internal organizational activities involving exchange of goods, services or information usually performed on intranets are included in this category.
- **Business-to-employees (B2E):** This is a subset of the intrabusiness category, where the organization delivers services, information or products to individual employees.
- **Government-to-citizen (G2C):** and to others: In this type of EC, a government entity buys or sells goods, services or information to businesses or individual citizens.
- **Exchange-to-exchange (E2E):** With the proliferation of exchanges and portals, it is logical for

exchanges to connect to one another. E2E is a formal system that connects exchange.

- **Collaborative commerce (c-commerce):** C-commerce is an application of an interorganizational information system for electronic collaboration between business partners and organizational employees.
- **Ultimate commerce (u-commerce):** U-commerce is the use of ubiquitous networks to support personalized and uninterrupted communications and transactions between a firm and its various stakeholders to provide a level of value over, above and beyond traditional commerce (Watson, 2000).
- **Mobile commerce (m-commerce):** When EC takes place in a wireless environment.

Classifications According to Task

EC can also be classified by the nature of the task. There are many different types of EC, such as e-shopping, e-banking and e-investments.

E-Shopping

Among the different EC activities, an e-shopping task has the following two unique phases: the look-see-and-decide phase (LSD), and the checkout phase (Renaud, Kotze, & van Dyk, 2001), as depicted in Figure 1.1. The LSD allows the user to browse, while a commitment to buy takes place in the checkout phase.

- **LSD:** This stage typically will be used to look at available products, compare them and then make a decision about whether to purchase products. This may be done once or more, often until the consumers have found products that satisfy their needs. This phase is intensely user-driven, because the user is looking at and assimilating information continuously. It has the following substages, which can be traversed iteratively and in varying sequences: welcome, search, browse and choose.
- **Checkout:** When users trigger this stage, they have made their choice of offered products and have decided to make a purchase. They now have to provide certain details, such as their

address and credit card details. This stage is system-driven and changes the paradigm of the interaction process from user initiative to system initiative. Feedback is of critical importance during this stage—users who feel that they have lost control can simply leave the site without any embarrassment—unlike a user who is standing at a checkout in a supermarket. This stage is typically composed of at least the following steps, which should be navigated in a serial fashion: identifying the user, where the delivery should take place, how it should take place, payment, confirmation of order and completion (closure).

E-Banking

Internet-based services allow banking clients to obtain account information and balance enquiries; execute account payments and inter-account fund transfers; make queries on account balances; obtain statements; and, in some cases, view images of checks (Chan et al., 2001) from the comfort of their homes or offices. Additionally, by linking their accounts to personal finance software (such as Intuit Quicken and Microsoft Money), they will be able to track their spending offline, and later reconcile that with their bank statements online.

A typical e-bank task would be: Launch browser => Go to this bank's page: (URL to bank; e.g., www.absa.co.za) => Locate Internet banking and click that option => Login using this account number and password: (account_number), (password) => Choose type of transaction to conduct (this could consist of several steps)(user may choose to conduct more than one transaction) =>Logoff from bank's Web site => Close browser.

E-Investments

E-investments is a process that allows a user to trade stocks, bonds, mutual funds and other financial equities on the Internet. These companies offer users the opportunity to trade at a very small cost compared to discount brokers or full-service brokers. This has resulted in online trading companies grabbing an increasing market share (Chan et al., 2001).

A typical e-investment task to purchase stocks would be: Launch browser => Go to this broker's

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