

Electronic Commerce

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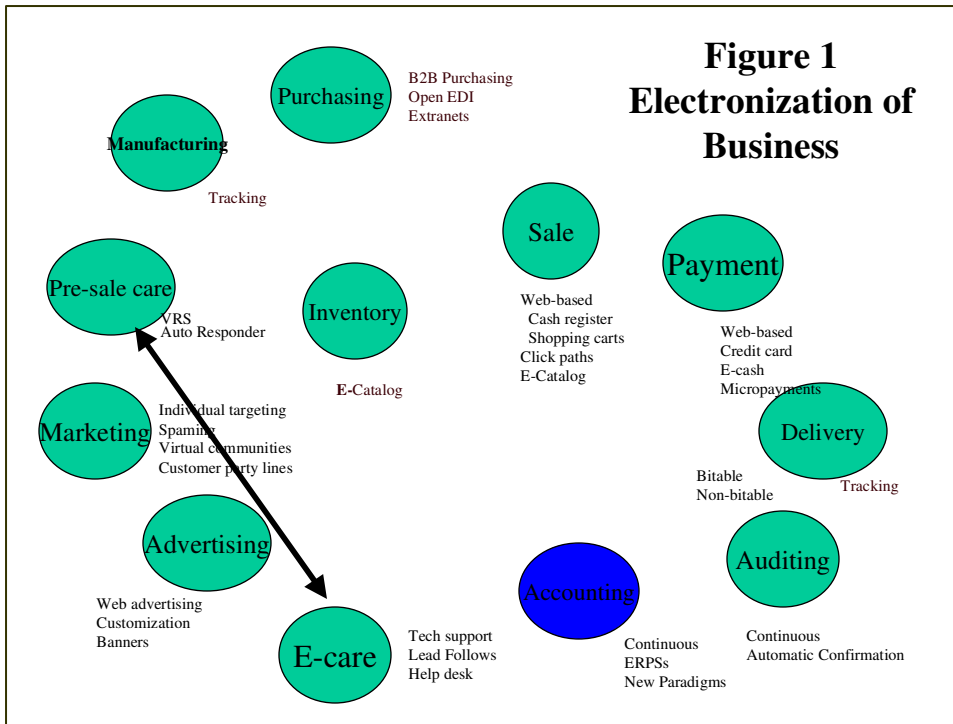
"No single force embodies our electronic transformation more than the evolving medium known as the Internet. Internet technology is having a profound effect on the global trade in services. ¹"Electronic commerce is estimated to have been in the range of 63 billion USD in 1999 and is expected to soar to 1,444 trillion USD by 2003.² Electronic Commerce is a broad term describing business activities with associated technical data that are conducted electronically. Electronic Commerce is an entire set of different digitally enabled activities that are progressively replacing the more traditional brick and mortar commercial functions. While the wider phenomenon of 'electronization of economic activities' encompasses the digitalization of all processes of economic wealth generation including economic analysis, production, storage, information provisioning, marketing, etc .. the area of sales and related processes facilitated by electronic media has popularly been denominated 'electronic commerce.' Consequently within the more general phenomenon of digitalization of modern life, we find its most important component **electronic commerce**.

Corporate, not for profit and governmental systems with their 'business cycles' incorporate many related processes that are suffering an increasing process of digitalization with astounding productivity gain for the World economy³. Many processes are changing their essence and becoming less expensive, time consuming, and more useful. For example, a directory assistance call required person and operator involvement, look-up in paper based directories and a localized search. Now it involves you, a national (or international) computer database, voice synthesis, and automatic connection. Furthermore the process has been expanded, and you can do reverse searches through the Internet that will point to the owner of a telephone number, link this to your telephone bill, and not involve any individual at the service provider. Thousands of 'system processes' are suffering this type of mutation leading to cheaper, shorter and expanded types of services. Figure 1 describes several components of the business process (e.g. marketing) and electronic commerce tools (e.g. Web banners) that are structurally changing doing business.

¹ The US government's framework for electronic commerce. The White House, July 1, 1997. <http://www.ecommerce.gov/framework.htm#BACKGROUND>

² Forrester Research November 1999.

³ "Why the Productivity revolution will spread?", BusinessWeek, February 14, 2000. http://www.businessweek.com/2000/00_07/b3668001.htm

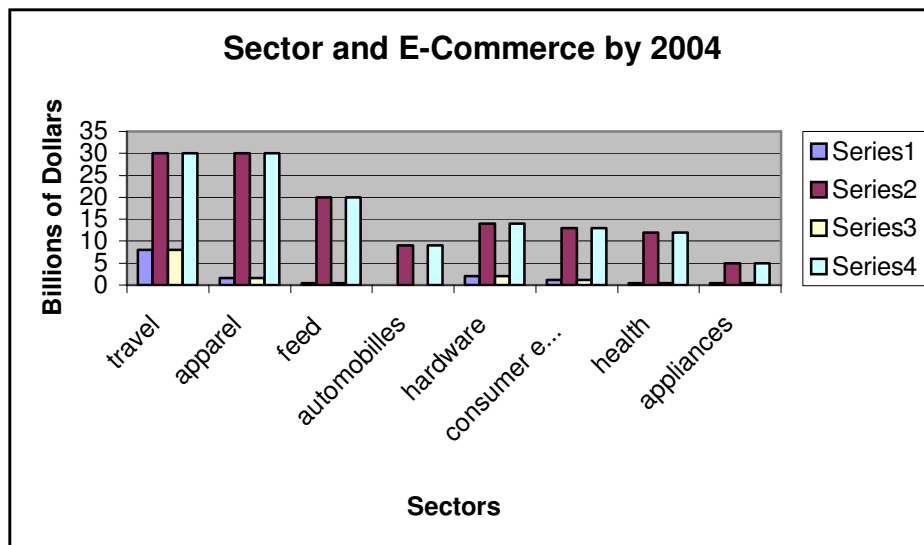


The marketing, advertising, and care triad are the core of the phenomenon. One-to-one marketing (where large customer databases link much information about clients, and create very efficient leads) is linked to very tailored advertising where the firm knows the client and when he/she is connected to the Internet and fires off a series of individually targeted banners catering very closely to the client's needs. These advertising banners can explore the geography of the client at that moment (for example if in the car the closest gas station, drug store or sports bar), linkages among products or recent purchase (bought a computer, needs parts and software), family factors (getting married needs a dress, birthday, death in the family), and other factors. The e-care part of the triad is the emerging process of the new organization. Technologically rich products need superior, technologically based support. E-care, a mix of e-mail, Web based support, and when essential phone support, is cheaper and more powerful if properly administered than the traditional means. Organizations are finding that the same stringent standards of traditional care must be applied in the e-organization.

The electronic commerce revolution is in its initial phases and will progressively take over all processes either directly or indirectly. The distinction of 'snail' commerce and e-commerce will disappear with all processes being either digital or aided by digital supporting processes. The pace of this transformation is what differentiates winning and losing competitors, industries, and successful investors. The intrinsic nature of the product and processes, as well as the dynamics and resistance to change of corporations & industries will determine the pace of change and the gains in productivity. Together with the telephone, railroads, and electricity the Internet is one of the major agents of change of modern life.

Two major factors affect the speed of change in terms of product: 1) bitability and 2) e-commoditization. A product is bitable or not. If it can be transmitted over the Internet the product (or service) is bitable. Software, information, remote support services, banking, brokerage, insurance, fall into this category. If a product is bitable it does not ultimately have to be physically delivered while it may take some time to get bandwidth or consumers used to the idea. The e-commoditization factor is more complex. An e-commodity is an item that you do not need to touch, see physically, try-on, taste, squeeze, or try to be able to buy it. Clearly high fashion clothes, cars, foods, meats, vegetables, girlfriends tend to fall into this category. On the other hand this is very much a question of attitude and need. Busy executives will forego the examination of food items for the convenience to have them at home when they arrive. Once a teen-ager tried a brand name clothe for size it stops being a commodity as sizes and shapes tend to be quality controlled. A buyer that lives in a very remote location may consider anitem a commodity as the cost of its examination doe snot warrant extensive travel and in the case of clothes they can be altered. Ultimately, bitable and bitable commodity goods present the higher potentials for e-commerce.

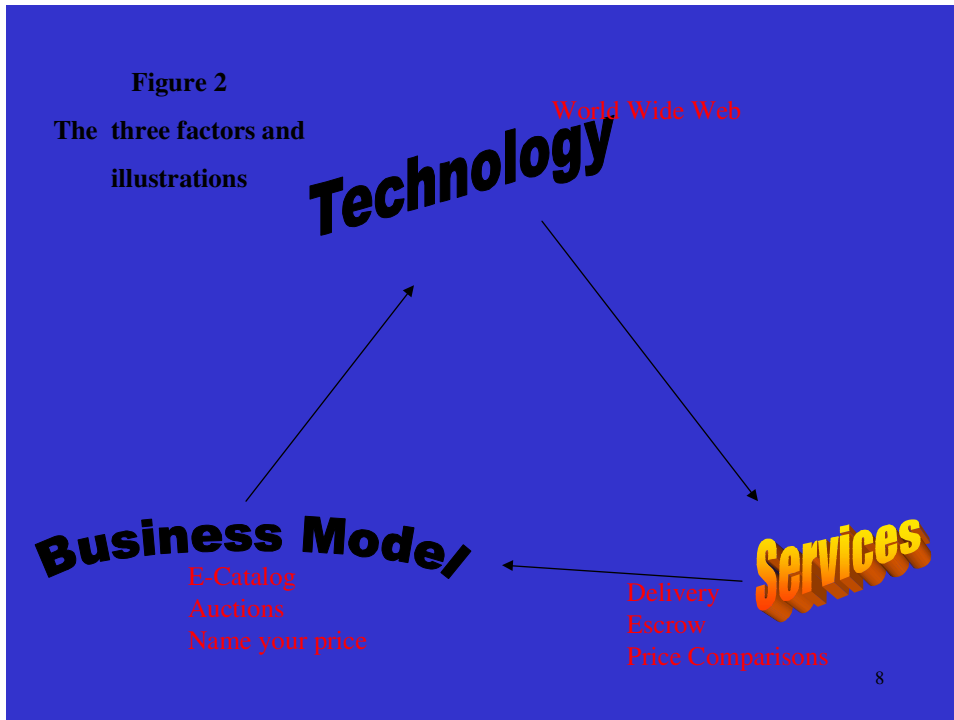
Research predicts a wide range of business expansion on the Internet. This is reflected on Table 1 which incorporates a set of predictions from different organizations:



Travel and apparel are expected to be the largest B2C (business to consumer) areas. At the same time the volumes of B2B (business to business) trade are expected to be 6 to 10 times larger than B2C but with much narrower margins.

An entire new set of principles of commerce is emerging. First the realization that a Malthusian physical World gives way to a place where information is abundant and eyeballs limited. Second the realization that paradoxes exist due to technology, and that giving things for free, not protecting software against privacy, paying for eyeballs may be the paradigms of the e-World. Third, the meaning of the words competitor and industry are changing. In the faceless World of the international your customers and suppliers of

today and your suppliers and customers of tomorrow and are also your competitors and allies. Fourth, industries are blending and changing and affiliation agreements allow for the creation of entire product cycles without the ownership of inventory or production facilities. Finally, current pricing models are changing and hybrids of fixed pricing, auctions, variable pricing, contingent pricing, name you price pricing are emerging and creating new business models. While technology gets most of the credit actually successes are most of the time based on the triad: 1) technology, 2) business model innovation, and 3) a family of facilitating (profitable) services.



The B2B sector of E-commerce will present both vertical and horizontal models. In the vertical model the firm will focus on an industry and develop great industry expertise to develop its markets. In the horizontal model the firm will focus on one type of product or service and offer it across industries (e.g. internet payroll services). The B2B sector is intrinsically different from B2C. Buyers are well informed, possess many resources and can negotiate based on volume. Brand name is much less of a consideration than price, quality, delivery time and reliability. Three different models have emerged for B2B transactions: 1) the e-catalog model for situations where there are many different items at distributed locations and price is fixed (e.g. auto parts), 2) the auction model where products are not standardized and there is great differences in the perceptions of value (e.g. auctions of used capital plant products) and 3) the commodity auction model where there are not too many variations on the type of product and large buyers and sellers (natural gas, pork bellies, coffee, etc.).

Electronic commerce is progressively and irreversibly changing the facade of many businesses with three dominant phenomena: 1) dis-intermediation, where one party of a

transaction set is being eliminated (e.g. brokers in online trading), 2) re-intermediation, where a new electronic intermediary comes in between the client and the customer (e.g. electronic booksellers that take orders and farm them out to providers that have the book in stock and coordinate their databases with the seller), and 3) cannibalization where traditional businesses give up progressively their brick and mortar traditional ventures for the superior electronic model (e.g. traditional pharmacies opening online drug stores).

The electronic commerce juggernaut is not without its dangers and shortcomings. It is drastically affecting traditional businesses that cannot continue to work the traditional economic model. A stock brokerage firm that in average charged \$90.00 per trade cannot compete with \$10.00 trades and any adaptation will be faced with tremendous resistance from the organization, often dooming it to extinction. The security weaknesses of the electronic commerce infrastructure have been well divulged, viruses, security intrusions, and denial of services due to volume attacks are not phenomena that will disappear. They will evolve in a continuous struggle between facilitating technologies, intrinsic technological dangers and the management of these factors.

Privacy issues present a different set of challenges. The same technology that facilitates business activities and provides wonderful services is also a major threat for individual freedom. Large databases linking (the now available) dynamic economic activity information from different sources (purchases, banking activity, medical records) provide great economic advantages as marketing is more efficient, loans more targeted, and medical information ubiquitously distributed. They also create great dangers for privacy and abuse. Doubleclick.com a marketing analysis technology firm tracks customer activities in Web sites. Their click-path analysis allows for firms to understand customer behavior and improve their offerings. However they have 11000 clients and linking the buyers profiles in these sites together is by far too intrusive for the Web cognoscenti. Complains have been filed with the Federal trade Commission and boycotts proposed.

Solutions however are not as straight forward as they may seem. Creating illegalities by enacting laws actually creates arbitrage opportunities and extraordinary margins for Internet players. Gambling rules are strict in the United States then electronic casinos are created in cooperative havens in the Bahamas. A legal obstacle in the US is a business opportunity for another country, state, or municipality. Restrictions are placed on the usage and content of databases in Germany, offshore database heavens appear immediately. Web site censorship appears in China, free-Chinese Websites are put in place. Telephone systems are monitored and taxed by PTTs, supranational satellite telephone networks are being created.

Consequently, easy fixes will not exist and new methods of establishing order, efficiency and decency will have to be created. Among these, as the Internet is a truly supranational entity, nations need to band together to maintain order and efficiency and reasonableness on the Internet. The same economic factors that allow for arbitrage can also be used for self-policing and monitoring of the electronic commerce environment. Companies / entities and nations to benefit fully from this medium must have payment clearing solutions, customs solutions and access to the large markets of the economy. Rogue

countries can be excluded from the payment clearing chains, rogue companies behaving in unacceptable ways can suffer boycotts and be excluded from any affiliation and linking deals. Self policing seals⁴, inspections and certificates can be used for monitoring and supervision. International information structures, involving many cooperating organizations can alert to rogue behavior, and motivate the creation of reasonable unbiased rules. Technology can be used to monitor and detect money laundering, illegal product flows, and information trafficking. The same positive monitoring could turn into 'big brother watching' type of behavior and must be carefully conceived and supervised. Most important of all is not to succumb to the easy temptation of creating imbecilic, restrictive, ill thought laws that legislators tend to create when some local scandal occurs!

⁴ Such as AICPA's WebTrust and SysTrust products.