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E-Commerce

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Abstract
E-commerce has changed a way of doing business in a modern world. It is not just electronic payment on the Internet. There are several application areas in this category; like banking activities, publishing including electronic distribution, sales portals covering sales, marketing, production, management, and distribution. When enabling these kind of services, protection of a individual privacy, computer security and application technology is are key issues. If security issues are challenged by the users it also means that there will not be users for the services. There are several technologies available for these growing markets saving companies for marketing storage and logistics cost. The number of Internet users around the world has been steadily growing and this growth has provided the impetus and the opportunities for global and regional e-commerce. However with Internet, different characteristics of the local environment, both infrastructural and socioeconomic, have created a significant level of variation in the acceptance and growth of e-commerce in different regions of the world. Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organizations, and between organizations and individuals.

Keywords: electronic payment, sales portal, computer security.

Introduction

Word e-commerce (electronic commerce) refers to a variety of different online business activities for products and/or services. Business transactions might include ordering, selecting goods, invoicing and payment. They may also involve the agreement of contracts, the arrangement of the arrangement of deliver, the declaration of tax and after sales service. Key word in e-Commerce is that business is done without any physical exchanges or direct physical contact.

From technological perspective there are issues like network solution, security and data communication standards graphical user interfaces, multimedia technology, data security related like Internet payments and banking. Development of a mobile phone, PDA's and roaming technology enables usage of the e-commerce services independent of location.

E-commerce presents a world of opportunity for doing businesses, reaching global markets and purchasing without eaving the home or office. E-commerce can provide opportunities to improve business processes, just as phones, faxes and mobile communications have in the past.

E-Commerce Types

Major types of e-commerce can be categorized

- Business to- Consumer (B2C)
- Business-to-Business (B2B)
- Consumer-to-Consumer (C2C)
- Business-to-Government (B2G)
- Mobile commerce (m-commerce)

Business to Consumer (B2C)

Business to Consumer concentrates to retail or sale side of the e-Commerce. It is commerce between companies and consumers, involves customers gathering information; purchasing physical goods like books or travel or information goods like downloadable digitized material content, such as software, music or electronic-books. As an example from in B2C field is Amazon.com which based on big variety of assortment is closer to an internet shopping mall. In B2C area there are working and non-working markets; three has been a great success at least in following areas.

Real estate, consumers can have a several pictures or even 360 view of the apartments, or consumer can search by the price, area or by number of rooms, whichever is convenient for their purposes.

Travelling; it is easy to enable imaginary view of paradise destination by showing pictures and 360 views of the beaches and accommodation facilities, and consumer being able to purchase the trip just by clicking mouse button. And of course consumer can easily seek for cheapest route or accommodation.

Auctions; being able to bid for a goods over the internet without being present and wait for that one particular object is being auctioned off. drive to the auction place and still there is a big risk that one is not able to get the good with a reasonable price (or not at all). Possible lot of time and effort wasted for nothing.

Banking or personal finance management is a great success, which pertains to the management of personal investments and finances with the use of online banking tools.

Customer support service is a must to have online. Take for example Microsoft. Of consumer is were to call Microsoft every time they need information of support or even better Microsoft were to mail an update CD every time there were a security update or service pack. Not so successful area for B2C are i.e. daily groceries which may work for elderly people but distribution in a large quantity could cause problems. Other area is items that need "touch or trial" like clothes or luxury items.

Business to Business (B2B)
When e-Commerce is extended to supply chain management between and among businesses, we get a new concept, which is called Business to business (B2B). B2B area is nowadays growing much faster than B2C and about 80% of the ecommerce is this type. Companies are able to manage different element along the supply chain like manufacturers, distributors and dealers. So B2B e-commerce is simply e-commerce between two or more companies. Main focus in B2B is on procurement whereas B2C already focuses on selling and marketing.
There are two distinct aspects of B2B e-commerce that separate it from the more familiar business-to-consumer (B2C):
Flexibility in pricing; Transactions between businesses often require variability in the pricing of products between purchasers whereas B2C the price is same for everybody or varies rarely in the B2C marketplace. Integration of business systems; to realize increased productivity and savings, businesses involved in B2B will integrate their internal systems together, enabling less human intervention.

C2C e-Commerce
Consumer-to-consumer (C2C) e-commerce occurs between private individuals or consumers. Examples of C2C ecommerce are:
Auctions portals, such as eBay, which allows online real-time bidding on items being sold in the Web;
Peer-to-peer systems, such as the Kazaa or Napster model where private individual share files containing different kind of data. In Finland it is illegal to share any kind of copyrighted material in peer to networks.

Business-to-government e-commerce (B2G)
E-Commerce between companies and the public sector is usually referred as Business-to-government e-commerce. In practice it means the use of the Internet for licensing procedures, public procurement, and other government-related operations. In B2G the public sector has a leading role for establishing e-commerce. Which also is based on a need for public sector make its procurement system more effective. Web-based purchasing policies increase the transparency of the procurement process and reduce the risk of irregularities. Nowadays however, the size of the B2G ecommerce portion of the total c-commerce is only small fraction and insignificant.

Mobile Commerce (m-commerce)
Mobile commerce or m-commerce is defined as a process of buying and selling of goods or services through wireless technology. Most common representative in this category is of cause mobile phone. Biggest benefit of m-commerce is, that terminal is portable and there is radio coverage in major cities. There is also increasing amount of services available in m-commerce sector for example; Data or Information services, which cover for example automatic or manual deliver)' of sport news, weather information, stock market updates to a mobile device. Financial services, which covers paying bill or buying stocks, or even getting automatic warnings if money in the account is running low or predefined limit is exceeded.
Service payments, as consumers are for example able to pay car wash by call number assigned by the carwash owner. Service is charged with phone bill.

Electronic payments
There are several payment methods (and organization) supporting electronic payments and ecommerce over the internet:

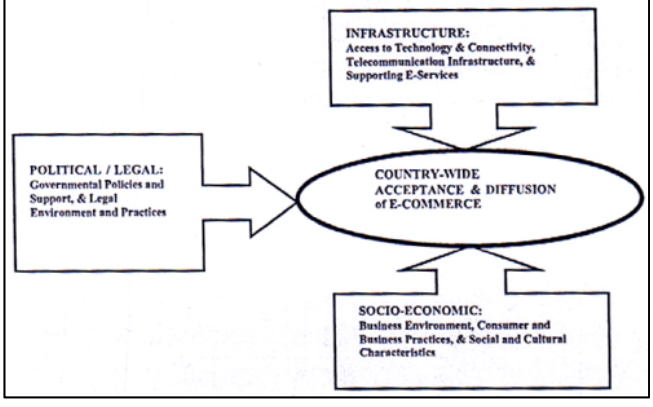
- Electronic payment cards (credit, debit, charge)
- Virtual credit cards
- E-wallets (or e-purses)
- Smart cards
- Electronic cash (several variations)
- Wireless payments
- Stored-value card payments
- Loyalty cards
- Person-to-person payment methods
- Payments made electronically at kiosks

When looking at list above it is obvious, that there are several issues to be taken into account when creating a electronic payments system like:
Authentication which identifies buyer and also makes sure that person is who he/she claims to be. Used methods are i.e. digital signature, finger prints, password or smartcards etc.

Objectives
Our objective was to explore e-commerce associated concepts, infrastructure and socioeconomic, as they relate to China as a developing country with a government that has taken a special interest in technological capabilities of its population. We knew from firsthand experience that, in spite of recently increased governmental efforts and investments, the telecommunication and e-commerce infrastructure was not as developed in China as they were in U.S., Europe, or as would be in any developing country, and we expected to find technical and infrastructural limitations to be significant impediments. Therefore, we focused on the societal issues and specifically wanted to identify and explore the influence of culture on acceptance and use e-commerce in this developing country.

FIGURE 0:

Influences on Diffusion of E-Commerce



E-Commerce software security
For average Joe internet feels like great black hole when giving i.e. credit card information into it. So sense of security needs to be established without any doubts. Customers must be able to select a mode of payment and the software related to that, on the other hand must verify their ability to pay. This can involve

credit cards, electronic cash or purchase orders. Specialized software such as cyber cash or e-wallet can verify the purchaser and the purchase.

Security protocols

There are several protocols defined for secure ecommerce transaction, and most famous arc SSL and SET.

Security Socket Layer protocol SSL

SSL is the protocol that encodes the whole session among computers and provides the safe communication service on Internet. It is widely used e-Commerce transactions. SSL Protocol was developed by Netscape Communications Corporation. The protocol is composed of two layers. At the lowest level, developed on top of some reliable transport protocols like TCP, there is the SSL Record Protocol which receives non interpreted data from higher layers in non-empty blocks of arbitrary size. The SSL Record Protocol is used for the encapsulation of various higher level protocols, like the SSL Handshake Protocol. Handshake protocol allows the client and server to authenticate each other and to negotiate an encryption algorithm with its associated cryptographic keys before the application protocol transmits or receives its advantage of SSL is that it is Ration protocol. A higher level on top of the SSL Protocol transparently. For online communications, SSL allows traffic between a Web server and a clients like Web browser to be strongly encrypted, using the public key technology.

Secure Electronic Transaction (SET)

Secure Electronic Transaction (SET) was incorporated by Visa and MasterCard with participation from several technology companies including IBM and Microsoft. This system means that your entire credit card number is never travelling across the net- rather pieces of it are-and that no human eye sees the entire card number. SET supports electronic commerce security based on Certificate Authority (CA).

SET protocol includes a payment section which is able to deal with different credit cards, and it applies an acquirer payment gateway which is able to authorize the usage of existing bankcard networks. In the authorization request sent by the merchant to the acquirer, the purchase instruction of the customer enables the acquirer to verify that the merchant and the buyer agree as to what is purchased and how much is authorized.

SET is a common secure electronic commerce payment protocol where five parties, namely, (1) customer, (2) seller, (3) payment gateway, (4) certificate authority and (5) issuer, arc involved in the payment process. Although SET is secure for making online electronic transactions, it is not recommended for micro-payment because it is consider to be time consuming, because of the several parties involved. Besides, all parties may have to authenticate themselves, for security reasons, introducing more penalties performance wise.

SET made possible the work of information integration, verification of all financing data and coding of sensitive data. It realized the financing payment safety work of attesting cardholders, supplier, payment request, payment authorization and records of payment by use of advanced technology like data coding and digital signature.

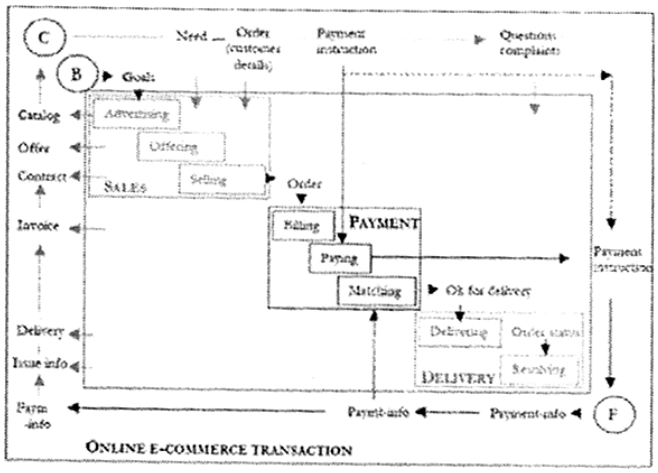
	SSL	SET
Protocol Type	Secure communication protocol (end to end)	Secure payment protocol (multi party)
Entities	Buyer to seller	C, M, PG
Authentication	Only merchant authentication	Mutual authentication
Privacy	No privacy from merchant	Good: by using dual signature
Ease of Use	good: convenience	Consumer credit card certification required
Mobility	Good: can be used on any machine	Fair: restricted on computer installed SET certification
Efficiency	Good:	Fair: due to the complex cryptography
Popularity	Very adopted	Not very adopted

Comparison of SLL and SET protocols

More traditional and safe way (if one docs not trust internet security) is that Consumer can just order and payment is by cash upon the delivery (i.e. postal office) of the physical goods or paying directly to given bank account.

More modern solutions are for example e-Cash which is short for electronic cash, computer based system which allows item to be purchased credit card or money order providing secure on transaction and processing. A popular e-Cash provider is i.e. PayPal. Consumer can also have a digital wallet (e-wallet) which can hold digital money that is purchased similar to traveller's checks or to a prepaid account.

Typical transaction process



Picture: Typical transaction process

There is not only a way to do the ecommerce transaction. but typical there e-Commerce has following elements:

- Advertising: the company communicates its products and services i.e. makes a catalogue
- Offering; the company offers specific goods and services,
- Selling; the company agrees with the customer on the content of a specific order
- Billing; the company produces the invoice.
- Paying; the buyer pays the seller by giving a payment instruction.
- Matching, where the seller matches the payment information like the authorisation results and the actual crediting of account.
- Delivery, where the seller delivers merchandise to the buyer.
- Resolving; the seller and buyer try to resolve delivery or payment issues related to the purchase.

This could be considered as one of the basic transaction flow chart, but it is up to seller to decide how he wants use e-commerce process.

Conclusion

The future of e-commerce depends when the trust in won and frauds are beaten, there will be an increasing market for e-Commerce. Shop are more and more congested, fuel cost more and more and internet connection and PC are getting cheaper and cheaper. When we put all this together one cannot avoid coming to a conclusion that there are huge possibilities for e-Commerce and it will probably increase exponentially. On the downside, some experts predict that it will be increasingly difficult for smaller companies to establish their presence. Customers are in most cases using brand information and internet search engine to find what they are looking, and there must be a hit before there is ecommerce. E-commerce is growth concept and it develops day by day, more & more.

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