

Electronic Commerce

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Electronic commerce, or Electronic trade, or electronic business as a newly rising mode of commerce will have far-reaching influence on social economy and play an important role in social development worldwide. It represents the trend of world trade in the 21st century and beyond.

1. What is Electronic Commerce?

Electronic commerce refers to commercial data exchange in digital form through electronic transmission means and commercial activities conducted on-line. Usually, electronic commerce can be divided into two levels: One is low-level electronic commerce that is, electronic commercial intelligence, electronic trade, and electronic contracts. Another is high-level electronic commerce which includes all commercial activities done via Internet, ranging from searching for clients, commercial negotiation, making orders, on-line payment, releasing electronic invoice, to electronic declaration to Customs, electronic tax-payment, all conducted on Internet.

Electronic commerce means electrification of all trade transactions. It is featured by these characters: ①fairness and freedom, ②high efficiency, ③globalization, ④virtualization, ⑤interactivity, ⑥autonomy, ⑦personalized service. With electronic commerce, clients and suppliers can closely and conveniently contact with each other on a global scale, so that clients can find satisfactory suppliers from all comers of the world to meet their demands.

Electronic commerce will change the environment in which enterprises compete with each other and reduce costs which would otherwise be high in traditional market structure. Low costs in transactions, convenience in market entry and government encouragement to use Internet (exemption from tax) activate electronic commerce and boost it to develop rapidly right from its beginning. As experts predicted, by 2000, electronic commerce would reach a scale of 300billion US dollars worldwide. And it has exceeded this scale.

To ensure security of electronic commerce, an electronic certification center should be established. Digital ID is used to validate identity. Digital ID is trusted to a third party, namely, an authorized agency, to release, including identifying information of the holder (name, address, liaison way, ID card number), an encryptive key for common use by the both parties, period of validity, password and identification information of the authorized agency, etc. With digital ID, both parties in transactions can be assured of identifying the other party and validate that the information sent out from the other party has not been subject to alteration.

2. Influence That Electronic Commerce May Have

Compared with traditional commerce, electronic commerce has superiorities as follows

*Extensive coverage. A network system combining Internet, Intranet (local area network inside enterprises) and Extranet (networks outside enterprises) enables buyers, sellers, manufacturers and their partners to contact with each other and conveniently transmit commercial intelligence and documents worldwide.

*Complete functions. In electronic commerce, users of different types and on different tiers can realize different targets in trade, for example, releasing commercial intelligence, on-line negotiation, electronic payment, establishment of virtual commercial market place and on-line banking, etc.

*Convenience and flexibility in use.. Based on Internet, electronic commerce is free from restriction by specialized protocol for data exchange. Transactions can be conducted conveniently on computer screen, by using any type of PCs, at any place around the world.

*Low cost. Use of electronic commerce can cut down costs for hiring employees, maintaining warehouse and storefront, expense for international travel and postage to a great extent. The cost for using Internet is very low.

Electronic commerce will have substantial influence on social economy:

*Electronic commerce will change the way people used to take in commercial activities. Through networks, people can enter virtual stores and browse around, select what they are interested in, and enjoy various on-line services. On the other hand, merchants can contact with consumers through networks, decide on buying in goods (categories and quantities) and perform settlement of accounts. Government agencies can perform electronic tendering and pursue government purchase through networks.

*The core of electronic commerce is people. It is a social system. On-line shopping changes the way of people's daily life and fully embodies autonomy of consumers in trade.

*Electronic commerce changes the way enterprises produce their goods. Through networks, manufacturers know market demand directly and make arrangement of production, in accordance with consumers' need.

*Electronic commerce dramatically raises efficiency of trade. Intermediate links can be cut down; costs for sales will be reduced to minimum. Production can be arranged in "small batches plus diverse varieties", and "zero stock" will be reality.

*Electronic commerce calls for reformation of banking services. New concepts like on-line bank, on-line cash card and credit card, on-line settlement of accounts, electronic invoice, electronic "cash"-consumers will no longer use the real cash when shopping-will become reality.

*Electronic commerce will change government behavior. Called "on-line government", an on-line administration plays the important role of a social channel, maintaining order and fairness and detecting and cracking down on-line fraud.

3. The Present Situation of Electronic Commerce in Developed Countries

In the mid-1990s, when Internet experienced explosive development and micro-computers entered homes in great numbers, computer networks became an indispensable part of people's daily life. People expect for more interests and convenience brought in by computer networks. Electronic Commerce emerged just in time. In developed countries, governments timely made policies to boost electronic commerce to practical use and dominant position in a new round of worldwide competition.

In 1998, Internet helped the United States to create productive out put of 507 billion US dollars, national income of 301 billion US dollars, and 1. 2 million job opportunities; of these, electronic commerce created an income of 100 billion US dollars. Internet has become the first big industry with yearly productive output increasing by 60%, and accounting for 6% of GDP. Service export from the United States has attained 160 billion US dollars each year, and it is predicted that it can compensate trade deficit in commodity trade. Internet played an important role in promoting export from the United States: in 1999, books, automobiles and services were sold through electronic commerce to foreign countries, exceeding 102 billion US dollars.

Advocated by the United States, 132 members of WTO decided to turn Internet into a free trade zone within at least one-year term. Some countries and organizations scrambled to work out development framework for electronic commerce and made laws and regulations for developing electronic commerce. In 1996, the UN Conference on Trade and Development passed "Model Law of Electronic Commerce". In December, 1996, the US government issued "Policy Framework for Global Electronic Commerce". In April 1997, European Union issued "Proposal for Electronic Commerce in Europe". On July 1 1997, US President Clinton promulgated "A framework for Global Electronic Commerce" which has had great influence on global electronic commerce. In May 1998, WTO minister conference passed "A Manifesto on Global Electronic Commerce", and in September 1998, WTO general council passed "Scheme for Electronic Commerce Work". In October 1998, UN Organization of Economy and Cooperation & Development (OECD) held minister conference at Ottawa, Canada on electronic commerce, which is praised as a milestone of global electronic commerce. In September 1999, Global Business Dialog on Electronic Commerce (GBDE) was held in France and issued "Paris Proposal". In December 1999, the United States issued another Internet commerce standard.

Electronic commerce in the United States takes the rein of the trade in the world. At present, there are 60 million subscribers of Internet in the United States. More than 98% of purchasing managers seek targets on-line. As estimated, by 2002, the value involved in transactions done through electronic commerce between US enterprises will account for 6.1% of GDP. Fortune magazine's statistics show the 500 top companies in the world all engaged in on-line business. 25% of income to IBM (about 20 billion US dollars) is related with electronic commerce. Thanks to electronic commerce, IBM saved its expenses of 250 million US dollars during 1999. HP Company

designated its electronic Commerce solution as E-world-an electronized world. This solution is oriented to medium-and small-size enterprises, and great investment was made to third parties-software companies to develop software suited for medium-and small-size enterprises to engage in electronic commerce. Intel places its risky investment mainly on Internet and electronic commerce. In July 1998, Intel began on-line transactions Its monthly business turn electronic commerce reached one billion US dollars.

As a survey made by European Information Technology Observation shows, of the surveyed 570 companies, 47% have implemented electronic commerce of some sorts, and 4/5 of them began their electronic commerce in the latest two years. Executive Committee of European Union plans at least 25% of its purchase done through electronic commerce by 2001. In 1998, in Australia, web sites related with electronic commerce on Internet doubled in number, and 11% of Australian enterprises have their web sites. 80% of Australian companies use Internet to transmit E-mails and conduct commercial activities. In 1998, Singapore government promulgated, for electronic commerce. Singapore is the only country in Southeast Asia that formally joined the "Rights and Obligation Electronic commerce In cooperation with US manufacturers and firms, Singapore established an electronic commerce entry in Asia, providing comprehensive Business-to-Business (B to B) service, so as to enable Asian trade companies to enter the rank of global electronic commerce.

4. Development of Electronic Commerce in China

Exploration in electronic commerce, governmental and civil began in 1993 in China. Today, electronic commerce has found its applications in foreign trade, Customs, finance and commerce. Local frameworks have been established in Beijing and Shanghai for electronic commerce. Some electronic commerce web sites have been opened to on-line shopping and on-line settlement of accounts.

The Ministry of Foreign Trade set up in February 1996 China Electronic Commerce Center responsible for research, construction, and operation of international electronic commerce project in CT he Center established "China Commodity Trade Market" on Internet, to put rich resources of goods in China to world market, opening new channel for our exports. The subject "Security Proof of Electronic Commerce" as a key item in science and technology during th9th Five-year Plan period was appraised in early 1996 by State Department of Science and Technology and State Encryptive Code Administration, which laid a foundation for establishing a safe and normal environment for electronic commerce in our country.

In March 1999, the Ministry of Information Industry approved the electronic commercial network of pharmaceuticals and health as a model project of electronic commerce for all trades. It is one of the six specialized networks in China, which provide all-direction serve of market information, product transaction, warehousing and delivery, and account settlement, etc.

In Shanghai, in 1999, "Shanghai Administrative Center of Electronic Commerce Security Certificate" was set up, which provide security platform for electronic commerce and is responsible for application, appraisal, making and management of digital certificate domestic and foreign clients in Shanghai, and offers services such as certi-

fication of digital identity and digital signature, electronic notarization, secure E-mail and secure encryption, etc. In January 1 the first on-line bookstore in China-Shanghai Book City On-line standard. It provides VISA cardholders and cardholders of domestic Great Wall card, Dragon card, Peony card and Pacific card with instant and authorized security service.

The measure taken in Beijing to develop electronic commerce is to build a capital electronic commerce city. In November 1998, the capital electronic commerce project formally activated, and a frame-work formally showed off. The Legend Computer Company open edits electronic commerce system in June 1999, and web sites 8848, sina, 163, all activated their electronic commerce.

In April 2000, sponsored by the Ministry of Information Industry, National Economy and Trade Commission, and China Council for Promotion of International Trade, the 4th China International Electronic Commerce Conference was held. State leaders and superintendents of various ministries and commissions joined the opening conference. Mr. Levy, secretary of Commercial Department of the US government led a delegation of famous US enterprises and media, totally more than 100 persons, to join the conference. More than 60 seminars were held during the conference, to discuss extensive topics on electronic commerce.

Despite all these efforts, companies engaged in electronic commerce service in China suffer losses in their B-to-C business (B refers to Business, C refers to Consumers). Some Chinese experts attribute this to Chinese shopping habit-Chinese consumers treat shopping as an interesting hobby; they enjoy the pleasure of spending their money through appreciating and comparing merchandise, and bargaining; but all these will vanish from on-line shopping. Other experts attribute this phenomenon to the ubiquitous incredulity in society-banks can-not interconnect their business because they fear their customers will be captured by their rivals; cash cards cannot be popularized because banks do not trust civilians; and civilians do not like to do on-line shopping because they do not trust on-line stores,...etc. Why? That's because many things on-line and in society are false, for example, false number of subscribers, false statistics of access flux, shoddy goods, forged diploma, sham curriculum vitae, sham investment, sham listing, false revenue to listed enterprises, etc. Such an overall environment will not change within a long period of time. In such environment, no commercial activity can be done. Many IT practitioners are disheartened with electronic commerce in our country.

5. Prospects of Electronic Commerce

Although developing rapidly and seeming to have brilliant prospects, electronic commerce faces a series of real problems, for example, problems involving security, technology, expense, legal system, tax system, conception, protection of privacy, infrastructure, etc. However, electronic commerce is the mainstream of enterprises in the new century and will develop rapidly in the coming years. Some companies predict that by 2003, electronic commerce between enterprises in developed countries will account for over 9% of the total turnover (1,300 billion US dollars), and in consumer electronic commerce the turnover will attain 76.3 billion US dollars by 2002. And as experts predicted, electronic commerce in China will catch up with developed countries on the average level, in 10 years. They suggested 3 to 5 years be

spent on working out plans, policies and regulations necessary for developing electronic commerce, building substantial and tangible electronic commerce systems, fostering specialized talents, optimizing of the electronic commerce systems in some trades and areas; and then 5 to 7 years be spent on linking with international electronic commerce to enable our electronic commerce system as an important component of international electronic commerce; popularizing of electronic commerce in application, raising electronic commerce in our country to a higher level in research, development and application, to the average level in developed countries.

The following description tells what major I/e strategies some major manufacturers in the world are taking in development of electronic commerce.

IBM: IBM is the pioneer that held up the banner of electronic commerce as a new application of Internet. In people's mind, IBM is now not only manufacturer of mainframes, PCs, servers, software but also the "godfather" of electronic commerce. IBM has always been dedicated to promoting secure commerce over the Internet. Its income from selling servers has accounted for 60% of its total income.

IBM not only provides products for large-scale applications of secure, efficient, reliable electronic commerce and payment over Internet, but also for small electronic business as well.

IBM Micro Payments an application enabling buyers to purchase low cost items over Internet-is another example of how IBM is expanding to new areas of commerce. By enabling billing servers, content providers and other merchants to profitably sell items for even a few cents, IBM opens up a whole new market.

IBM Micro Payments allows buyers, sellers and billing systems to sell content, information, and services over Internet, for small amounts. IBM's commitment to electronic commerce and electronic business makes it a leader in the area of electronic payments. An automated compiler tool transforms existing HTML pages, creating "click and pay" links with either fixed or dynamic prices. Content and service providers can take advantage of the extensive set of APIs and authoring tools to extend IBM Micro Payments available from OEMs. Billing servers can easily integrate the IBM Micro Payments application with existing billing systems and use it to attract content providers and open new sources of revenue.

IBM Micro Payments provides scalability and interoperability, which allows widespread availability across Internet, including multi-currency and multilingual support, and low operational costs it easily supports transactions as low as one cent.

SUN: SUN as a global leading supplier treats Internet not only a tool but also a new mode of commerce. SUN has provided very flexible solutions to commercial affairs for BBC, ETRADE, Federal Express, First Auction, Fruit of the Loom, Kodak, Thomas Cook, Virgin.

Microsoft: Microsoft aims at helping enterprises to set up more powerful relation with their clients and partners by three means: (1) Windows 2000, BackOffice, Site Server, Biztalk, etc; (2) MSN (in the United States, more than 40% web users access MSN, and consumers can conduct comparative study when buying articles and ser-

vices); (3) Partners provide customers with various products and services on Microsoft MSN platform, realizing electronic commerce solutions, including settling account, paying tax, shopping, logistics, purchasing, accounting, ERP (Electronic Remote Processing) and EDI (Electronic Data Interchange), etc.

Site Server and Biz talk are the two major products of Microsoft adopted in existing system for enterprises to develop electronic commerce. Site Server is used for constructing web stores, based on data-it enables the client to easily realize on-line catalog, buying/selling order, exchange of documents for promoting sale, etc. Disregarding what platform, operating system or technology used in low layer.

Novell: Novell defines itself as "NET Service Supplier" after 2000. The word NET includes intranet, extranet, Internet, company net, public net, cable net, wireless net. Its aim is to breakout the existing service domain in which most software products can provide services only in a specific environment or for a specific procedure or server (rather than the whole network). Novell's network service software NDS eDirectory as a nucleus helps clients to reduce complexity of business on network, and improve security, so that it enables network, applications and business processing to adapt to electronic commerce, and thus speed up their transfer to electronic commerce.

SCO: SCO's Tarantella is the best solution for existing users to conduct electronic commerce. Users can use only a browser to access any applications of platforms in back counter, without the need of re-writing existing applications, in their effort to transfer their business to electronic commercial mode. To ensure electronic commerce to continually operate, SCO provides an incessant cluster solution based on UNIXWARE 7. This product is easy to use, easy to manage and its cost is one-tenth of large-scale product of the same sort for mainframes while its performance doubles. It is a security solution with higher performance/ cost ratio among the same sort for electronic commerce.

Tivoli Systems Inc. today announced Tivoli Business Systems Manager, a new, fully integrated solution that allows businesses to manage their IT environments from the top down, creating a powerful view of business systems management.

The Tivoli Business Systems Manager solution provides us with business views and control mechanisms to manage all of our distributed IT resources in the retail, banking and electronic commerce environments-including system resources, databases, application servers, web servers and electronic commerce applications-from one central location. The Graphical User Interface allows us to monitor all of our resources on a single screen, regardless of geographical location.

Combining the features of Tivoli Global Enterprise and Tivoli Manager for OS/390, Tivoli Business Systems Manager provides true end-to-end enterprise management from one console, simplifying the administration of heterogeneous environments. Tivoli Business Systems Manager enables customers to manage and control multiple applications that are required for different business functions.