

Overview of Present and Future e-Commerce

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Abstract

This paper presents “an Overview on Present and Future e-Commerce.” First, the “Background of Future e-Commerce” is discussed. Secondly, the “Present Status of IT (Information Technology) Application in the US and Japan” is reviewed. Thirdly, “Social Issues in e-Commerce” are presented in detail. To overcome such obstacles and to realize a global information society, further technology innovation is required in the IT and related areas, such as the money flow and product flow areas. Finally, the “Future of e-Commerce in the Global Information Society” is envisaged.

1. Background of Future e-Commerce

First, an image of a future global information society in the 21st Century is described in Figure 1. In such a society, the economy will be borderless and a majority of trade will be made through

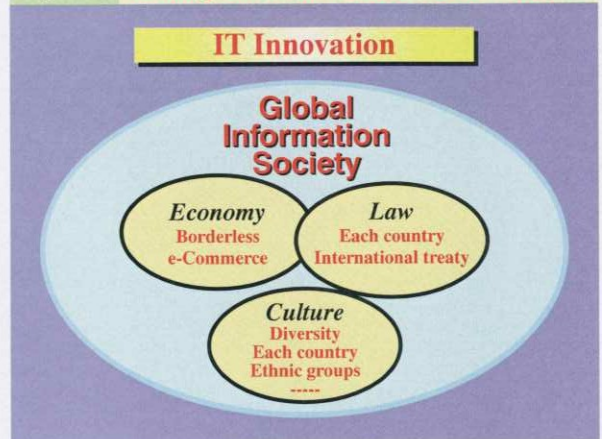
e-Commerce. However, world politics will be still controlled under the law of each country with a supplement of international treaties ratified in each country. Culture will be diversified depending on nationality, ethnicity and religion. Such a complicated society will only be able to exist thanks to the innovation of IT or Information Technology.

2. Present Status of IT Applications in the US and Japan

2-1 Internet and Mobile Phones

The number of Internet and mobile phone users in the US and Japan has been rapidly increasing as shown in Figure 2. Recently, mobile phone Internet access using NTT DoCoMo's

Figure 1 Background of Future e-Commerce



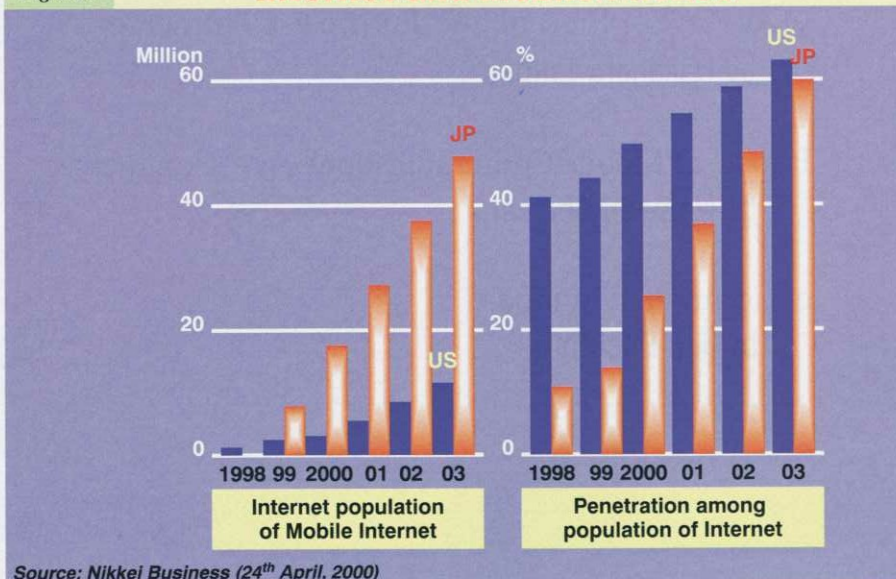
i-mode has become very popular in Japan. Conventional Personal Computer (PC) Internet use has become very popular in the US and PC Internet use in Japan may become comparable to the US in terms of penetration in about 2003. According to economists, the US is the most advanced and Japan is the most behind in the IT area among the advanced countries. The degree of Internet penetration in the UK lies between the US and Japan.

2-2 e-Commerce Growth

Figure 3 shows the comparison of e-Commerce growth between the US and Japan. Although business to consumers (B-C) has become popular recently, business to business (B-B) is much larger than B-C in market size and will expand rapidly in the near future in both countries.

Figure 4 shows typical e-Commerce companies in the US and Japan. Typical American B-C companies using PCs and the Internet are Amazon dot.com, Priceline dot.com, Dell computer, Cisco systems, AOL, and Yahoo. Typical Japanese e-Commerce companies using NTT DoCoMo's i-mode are

Figure 2 Internet and Mobile Phones



5 words x 75 lines = 375 words

Kinokuniya book store, Sakura Bank, Japan Air Lines, tourism, news, foods, hotel and restaurant guides, and stocks and raw material prices. In the case of Japan Air Lines, fares will be discounted if reservations are made through the Internet. Regarding B-B, almost all systems are internationalized through the Internet. Examples are Cisco systems, MetalSite, PlasticNet, FreeTrade, ChemConnect, and TradeXchange.

3. Social Issues in e-Commerce

3-1 Social Obstacles against e-Commerce

In order to materialize e-Commerce, a lot of social obstacles must be removed.

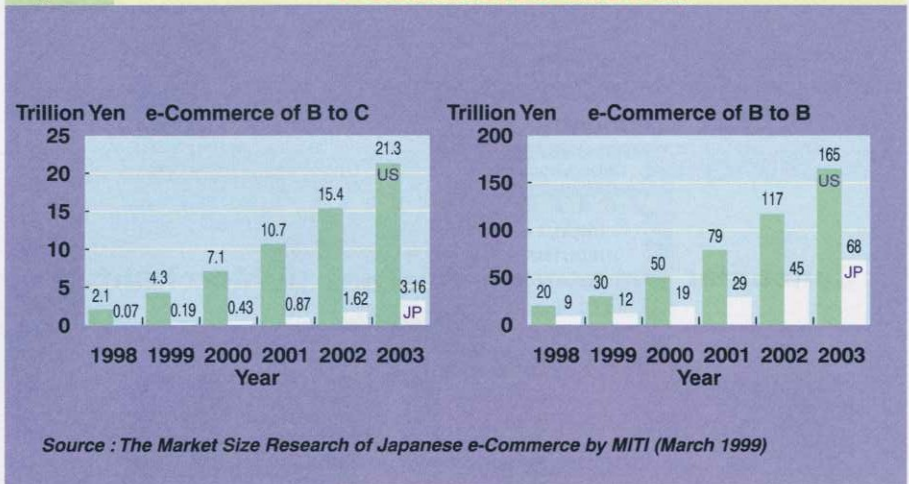
1) Moral hazards such as cyber terrorism, viruses such as the Love Bug, crimes such as money laundering, unreasonable speculation by hedge funds or the "Bubble Dot.Com" phenomenon on stock exchanges.

2) The so-called "digital divide" such as the segregation between people who have access to IT and those who lack access, or between IT educated and IT uneducated.

3) Conventional law and commercial rules conflicting with the new global cyber law.

Figure 3

e-Commerce Growth



4) Conventional tax, VAT (Value Added Tax) and tariff systems conflicting with global harmonization.

5) No harmonization of Intellectual Property Right (IPR) law such as mass copyrights and business model patents.

Without solving these issues, we cannot have very high expectation for the global expansion of e-Commerce.

3-2. Action Plan by OECD

It is reported that the OECD is going

to submit a tax harmonization recommendation to member countries in order to promote international e-Commerce, including tax harmonization for music, movies, and games delivered through the Internet. As shown in Figure 5, when a consumer is going to make an order for some materials through the Internet to a merchant in a foreign country, the consumer must pay a tax or a duty upon delivery. However, when the consumer is going to order an information product such as music or movies, the product will be sent through a distribution network directly from the merchant without paying any tax or duty. It is reported that this problem was discussed at the G-8 Okinawa summit in July 2000.

4. Technology Innovation for Future e-Commerce

4-1. Technology Innovation Challenge

Present technology is still immature for dealing with the global information society as discussed so far. Research and development (R&D) in IT and other related areas will be strongly required.

Examples of the R&D undertaken in each area are given below.

1) IT area: Increased speed of transmission, reliability improvement and better security guarantees are absolutely required by intensively using

Figure 4

Typical e-Commerce Companies

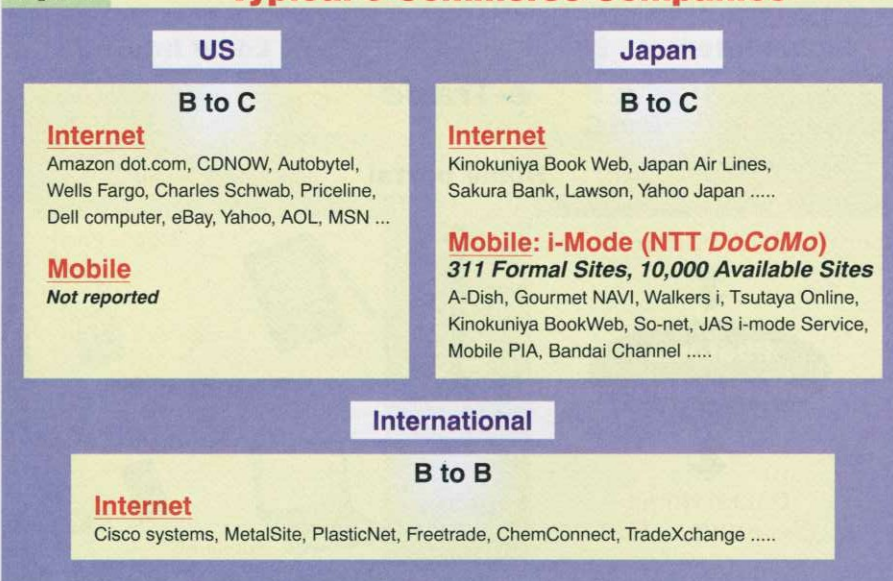
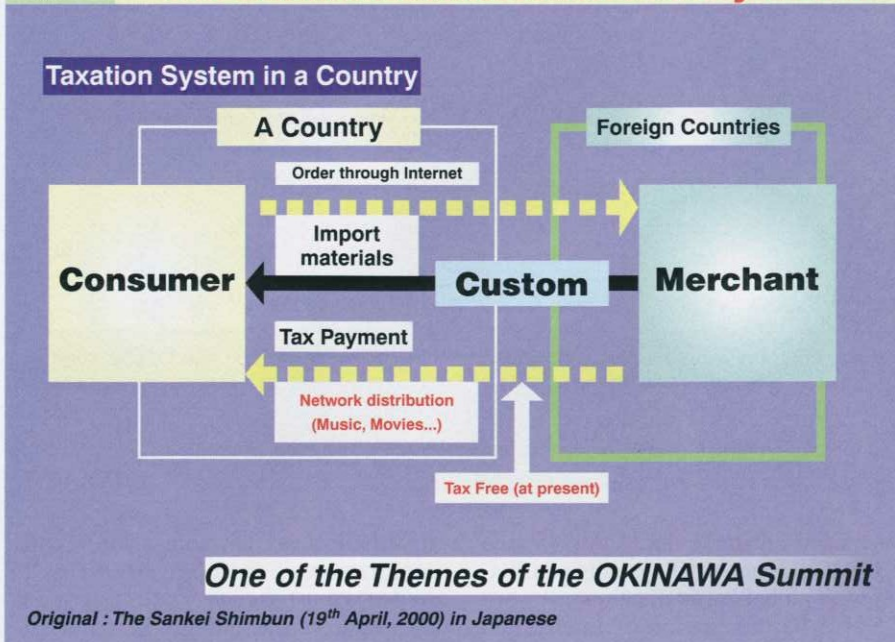


Figure 5 Tax Harmonization Action Plan by OECD



optical fiber and wireless technologies and high-performance computers and database technologies.

2) Money flow area: Electronic settlement and signatures will be essential for e-Trade. Much more sophisticated cryptography and authentication technologies must be developed and deployed.

Interoperability will be required with electronic banking and money systems, including IC cards.

3) Products flow area: The movement of products in coordination with the flow of information will be essential to complete a trade.

Digitalization of manufacturing, logistics, storage and transportation should be developed to provide a complete solution. Intelligent Transport Systems (ITS), robotics and production control technologies might be very important for this purpose.

This means that the global information society will not be materialized without significant investment and every endeavor in technology innovation.

4-2 Future IT System for e-Commerce

An image of a future IT system for

e-Commerce is given in Figure 6. The concept of a home portal will become very important. The home portal will be the access point for the customer. Two proposals have been made. One is the wireless access called "Bluetooth"

through which the network is connected to a mobile phone, digital camera, mobile PC and PDA or personal data assistant. The other is the "Photonic Home Gate" connecting with the home by optical fiber, to access high-performance PC Electronics and Digital Home Electronics such as PS2 (PlayStation 2). From the home portal, people can access the local Internet and the global Internet to make an e-Trade, such as B-B, B-C and customer to customer (C-C).

In order to make it possible to materialize such a system, the 2nd generation Internet, namely "Everything on IP", and the 3rd generation Internet, namely "IP on Everything", must be introduced. For that purpose IPv6 or Internet protocol version 6 has been discussed at the IETF (Internet Engineering Task Force). Using the 2nd generation Internet technology, telephones or movies can be put on Internet Protocol (IP). And using the 3rd generation Internet technology, addresses will be given not only to PCs or mobile phones, but also to other terminal equipment such as digital cameras or home electronics through an IP access tip mounted on all terminals.

Figure 6 Future IT System for e-Commerce

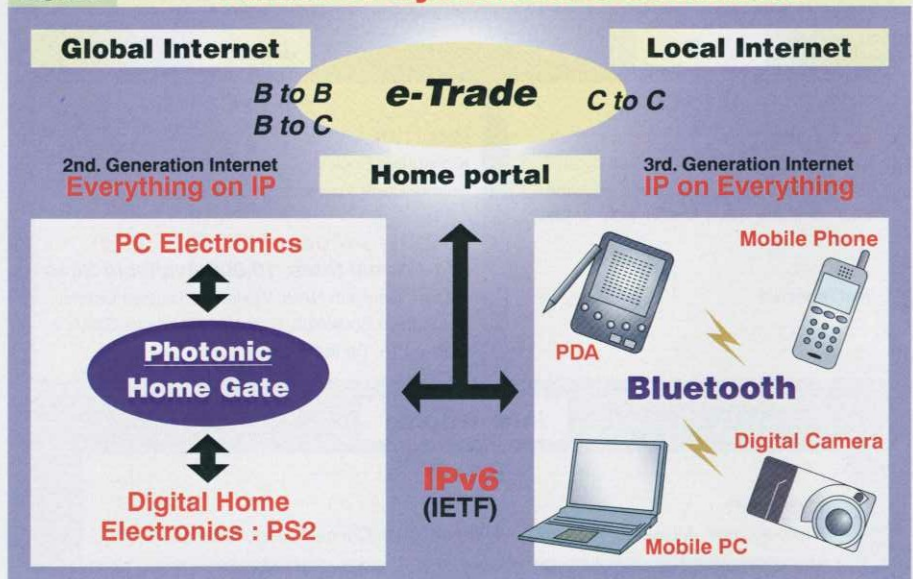
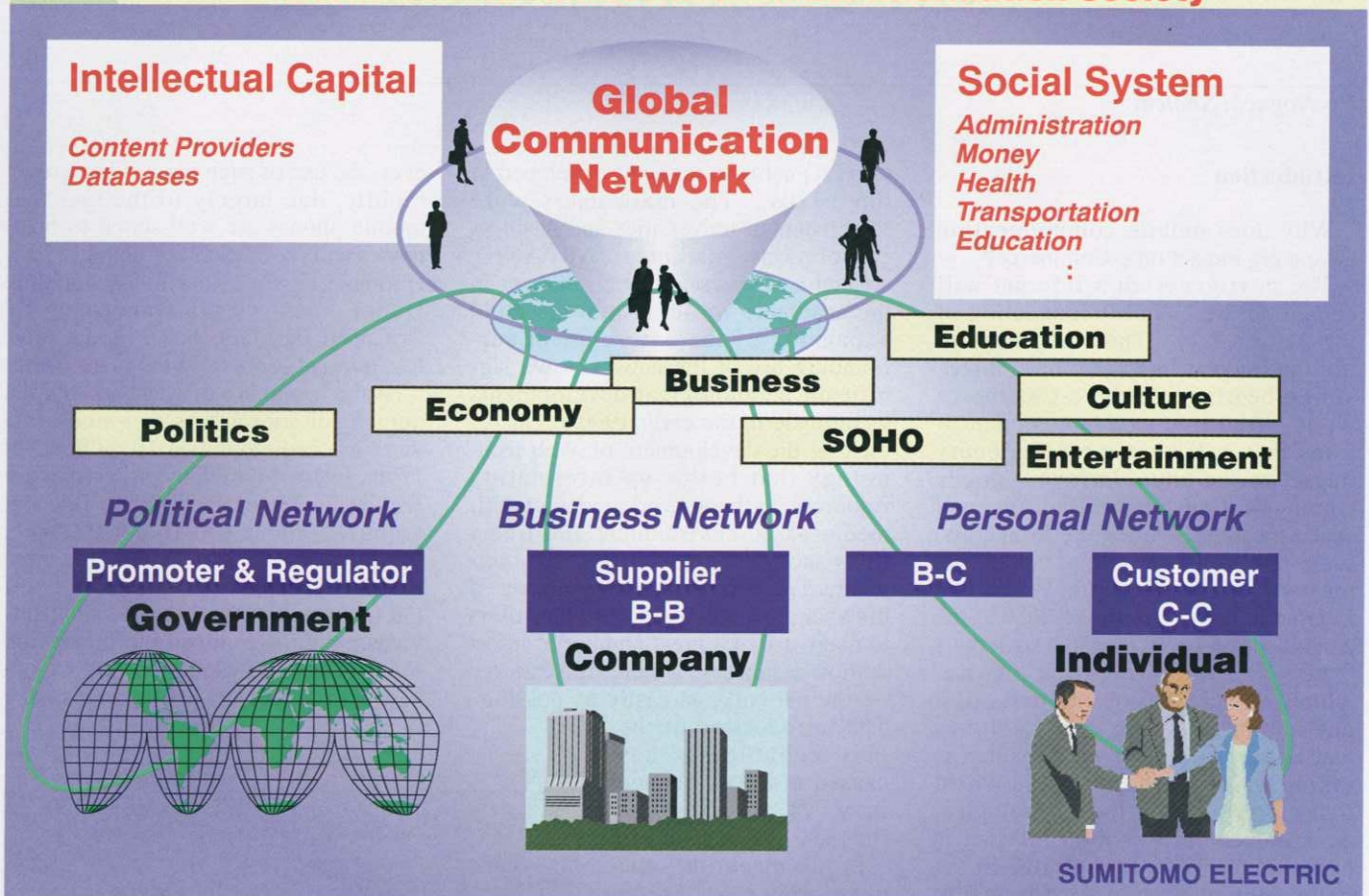


Figure 7

Future of e-Commerce in a Global Information Society



5. Future of e-Commerce in a Global Information Society

When technology innovation and the social revolution discussed above will be implemented timely and reasonably, we can imagine future e-Commerce in a global information society as shown in Figure 7. First of all, the global communication network will have a much larger capacity and much better reliability than today. In addition to that, intellectual capital will be connected to the global communication network through content providers and databases.

Using such infrastructures, various on-line real time social systems will become popular such as administration, money, health, transportation, and edu-

cation. Since such a network is indispensable, governments will have access to form a political network for politics and the economy. Companies will have access to form a business network for business and networking SOHO (Small Office and Home Office) for their own employees. Individuals will be encouraged to have access to form a personal network not only for work but also for their own education, culture and entertainment.

In such a society, the role of companies, individuals and governments in e-Commerce will be as products supplier, consumer and promoter & regulator, respectively. In e-Commerce, B-C, B-B and C-C will be intertwined and they will gradually become an essential part of human life.

In conclusion, it should be emphasized that it is absolutely essential for realizing such a future scenario for e-Commerce to promote deeper and wider technological innovation and a social revolution. **JTI**

Nakahara Tsuneo is an Executive Advisor to the C.E.O. of Sumitomo Electric Industries, Ltd. He serves on various industrial strategy and government committees, including the Industrial Technology Council of the Ministry of International Trade and Industry. He has been engaged in research and business activities for Sumitomo Electric Industries Ltd. in a wide range of areas, including fiber optics, wire and cable, electronics, and communication systems.