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Which Side Are We along the Digital Divide?:

The Present Status of East Asian Internet

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1. Information Technology and Control Revolution

Why do some countries succeed in developing information technology markets, and others not? The "Digital Divide" was one of central topics in G8 Summit talks held in Kyushu and Okinawa in July 2000. G8 governments proposed, "Information and Communications Technology (IT) is one of the most potent forces in shaping the twenty-first century."[2] Before the summit talks, the Japanese government announced that it would spend 1.5 million U.S. dollars in five years for IT development in developing countries.

Is it really necessary for G8 countries to commit IT development aid to developing countries? ODA (Official Development Aid) has concentrated on aide to fulfill BHN (Basic Human Needs) in developing countries. Critical infrastructure such as dams, ports, railways, and railroads have more priority than nonessential items. IT, including the Internet, is a good example of such nonessential items.

This short essay tries to sketch the present status of digital divides within and between Asian countries. Some countries in Asia have succeeded in developing IT industries. The most important factor to make societies

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[2] <http://www.g8kyushu-okinawa.go.jp/e/index.html>

to fit into the information age would be "a sense of social crisis." It is said that information technology can change social systems in many fundamental ways. However, technology is just a tool for change. It is people's minds that actually change societies. If people don't have strong desires to change societies, information technology has no effect. Without wider social recognition of needs for social reforms, only richer and more advantageous people would use information technology, and digital divides will be widened.

Andrew Shapiro proposes the idea of "the Control Revolution,"[3] in which power shifts to individuals from large organizations such as governments, corporations, and mass media, which have controlled information flow. Now individuals can control what information to receive and what information to send. They also can "prosecute" governments, corporations, and mass media by online actions.

People, who recognize the importance of the control revolution, will make use of information technology for social reforms. Social reforms and control revolutions will make open societies. This is a fundamental change that information technology causes. Recognition of digital divides can be a driving force for "digital open society."

2. Emerging Digital Divide

We need to define "digital divide." Originally the digital divide was considered to be a problem within the United States. Prof. James Katz used the term in a research in October 1995. He interviewed 2,500 people and found that more poor, less educated, African-American, and Hispanic people were losing opportunities to access information technologies. The fewer opportunities to access information technologies one has, the greater the possibility that he or she will lose opportunities to gain

[3] Andrew L. Shapiro, *The Control Revolution: How the Internet is Putting Individuals in Charge and Changing the World We Know*, New York: Public Affairs, 1999.

wealth[4].

In 1997 the NTIA (National Telecommunications and Information Administration) of the Department of Commerce published a report titled "Falling Through the Net: A Survey of the “Have Nots” in Rural and Urban America." It clarified the difference between the haves and the have-nots. In July 1998 a new report, "Falling Through the Net II: New Data on the Digital Divide," was published, and the term "digital divide" became public[5]. In the State of the Union address in January 2000, President Clinton mentioned closing the digital divide. Following this, the Japanese mass media quoted the digital divide as a new problematic word to explain the Internet.

When the Japanese government began preparing for the summit talks in Okinawa, they could not find a catchy word to be discussed. They finally adopted the "digital divide" as a symbol of a new information policy. Since then the digital divide has had two meanings: one is a divide within a country, and the other is a divide among countries. In both developed countries and developing countries, there are digital divides in some forms, and international divides between developed and developing countries, too.

3. Digital Divides in Asian Countries

3.1. China

In Mainland China there were 8.9 million Internet users, or 1% of a total population of 1.3 billion, at the end of 1999, and 16.9 million in June 2000 according to CNNIC (China Network Information Center) statistics[6]. Most Chinese Internet users live in larger cities like Beijing or Shanghai.

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4 <http://news.cnet.com/news//0-1005-200-317366.html?tag=st.cn.sr.ne.1>

5 <http://www.ntia.doc.gov/ntiahome/net2/>

6 <http://www.cnnic.net/develst/e-cnnic200007.shtml>

The Chinese government is controlling the Internet in China, and all telecommunications operators are state-owned companies. In the local call market China Telecom takes more than 90%, and the second operator, China Unicom, takes less than 10%. There are only five international Internet gateways in China, all of them state-owned or operated by state-owned universities (Table 1). The largest and almost monopolistic CHINANET is operated by China Telecom. CERNET (China Education and Research Network) and CSTNET (China Science and Technology Network) are for educational and academic use only. CHINA GBN (Chinese Golden Bridge Network) and UNINET by Unicom are for commercial use.

Table 1: Bandwidth of International Gateways of the Internet in China (Mbps)

Network	Bandwidth
CHINANET	291
CERNET	8
CHINA GBN	22
CSTNET	10
UNINET	20
Total	351

Source: <http://www.cnnic.net.cn/Develst/cnnic2000.htm>

At these gateways the government seems to have proxy servers to block inappropriate materials such as pornography, anti-government information, or anti-social order information. Some overseas web sites cannot be accessed in China. For example, Chinese citizens are not allowed to access news media sites in Taiwan and Hong Kong. For the Chinese people the Internet is never a tool for political actions. Rather, it is used just like television[7].

There is a large digital divide in China, and only a small number of wealthy people are using it. Personal computers are relatively expensive for ordinary people. Electronic commerce is not flourishing, because credit cards are not generally accepted or used. However, the Chinese

[7] Top three purposes of Chinese people to use the Internet are "getting information (56%)," "study (11%)," and "entertainment (11%)." <http://www.cnnic.net/develst/e-cnnic200007.shtml>

government is eager to adopt the Internet. Many government ministries and agencies have their own websites[8], and the People's Daily, the Chinese Communist Party's newspaper, has web sites in several languages including Chinese, Japanese, French, Spanish and English[9]. The government seems to be considering a way to use the Internet as a governing system[10].

Although, to close the digital divide in China, the structure of information technology markets and government policies should be altered, this is difficult because the government will not release control of the Internet. As long as that policy continues, the control revolution empowered by information technology cannot break out in China.

3.2. South Korea

South Korea experienced a deep and serious crisis in autumn of 1997 after an Asian monetary and economic crisis started in July 1997 in Thailand. In South Korea monetary liquidity was lost and the unemployment rate rose suddenly. This crisis changed so-called "crony capitalism" in Korea. Excess personnel were thrown out from large "chaebol (family group)" companies. People who lost jobs looked for something to live on. At that time dot com companies were increasingly popular in the United States, and Koreans rushed into dot com businesses.

Now South Korea is the second largest holder of <.com> domain names in the world. It also has more than 15 million Internet users (over 30% of the total population) and more than 1.8 million broadband (ADSL [Asymmetric Digital Subscriber Line] and Cable modem) users--probably the highest diffusion rate in the world. In addition, the number of Internet-related venture companies is growing in Teheran Valley (Korean Silicon Valley), and more than half of stock exchange activities are conducted online. People used the Internet for an "Anti-worst candidates" campaign in the national election in April of 2000, because they recognized

[8] <http://www.gov.cn/>
[9] <http://www.peopledaily.co.jp/>
[10] The Chinese government is quite negative to use American software. It is said that they decided to promote Chinese version Linux, "Red Flag," for an official operating system (OS) in China.

the power of information technology and used it for social reforms. The Korean economy also is rapidly recovering from the "IMF" depression with the Internet[11].

Table 2: Broadband User in South Korea (May 2000)

Service	Operator	Subscriber	Market Share (%)
ADSL	Korea Telecom	386,592	30.2
	Hanaro	835,599	65.2
	Dreamline	60,000	4.6
	sub total	1,282,191	100
Cable Modem	Thrunet	399,199	71.0
	Hanaro	98,065	17.4
	Dreamline	20,000	3.6
	Dacom	45,000	8.0
	sub total	562,264	100
total		1,844,455	-

Source: Ministry of Information and Communication

The government's actions to develop IT in Korea have been effective by now. The national PC project, in which cheap network accessible laptop computers were introduced by government initiative, or the 2 million-housewife digitalization project by the Ministry of Information and Communication (MIC) are examples of such success. People's determination to see social and government policy reforms brought big success. The digital divide in South Korea is becoming narrower, and an international digital divide between South Korea and other developed countries has almost disappeared.

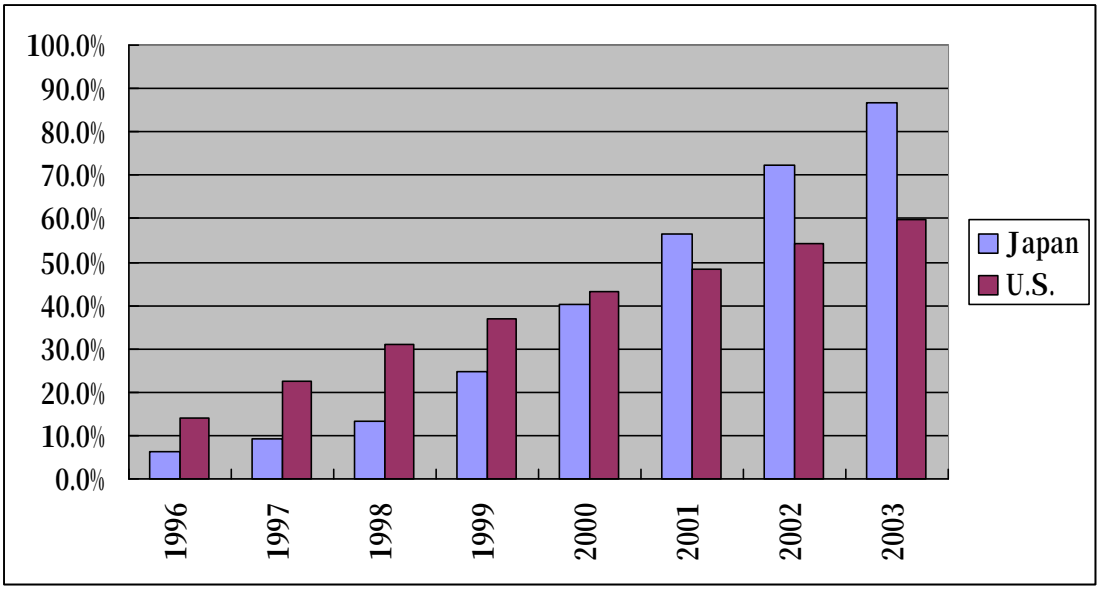
3.3. Japan

The Japanese digital divide status is vague, because of the introduction and enormous popularity of Internet-accessible cellular phones. Some people think that such mobile phones are very good examples of future

[11] IMF is the International Monetary Fund. However, Korean people call the crisis itself as "IMF," because IMF policies to reform Korean economy

Internet technology. For example, ICR (InfoCom Research, Inc.) forecasts that the number of Japanese Internet users--including Internet-accessible mobile phone users--will surpass American users in 2001 (Graph 1). Many analysts believe that mobile Internet technologies are key and advantageous for Japanese IT industries.

Graph 1: Diffusion of Internet Users Including Cellular Phones in Japan and the U.S.



Source: <http://www.icr.co.jp/info/press/press200004006.html>

However, other analysts believe that mobile telephones are unsatisfactory Internet access devices. Although mobile phone users can exchange e-mail, browse web pages, and transfer money, they cannot access attached files, download new software, or create web sites accessible from everywhere in the world. At the center of debates is i-mode service of NTT DoCoMo, launched in 1999. At first, old-fashioned Internet users were negative on the chances of success of i-mode. However, i-mode subscriber numbers grew so rapidly that content services are growing richer, too (Graph 2). In August of 2000, the number of i-mode users surpassed 10 million.

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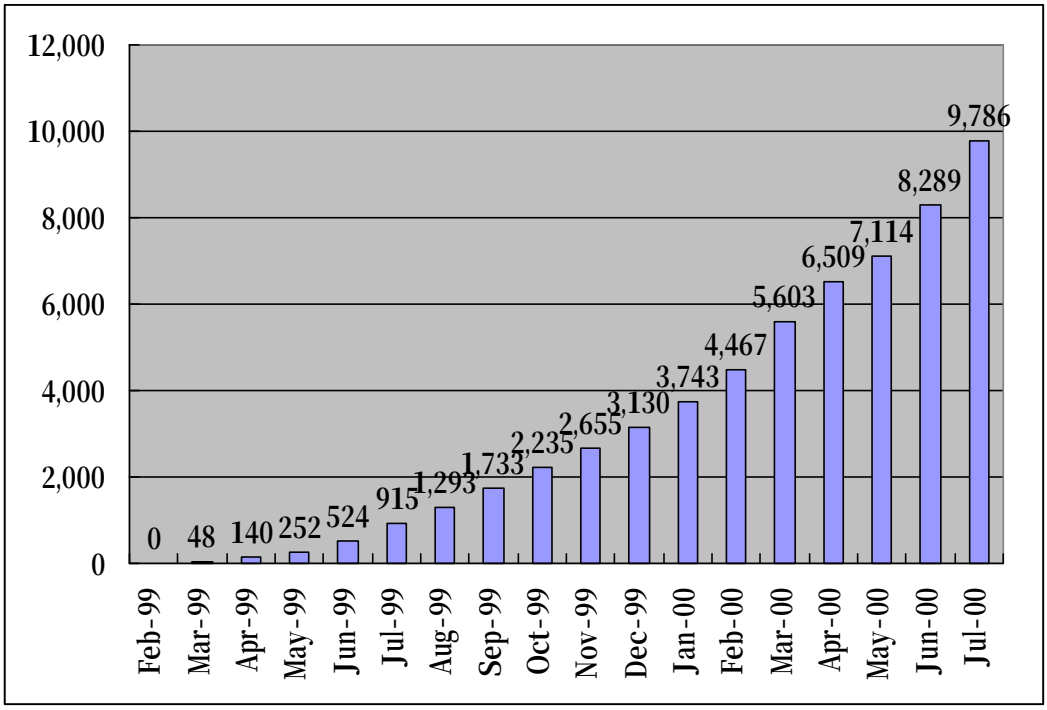
were quite severe.

Graph 2: Growth of i-mode Users (thousand)



Source: NTT DoCoMo
<http://www.nttdocomo.co.jp/new/contents/00/whatnew0807-1.html>.

The Japanese government is very active in developing IT policy, too. After inauguration of the Clinton administration in the U.S. in 1993, the Japanese government realized that network technology was quite important. In 1995 Prime Minister Tomiichi Murayama established the Advanced Information and Telecommunication Society Promotion Headquarters. The mission of this organization was to gather information on IT policies from related ministries and to make the government more online friendly. However, ministries were reluctant and their policies were split ministry by ministry.

Their reluctance changed suddenly in 1999. In a supplementary budget, many IT related items were approved and IT budgets became a new source of public investment and political concession. During the summer of 2000 MITI, MPT, the Ministry of Construction, the Ministry of Education, and other ministries are preparing to acquire larger shares of IT budget. These actions are amplified by mass media's "IT Revolution" syndrome.

The most popular newspaper for Tokyo business people, Nihon Keizai Shinbun (Nikkei), is writing IT revolution articles almost everyday.

However, ordinary Japanese people don't feel at heart that IT can overcome the long-time depression. Although many people understand that IT is important, they have little incentive to spend money for expensive computers or telephone and Internet services. They experience e-mail service by cellular phones, and feel that is enough. Even younger people are too busy to sit in front of a computer for hours. They are writing e-mail on the train to kill time during long commutes.

4. Social Reform and Digital Open Society

Government actions are key when considering the question of digital divides in Asia. In general, in many Asian countries the role of government is still larger than in European countries and the United States. Three East Asian countries described in this essay-- China, South Korea, and Japan--have stronger government commitments in IT policies. However, the great difference lies in the presence of a sense of "social crisis." Although China and Japan are experiencing economic recessions and are struggling to overcome them, there are far weaker senses of social crisis than South Korea felt.

Social reforms by information technology are possible if government actions and the will and ideas of people are combined well enough. Nothing will happen unless people try to use information technology wisely and are allowed to do so by governments. Such social reform could narrow digital divides and make open society in the digital age. Wider recognition of social crisis and strong desire for reforms are needed for a real control revolution, which enables empowerment from the more powerful to the less powerful. In many Asian countries information technology is not yet a tool for social reform, partly because it is expensive for ordinary users and partly because it is not permitted to be used as such a tool.

The United States experienced social crisis in the latter half of 1980s. This was a major reason that the United States aggressively pursued development of information technologies. As a result, a more open system of society is emerging in the United States. The control revolution is real there. South Korea followed the path of the United States, and her society is becoming more open than ever before. In the past, many Korean companies were following Japanese companies. However, younger generations who have studied in the United States are more confident and comfortable following the United States than following Japan.

Each country has a different way of adopting a foreign system. The Korean style of open society might not be the same as the United States, Japan or Chinese styles. However, to make a society open, technology is not enough. The coordination of people's minds and government leadership is necessary. Therefore, globalization by information technology is not easy and rapid. To close digital divides we should look at each country's socio-political system. Although certainly there is room for developed countries to provide IT development aid to developing countries, G8 countries, especially Japan, should be careful not to waste financial and human resources.