THE SUCCESS OF KOREAN GOVERNMENT'S ICT POLICIES AND ITS APPLICATIONS FOR VIETNAM

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Introduction

In recent years, considerable debate has focused on whether national information and communication technology (ICT) can play a major role in the national development plan. In this study I prefer to use ICT as the sector that connects all hardware and software, networks, the equipment for the transmission of information and the application of these technologies.

In the 1980s, researchers in industrial countries have argued that national science and technology (including ICT) policies have become obsolete. The argument is that ICT products or services benefit the national economy by creating and facilitating all processes of production, distribution, sales and after-sales of goods and services. However, globalization pushes ICT products and services unrestricted across national borders. Thus, any country that understands the movement and development of the ICT market can be the first to benefit from the development of ICT while those who fail to facilitate ICT domestically will let ICT-related businesses leave their country (Bezanson, et al. 1999).

In Asia, particularly among the Newly Industrialized Economies (NICs) of the 1980s and 1990s, the national ICT (as a part of the general science and technology policy) contributed to development (World Bank 1993). Among the Asian NICs, Korea is the one that exerted effort to use ICT to build up the appropriate human capital and advanced technologies to modernize its economy. Korean firms target the investments that come with globalization on locations with a comparative advantage not only in low-cost labour. For example, Korean firms spent a lot for R & D and design to get the higher profitable product chains such as mobile phones, computer hardware and games.

Furthermore, national ICT policies are also desirable for macroeconomic stability, i.e. exchange-rate policies and fiscal balance. Effective ICT related decisions cannot be made only at the macro level *per se* but also at a micro level where individual companies are entirely flexible to take advantage of rapid technological changes at the macro level which are relevant to them and to national development (Bezanson 1999).

Vietnam is searching for options that will help it transform itself from a central economy into a [developed] market economy. One of the preferred and often mentioned alternatives is to become a knowledge-based economy as this is the "best way" to be an advanced country by 2020 (Government of Vietnam 2002). This ambition focuses on developing national ICT sectors following the successes of many Asian NICs.

Given many similarities in culture, demography, history and pre-development conditions between Vietnam and Korea, it is worth while to study the Korean ICT lessons to find out in which ways the Vietnamese government can learn from it (Tra 2001). The list of ICT policies includes anything which is relevant to [the Korean government's] strong government policies and support system, public-funded ICT demand-sided programs, increasing local competition and investment in science and technology and human resources.

The story of the Korean ICT development

Korea is one of the most highly "wired" countries in the world and does considerably better on most ICT indicators than that expected of a country with its level of development. It sees ICT as one of its strategic strengths. Korea is the world leader in exports of IT products such as hardware, chips, mobile handset and broadband internet services. Today, half of the Korean population regularly accesses the Internet. They also spend more time online than other people, about twice as much as the Americans. How did these come about within a 30-year period for the poor developing nation of Korea of the 1950s? The answer can be found in Korean government policies.

In February 1998, President Kim Dae Jung remarked, "I will make Korea one of the most computer literate countries in the world, a country where a computer is utilized more efficiently and widely than any other country". And in order to fulfill this pledge, Korea initiated a computer and Internet training program targeting 25 percent of the total population, and distributed low price computers to allow more people to gain access to the Internet. This effort created not only the vital "human infrastructure" but also demand and market for the ICT industry.

That effort gave Korea one of the most advanced wired and wireless information and communication infrastructure in the world. Today, Korea has risen as the global leader in the ICT sector. Korea's fixed-line telephone penetration rate currently stands at over 50 percent (MIC 2002). In 1996, Korea was successful in making the CDMA technology a commercially viable mobile communication system. And since then, 63 percent of the total population which amounts to 30 million people, have subscribed to the mobile service. Korea became one of the leading countries in CDMA mobile communications. And Korea's aim was no longer to follow but to excel. Korea is about to move on to the next generation of mobile communication technology and this effort was rewarded in full when Korea became the first country in the world to start the third generation mobile communication service. At present, one and half years after the launch of the service, there are over 7 million mobile Internet subscribers using the third-generation (3G) phone services.

The ratio of broadband internet subscribers in Korea is 13.9 per cent compared to England's 3.0 per cent, USA's 3.2 per cent and the European Union's 0.8 per cent. In terms of online access, Korea is the 6th largest Internet economy in the world. Over 50 percent of Koreans are now utilizing the Internet in their everyday lives. And 8.5 million Korean households are connected to the broadband Internet at the minimum of 1 megabite per second (Mbps).

By the end of 2002, the number of households is expected to increase even further to 10 million, which implies that 80 percent of the total households will be connected to the broadband network. In March 2002, the Korean government declared that the broadband Internet service would become a universal service for the Korean people. These facts will allow Korea to be recognized as one of countries that have reached the highest level of informatization.

In terms of the percentage of the population connected to the Internet, Korea is still behind the Asian cities of Hong Kong and Singapore, and Taiwan. However, it is ahead of Japan, giving it the 4th highest rate of connectivity in Asia and the 13th in the world. On a wider front, the UNDP ranks Korea 5th in the world in its latest Technology Achievement Index, behind Finland, the United States, Sweden and Japan but ahead of Netherlands, Britain, France and Germany (UNDP 2001). From this data it is clear that Korea is one of the leading countries in the world in ICT use.

In fact, Korea's ICT industry has been enjoying economic success for quite a while and thus, was able to emerge as the main pillar of the Korean economy, accounting for 13 per cent of its GDP and 30 per cent of the total export volume. At this point, it may be important to mention briefly how Korea achieved such success. In 1995, Korea enacted the Basic Law on Informatization Promotion, and in 1996 established the Informatization Promotion Fund. In 1997, Korea formed its first inter-ministerial Informatization Strategy Council chaired by the President himself. This allowed the different agencies and ministries to coordinate their respective informatization policies.

Vietnamese ICT policies

Vietnam continues to emerge as a part the world economy. In this vein, the Vietnamese government's aim is to apply ICT as the driving force for Vietnam's economic development to facilitate a modernized and industrialized society by the year 2020 (Government Decree 98). "ICTs play a strong and increasing role in the world economy". Vietnamese authorities have publicly affirmed that Information and Communication Technology (ICT) is one of the most important catalysts of national development (Directive No. 58-CT-TW, 17/10/2002). Since 1997, the first time Internet was available in Vietnam, the ICT sectors have achieved a high growth rate (even during the Asian downturn in 1997 - 1998).

It is noticed that in the ICT sector, there is a gap between Vietnam and other neighbouring countries. The "Economist Intelligence Unit" (EIU) has conducted a research on ICT in selected 60 countries that is based on a wide range of factors to demonstrate "the extent to which a country's business environment is conducive to Internet-based commercial opportunities". In the years 2001 and 2002, Vietnam's position has climbed up 2 ranks from 58th in 2001 to 56th in 2002. Korea took the 21st position in these two years (EIU E-business Forum 2002). In these two years, Thailand occupied the 46th, Malaysia 33rd and 32nd, China 49th and 51st.

However, Vietnam's ICT sector has grown fast in the past years so as not to lose the IT challenge. By the end of 2000, the teledensity of Vietnam is 3.2 (i.e. surpassing Indonesia).

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Compared with East Asia and the Pacific, Vietnam is far behind the average level (10.1 per cent). All other sectors of ICT need to close the large gap in the current status (see Table 1).

Table 1: Vietnam ICT figures in East Asia and Pacific Region

Indicators (2000)	Vietnam	East Asia & Pacific
Telephone lines		
For 1000 inhabitants	32	101
In cities (per 1000)	133	270
Mobile Phones (for 1000)	10	70
Computer & Internet		
Personal Computers (for 1000)	9	22
Internet Users (thousands)	200	51,943
ICT total expenses (millions of US$)	2,124	

Source: World Bank,

Among other things, ICT has achieved a highly sustained growth rate in the last decade. There is an average network grow rate of about 32 per cent for landline phones and 87 per cent for mobile phones. The network has been digitalized 100 per cent. The national backbone capacity is increasing and today it reaches as high as 20 Gbps. The international bandwidth has also increased at a high rate. By the first quarter of 2003, Vietnam's international bandwidth is about 210 Mbps. It is a twenty-fold increase within three years time (i.e. by the end of 2000, international bandwidth is about 10 Mbps). So Vietnam's total bandwidth per user, according to ITU, is 600 Bps; that means it is higher than the average of China (231 Bps), Cambodia (375 Bps), and about the same as that of Thailand and the regional level (Vietnam Software Association 2004). By the first quarter of 2005, the international bandwidth has reached more than 780 Mbps. So all users can enjoy more services at a better quality and less cost.

For example, the VoIP was introduced for the first time in Vietnam in 2002. And today, there are three telecom companies offering VoIP services (but seven companies have licenses to offer these services). The international call cost via VoIP has fallen by 37 per cent and via PSTN 32 per cent. Mobile charges fell 10 per cent for intra-region and 30 per cent for inter-region. Internet access fee has dropped by 70 per cent from 0.8 US cents to 0.26 US cents per minute (Ministry of Posts and Telematics 2004). Over the network, there are more services available such as WAP, Internet Phone (PC to Phone), ADSL, xDSL-WAN and CDMA.

In summary, the ICT sector in Vietnam has achieved a very high growth rate. According to ITU, Vietnam's ICT sector is the second fastest growing in the world (after

China) though it has not achieved the regional level yet. And the Vietnam ICT status has also been considered amongst those that have the latest telecom technologies.

Korean ICT policy implications in Vietnam's context

The success of Korea in ICT development is the result of the Korean government's move to take advantage of the digital revolution (first started in the USA). "Despite the economic crisis since 1999, rushing in IT venture booms and the skyrocketing KOSDAQ converted our attention to the digital economy. We are realizing the feasibleness of the digital economy through the comparative advantage of the IT industry and the fast diffusion of the mobile phones and the Internet" (Lee and Hong 2002). Korean owned technology and design are popular in many segments of the ICT global market. For example, Samsung makes a big quantity of mobile handsets, equipment for 2.5G and 3G mobile technology at a very high quality level. The CDMA mobile phone services were first introduced in the world in Korea in 1996, and in many other countries only after (MIC Korea 2001).

Today, the ICT changes the ways Korean live. Advances in ICTs and penetration of Internet use are exerting a revolutionary impact on individuals, business processes, prices, economic growth, productivity, employment, etc. For a young Korean, a mobile handset is the most necessary thing in daily life. All model houses are wired and have pre-installed internet connection. Korean companies, with the support of the government, are slowly strengthening their position in the global market and consolidating their own brand-name and market shares. the Korean government wants Korea to become the 3rd hightest among the global ICT nations (after the US and Japan) (MIC Korea 2001).

The *first* success factor was the strong will and clear vision of the leader. President Kim Dae-jung said that he wants to build Korea as one of the most advanced IT countries in the world during his term(s). Then the formation of the Ministry of Information and Communication as a policy and regulatory body followed. The MIC comprehensive informatization promotion plan was devised to implement the vision and the will of the President. Furthermore, in 1999, Korea implemented the Cyber Korea 21 Initiative (MIC Korea 2001). Thus, Korean ICT sectors were equipped with the necessary laws, funding, and demand-oriented supports.

Vietnam's commitments to ICT development are similar. The government agenda in recent years puts ICT as a high priority in its national development strategies. The Ministry of Post and Telematics (MPT) was formed in July 2002 to support the ICT sectors. The government ratified the first ever Post and Telecom Ordinance in May 2002. The main purpose of the Ordinance is to "... encourage enterprises of all economic sectors to engage in telecom activities in a fair, transparent and competitive environment in order to facilitate the application and promotion of telecom technology..." (Government of Vietnam 2002). Since its implementation, MPT policies can be generalized as (i) significant and have special tax incentives for both local software businesses and foreign invested software businesses (corporate income tax holiday and exemptions, lower personal income tax, lower tax on remittance of profits abroad), (ii) having a transition from monopoly to competition, (iii) setting-up the Universal Services Fund, (iv) using Beauty Contests for a Frequency Allocation

Policy, (v) applying the New Government Decision on Management of Posts and Telecom services prices.

However, the difference between the Vietnam MPT and the Korean MIC is the specialization of these agencies. The MPT in Vietnam has to deal with both Posts and Telecom issues in a parallel way while the Korean MIC focuses on ICT related issues (the Korea Postal is an affiliated body of the MIC). Therefore, the capacity and professionalism of policy handling and initializing of these two are different. The MIC can deal with more complicated, diversified and advanced issues in a market(s) where foreign investors and local ICT companies operate. On the other hand, the MPT deals with only small and mostly local companies. So the improvement of MPT capacity and the possibility of separating of Posts and Telecom related issues can be one of the lessons from Korea.

The *second* success factor is the Internet training program Korea has provided to eliminate the digital divide between the socio-economic classes and regions. The training program started at primary school through out all higher levels of education. Such training of the general population is extremely valuable as it creates the market demand. Therefore, the Korean government placed a great of emphasis on creating Internet-friendly classrooms at every school level by connecting to the broadband Internet service free of charge. On top of that, Korea offered Internet and computer literacy programs targeting 10 million Koreans including housewives, military personnel and even inmates in prison and juvenile correction centers. This resulted in a wide base for informatization thereby generating a huge demand for ICT related products and services' supplies.

Vietnam is following a similar practice. The government plan of E-government has connected all 61 provincial administrations together and with the central government's offices. The E-Learning program tries to connect Internet to all upper secondary schools at a reasonable fee by the end of 2005. By the end of 2003, 96 per cent of these secondary schools and 100 per cent of universities are connected (Quach 2004). All postal offices at the district level have Internet connections for everybody to use (at a nominal charge). At the same time, government encourages business sectors in the contents providing services to serve domestic internet access demands, e.g. building e-libraries and e-training establishments. The strategy calls for systematic socialization of the provision of Vietnamese language contents and its availability over the Internet to serve the less literate level of population in agricultural and rural areas.

The *third* factor that contributed to Korea's success is the introduction of competition in the telecom market. Competition is a must for a healthy and prosperous market economy. The sudden surge of demand for ICT meant an enormous profit for the telecom services' providers. The promise of a huge profit was a big incentive for the service providers to enter the market thereby creating a fiercely competitive business environment. Due to this competitive market environment, the service providers had little choice but to maintain low telecom tariffs. And as low tariffs attracted an enormous number of subscribers and created still more demand, a virtuous cycle was created in mobile phone services and broadband Internet.

The structure of the Vietnam telecom sector is undergoing a major change. At present, the government owned incumbent Vietnam Posts and Telecommunications Corporation, the

VNPT, dominates the market. There are 6 other new telecom operators but none of them have as much operating licenses and capacities as VNPT has. And all of these telecom operators are under several government branches such as the Ministries of Defense, Industry, Transport and local administrations. In practice, there are four mobile and three landline operators in service. The competition is only in the big cities such as Ho Chi Minh, Hanoi and Hai Phong. The smaller cities and rural areas have services only from the VNPT branches in their areas.

The private sector is almost invisible. Foreign companies only are allowed to enter the market only under the Business Cooperation Contract (BCC), one of the less attractive methods of business for foreign investment projects. Furthermore, it is difficult for foreign investors to negotiate the terms and conditions of a BCC. The problems include adequate and quality information provided by local partner(s), connectivity with the VNPT network, cost sharing over the network, and additional issues with local authorities.

The *fourth* factor, and one of the most important, was the development of a human pool and core information and communication technologies. Korea has a clear human resources policy, e.g. licensing, ranking and building capacity of its human capital. The Korean government and the business sectors have some very good schools with ICT related sciences and technologies, e.g. MIC's University of Information and Communication, Seoul National University, KAIST and Pohang University of Science and Technology. These are among the top universities in Asia and have very good research capacities in ICT. In addition, in order to produce well-educated IT employees in domestic and overseas educational institutions, the government supports university centers for information and communication, overseas scholarship programs, IT planning and training of Java experts, and overseas education of highly-skilled information and communication workers.

Meanwhile, there are two major types of qualifying examinations regarding information and communication: the national and private qualifying examinations. The national certification system, implemented according to a national skills certificate law, consists of the following: (i) a qualification certificate system related to three radio wave areas, such as those for wireless facilities engineers, implemented by the Ministry of Information and Communication; and (ii) a qualification certificate system for specialists, engineers, and technicians in eight IT-related fields such as data processing, implemented by the Human Resources Development Service of Korea, an agency of the Ministry of Labour. A specialist certificate requires expertise equal to that of a doctor, a first-grade engineer requires expertise equal to that of a university graduate, a second-grade engineer, that of a junior college graduate, and first- and second-grade technicians, that of a junior college student and a high school graduate, respectively.

The private certification system includes more than 100 IT-related certificates issued by IT-related associations or big businesses. Aware that the national certification system cannot keep up with the dramatic advances in technology, the government recognizes some private certificates that satisfy a given condition as national certificates. In 2000, four private certificates became officially recognized as equivalent to national certificates, and more than thirty private certificates are currently awaiting government recognition. Currently, there are about one million people in Korea who are holders of certificates in information and communication, and their number is rapidly increasing (OECD 2002).

In Vietnam, there are 147 IT departments in which 57 are in universities and 90 are in colleges. However, the quality of training is not certain. It is very hard to rank the quality of IT training in Vietnam with anywhere in the world. Until recently, the ICT employers complained that the IT graduates in Vietnam did not meet the local standards, both in technical, professional and health requirements. Therefore, the IT employing companies' cost of paying for [further or re-]training of graduates and new recruits, is relatively high (Vietnam Express News). However, the number of ICT professionals is small, e.g. ICT engineers are less than 10,000 and ICT technicians are about 50,000. Therefore, Vietnamese ICT companies find it hard to compete in the global market at advanced levels of science and technology. A good strategy is to understand and then apply what is considered the best technologies for the Vietnamese condition.

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The ICT industry is among the largest sectors in Korea. The Korean government has laid a good policy framework to support local businesses and foreign investors to achieve success within a decade. Vietnam, having equipped with new technologies, legal support, knowledge and cheap labour, can become a major producer in this industry. However, many obstacles remain and if not promptly and effectively addressed will continue to constrain and delay the implementation of the government's ICT Development Plan. Vietnam should not simply address these issues by following other countries' practices; it is better to study and adopt those that suit the local conditions. If Vietnam can apply some of the key provisions of the Korean government's ICT policy, Vietnam undoubtedly can become an important player in this industry.

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