

Bridging the Digital Divide - A Vision for A Digital Inclusive Society

(Draft version)

Sin Chung Kai
Legislative Councillor (Information Technology)
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Introduction

Digital Divide was one of the areas I mentioned in Digital Hong Kong 2005 (2nd version) - a blueprint published in Aug 2000 aimed at using Information Technology in making Hong Kong a digital city that enjoys freedom, human rights, rule of law, fair competition, democracy and economic prosperity.

The Information Society is for all. However, presently still many people in Hong Kong seem to be shut out of the benefits that the Information Society may offer to them because they lack the necessary access and skills to use Information and Communications Technology (ICT). Digital Divide is not being received much attention in Hong Kong, though many developed nations have already geared up their effort to close such digital disparity.

Some of us might be already aware that the gap between the poor and rich became more critical in Hong Kong. As the digital divide is actually an "economic divide", in this report, we find that **the digital divide problem is real and exists in Hong Kong**. The problem is never as our Administration claimed as "less than an issue to Hong Kong as compared with other places" ¹. **Rather, we believe the problem is more complicated and serious as we imagine. And the problem is simply overlooked by our Administration.**

"Bridging the Digital Divide - a vision for a Digital Inclusive Society" - the first report of its kind in Hong Kong, is aimed to examine and identify possible solutions to tackle this problem.

Objectives

This report has three objectives:

- To identify who the "information have-nots" are in Hong Kong in terms of the use of ICT, what the barriers they face, and why is it important to remove such barriers.
- To review the provisions currently available in addressing the Digital Divide.
- To provide a roadmap to increase the availability and uptake of ICT for people who are left behind in the Information Age.

The Current Uptake of ICT in Hong Kong

- Overall, there are 49.7% of households in Hong Kong have PCs at home while 73% of their PCs are connected to Internet, representing 36.4% of total wired households in Hong Kong.
- Elderly are less likely to use ICT. Not more than one-tenth of people aged 55 or above had used PC. The rate of using Internet services is further lower. Only 3% of them are Internet users.

¹ ITBB of HKSAR (2001), *Digital 21 (Revised edition)*

- Slight gender differences are identified in the use of ICT. While 44.1% of men and 42% of women had used PC, 32% of men and 28.5% of women had used Internet services.
- The use of ICT is less common among people with lower education or illiterate. There are 6.3% of persons with primary or lower educational attainment has used PC but only 3.3% of them are Internet users.
- Lower income group is much less likely to access ICT than their higher income counterpart. 15.3% of monthly household income less than \$10000 had owned PCs and only 7.7% of them are using Internet services.
- Home-makers and retired people tend to be the late ICT adopters. The rate of using PCs are lower for home-makers and retired people, at 12.4% and 1.6% respectively. This pattern is consistent in the use of Internet services in which only 6.8% of home-makers and 0.7% of retired people are Internet users.
- There is no data available for the prevalence of ICT for people with disabilities. The lack of such research reflects the fact that interest of people with disabilities may be neglected or compromised in the digital economy.
- Though the Hong Kong "information have-nots" possess similar characteristics like other nations have, **one major difference is that the rate of ICT diffusion is far slower in our disadvantaged group as compared to other developed nations. The digital disparity between "information-haves" and "information have-nots" is huge and seems to be widening in Hong Kong.**

Current Provision

There are a number of initiatives already operating to address the Digital Divide problem in Hong Kong. However, all these programmes are not well co-ordinated. The Government even does not admit that the Digital Divide is an issue to Hong Kong as compared with other places, so there is no single clear and comprehensive strategy overseeing where resources are focused and how different parties can be collaborated.

Vision - A Digital Inclusive Society

A clear vision with specific targets is central to realize no one becomes laggard stagnating on the wrong end of the digital revolution. Government from around the world have adopted similar approach. We propose the Government to set out a vision on building a "Digital Inclusive Society" where

- All people is possible to access ICT beginning from homes, schools,

- public facilities, workplaces, and extending to all public and business activities
- All people have the skills and knowledge to access what they need online and use of ICT.

4As Enablers

In this report, we present how the four-A enablers, namely **affordability, availability, awareness and adaptation** to influence the diffusion and uptake of ICT.

Collaboration

Piecemeal efforts will do little to alleviate the complex and massive Digital Divide problem. In this section, we discuss the roles of three main actors, namely **the Government, Private Sector and Non-profit Sector**, who can co-operate and concert their effort on increasing the uptake of technology.

Key Recommendations 1 - Promoting the Universal Access

In general

- The Government has to establish a working group which comprises of representatives from the relevant government departments, private and non-profit sector to focus on Digital Divide in Hong Kong.
- Apart from the annual Thematic Household Survey on the use of ICT in Hong Kong, we suggest the Government to develop a set of benchmark - **Digital Divide Index** so as to further review the rate of information literacy and progress of reform against world standard on Digital Divide.
- A clear policy on digital divide is also needed to ensure the IT policies can be mutually integrated with other relevant policies.
- We suggest the private sector might consider recognizing the significance niche market by carrying more market research and devising flexible marketing strategy to addressing the needs the different sectors of population.
- Given the expertise on the understanding of the needs of underserved communities, we recommend the non-profit sector to keep on identifying and communicating relevant issues related to Digital Divide to the Government and the private sectors.

Affordability

As cost of hardware, software and other telecommunication services is seen by those living in the deprived community as a major barrier to the use of ICT, the following initiatives are suggested:

The Government

- Provide tax credits for vendors who donate equipment, Internet

- access and professional ICT training to the community
- Offer bonus, discounts or priority service for those who use online public services, such as filing tax return, paying bills, driving license registration, etc.

Private Sector

- Develop flexible and creating pricing strategies/options to meet needs of different segment of population.
- Consider more rental or leasing services packages to the population in need.

Non-profit Sector

- Lobby and communicate with the Government and private sector for flexible pricing strategies and sponsorship opportunity.

Awareness

One of the key factors in promoting the ICT uptake is to convince the target audience to understand and aware of the potentials of ICT. Initiatives that are targeted to engage people who feel alienated or have few opportunities to experience of using ICT are included:

The Government

- Co-opt with schools for running "**eFamily**" programs. This program is to recruit children to train their parents and family. Weekend training session led by teachers and student helpers is operated in school venue. Parents, through the interactive training, are expected not only to acquaint with basic computer skills, but also to learn about the online safety and shorten their gap to their children.

Private Sector

- Invest more in advertising and marketing, and actively disseminate information and carry out awareness-raising programs about opportunities provided by ICT.
- Establish volunteer teams to provide basic computer training to schools, non-profit agencies and the disadvantaged groups in need.

Non-profit Sector

- Develop information and expertise is essential for supporting the lobbying and influencing standards in the area of Digital Divide.
- Facilitate public discussions of concerns about the use of ICT and its impacts to our society.

Availability

Appropriate hardware, software and access to the facilities are the prerequisite for the people to gain experience in using ICT. Range of provisions includes:

The Government

- ITBB, ITSD, SWD and HAD coordinate Recycled PC Scheme and Reused PC Clearinghouse to centralize all the donations from the corporation and allocate the reused PC to the people in need.
- ITBB and ITSD adopt security-rating system for users to recognize security level of e-commerce sites.

Private Sector

- Speed up the provision of broadband services to all residential users as quickly as possible.
- Participate Recycled PC scheme actively by donating reused PC and

other related facilities.

Non-profit Sector

- Lobby the private sector to speed up the provision of broadband services to all non-profit agencies as quickly as possible.
- Co-operate with the private sector to develop complete technical support services for the disadvantaged groups.

Adaptation

Even where hardware, software and access to facilities are available, people in disadvantaged community are less likely to encounter environment where they can learn the use of ICT. Range of provisions to enhance their ICT capability includes:

The Government

- Implement comprehensive anti-discriminatory guidelines to deal with all aspects of the accessibility telecommunications and ICT services
- Borrow approach adopted by other nations, such as Netherlands and Australia on developing standardized web guidelines on usability and navigation across all government websites. This is to generate common interface for user to familiar with common interface.

Private Sector

- Accept and encourage technical standard, which ensure the existing products and services are accessible to all people.
- Ensure that concept of accessibility should be part of industry design, development, marketing and customer support and the methods for policing and enforcing adherence to the guidelines.

Non-profit Sector

- Examine the technical standard of all ICT is accessibility for all people.
- Work with the Government for a comprehensive accessibility guideline.
- Incorporate and promote the use of ICT in the existing social services.

Key Recommendations 2 - Wiring Population Left Behind

Technology has brought enormous challenges and opportunities to the three vulnerable groups, namely **elderly, people with disabilities and women in low-income families**. Due to their unfavorable economic status, limited education attainment and work skills, most of them are usually having less opportunity to access ICT. In this section, we discuss the unique problem faced by each of these groups, followed by some particular recommendations aim to close such digital disparity among these disadvantaged population. Some of the key recommendations are:

Identify diversified needs with respect to ICT by conducting more research on the needs and problems faced by different disadvantaged group.

Raise IT awareness among the disadvantaged group by stepping up effort on launching more public campaigns aimed to promote the potential benefits of the information society, with particular emphasis on the ICT needs of underprivileged groups.

Promote the principle of universal design by promoting and applying this design philosophy to design software and equipment that accommodate a wider range of users at the outset.

Foster the use of assistive technology by coordinating telecommunications access equipment programs and addressing the importance of the integration of assistive technologies into existing facilities or services so as to encourage the use of ICT by the people with disabilities.

Improve Web Accessibility by formulating a long-term web accessibility policy to ensure that the design of ICT services and equipment is such that they are accessible all people.

Develop suitable content by motivating content service providers to consider the disadvantaged community as a potential user group and develop relevant content for them.

Promote easy-to-use devices by encouraging services providers to create ICT devices that are helpful and simple for the senior community to use.

Improve affordability and access of ICT by increasing numbers of community cyberpoints which are equipped with sufficient assistive facilities, in most public places where elderly and people with disabilities can be easily accessed. For the connection charges, the industry may consider to reduced access fees or special service package for the lower income group.

Develop potential of disadvantaged group in ICT by creating an environment that encourages disadvantaged group to become involved in the application, development and deployment of the technology. A greater number of general introductory courses and inter-generational project on ICT targeted at women with lower education, older people and people with disabilities is also needed. allocating additional funds for train the trainers programme.

Incorporate ICT into existing services More innovative programs need to be developed and integrated into existing programs. For example, the Hospital Authority needs to incorporate the use of ICT in the existing rehabilitative programmes for the elderly and people with disabilities.

Flourish accessibility of e-commerce and financial services by

- Cooperating with Hong Kong Monetary Authority to review the accessibility of e-banking facilities and services for people with disabilities and the elderly so that they would not be denied of these services.
- Apart from the e-banking, the Government should conducting a comprehensive review on implications and barriers of e-commerce to the elderly and people with disabilities. Some governments in other nations, such as Australia and Denmark have taken in depth review on this aspect. Similar initiative is suggested.
- Working with business sector, IT professional bodies and disabled groups to draw up a code of practice on e-commerce accessibility.

- Installing appropriate assistive equipment and facilities to all the ESD information kiosks so as to broaden the service accessibility to the elderly and people with disabilities.

1.0. What is Digital Divide?

1.1. Introduction

This chapter looks at the definition and key indicators of the digital divide. We go on to examine why resolving the digital divide problem is important to Hong Kong.

1.2. Definition

The term, digital divide refers to the gap between those who can effectively use new information and communication technology (ICT), and those who cannot, either without access to digital technologies or the skills to make use of them for a wide variety of activities. (Digitaldividenetwork, 2000) While those "information-haves" harness the technology to gain better jobs, more educational advancement, and active community participation, "information-have-nots" are at a growing disadvantage to enjoy the new opportunities and gains of the emerging information-based society.

The digital divide is increasingly being addressed by scholars and policy makers as a social problem emerges from the intersection between social systems and communication technologies. Such technological disparity is not just in access to hardware and software, but rather in differences in availability of services, technology fluency, awareness, and opportunity to learn and use of new media.

Much discussion is focused on providing universal access at closing the Digital Divide. But more and more companies and government find that mere access is not a sufficient condition for the proper diffusion of technology-utilization. Gartner research (2000) shows that American society is now experiencing the second Digital Divide and, the third will be coming in next few years.

The second Digital Divide refers to people with earlier on line history not only have an access advantage they also have an *experience* advantage. When the Internet is being widely used in daily life, the issue becomes important when the early adopter is more likely to access public service which in theory should be available to everybody equally.

For the third Digital Divide, the unequal adoption of technology is based on the access speed as more and more of the Internet becomes optimized for high-speed connections.

1.3. Key indicators

The digital divide is traditionally associated with the basic socio-economic or demographic variables, such as income, age, gender, educational attainment, etc. matter in the ICT use. According to the previous survey on the digital divide, socioeconomic status (SES) is a good predictor of one's likelihood to

have access to the Internet and all the benefits that such access brings. (Gartner Report, 2000) *Falling through the Net* - an annual official report on Americans' access to ICT tools, also based on the socioeconomic factors to give an objective examination on the digital disparities in the United States.

The following section will briefly explain each of these socioeconomic variables in relating to the digital divide.

Income

From the findings of various researches, income correlates positively with ICT adoption. A recent US National Public Radio survey also confirmed that lower-income Americans are less than half as likely as those with higher incomes to have an Internet connection at home. (Digitaldividenetwork, 2000)

According to the US national survey on Internet penetration, while the households with incomes at US\$75,000 and above achieved 77.7% Internet penetration rate, the households with less than US\$15,000 in income only had 12.7%. (Fall through the Net, 2000) Gartner Report, another survey on the digital divide in US, indicated that low income, as a key determinant of socioeconomic status, is also a substantial barrier to Internet access. The report further depicted that individuals in lower socioeconomic groups are much less likely to go online to shop, bank or trade stock. There is also a tendency for them to not access online health or government services in as many numbers as their wired upper class counterpart.

In Hong Kong, similar conclusion can also be obtained. From the findings of the annual survey on IT usage and penetration, the Internet uptake rate of lower income families was only 7% while the uptake rate of their higher income counterpart was accounted at 70% ¹.

Education

As important as income, education attainment is another significant factor associated with the widespread use of ICT. Persons with better education are more likely to use computers and Internet. Research from the US Department of Commerce finds that of households headed by someone with post-college education, 69.9% had Internet access. As compared to those with less than a high school degree, however, only 11.7% had Internet access. (Fall through the Net, 2000)

In Hong Kong, while only 6.3% of persons with primary or lower educational attainment has used PC, only 3.3% of them had used the Internet.

Anderson and Melchior (1995) pointed out that lack of proper education as a major barrier to technology access and adoption. They concluded that access to technology does not make much sense unless people are properly education

¹ Census and Statistics Department - HKSAR (Nov 2000), *Thematic Household Survey Report No. 2 - Information Technology Usage and Penetration*.

in using the technologies. Another recent study of Stanford University postulated education as a critical variable to understand what facilitates or inhibits Internet access. (Digitaldividenetwork, 2000)

Gender

According to the recent researches, there are no significant gender differences on ICT use. In 2000, 44.6% of men and 44.2% of women are Internet users in United States. The ratio between men and women in usage level has remained unchanged since 1998. (Fall through the Net, 2000)

In Hong Kong, similar situation is also found on the gender differences. For instance, there were 44.1% of men and 42.0% of women had used Internet services in 2000.

Age

Age is another variable significantly related to the diffusion of ICT. High Internet usage level, not surprisingly, are found in the age group of 18 to 24, and of 25 to 49, which represented 56.8% and 55.4% respectively in the research from US Department of Commerce. Only 29.6% of people over the age of 50 are using Internet. However, striking difference is obtained when factor of labor force participation is taken into account in this group. The Internet use rate for people age 50 and above who were still in the labor force was 46.6% whereas those not in work force was 16.6%, accounted for nearly three-fold ratio. This reflects that labor force participation appears to be an essential factor in Internet uptake and even so in the age 50 and above. (Fall through the Net, 2000)

In the case of Hong Kong, penetration of ICT to the aged population was very limited. Only 3% of persons aged 55 or above was the Internet users.

Disability

Internet access of people with disabilities are rarely drawn much attention in the recent researches. Even in the influential survey taken by the US Department of Commerce, Internet penetration rate of people with disabilities was for the first time being examined in its fourth report on the digital divide in 2000.

In Hong Kong, there was even no such data available in the annual official survey on IT usage and penetration. To some degree this may reflect the fact that interest of people with disabilities may be neglected or compromised in the digital economy.

As abstracted the data from the US report, Internet access and computer use vary by disability status. People who have a disability were only half as likely to live in homes with Internet access than those without any disabilities. Nearly 60% of people who have at least one type of disability have never used a computer.

In respect to the differences in rates of access over disability status, for example,

people with learning disabilities have Internet access either from home or somewhere else at rates of over 40%, while people who are blind or vision impaired have Internet access rates closer to 20%.

In a report released in July 2000, Americans with disabilities are less than half as likely as their non-disabled counterparts to own a computer and they are about one-quarter as likely to use the Internet. The gap in internet is even more striking, only 9.9% of people with disabilities connect to the Internet, compared to almost 38.1% of those without disabilities.²

1.4. Why is it important to bridge the digital divide in Hong Kong?

Narrowing the gap between the rich and poor

The pervasive use of the ICT will make changes of our society beyond our imagination to the way a country is run in all aspects of society, culture, welfare and so on.

- When more banking services subject to new charges, online banking services are free of charge.
- The Inland Revenue Department has started the services of electronic filing of tax return this year;
- The listed company is allowed to place announcements on the HKEx Web site instead of placing at paid advertisements in newspaper in 2002;
- More and more public services has been launched through the Electronic Services Delivery scheme

These are just some of the examples. Those who have no access to the technology, or know the skills to use ICT, it means they are deprived of essential knowledge for their further economic advancement and social mobility. While the upper SES groups are much more likely to access the government service through Internet, the lower SES groups will continue lag behind in enjoying benefits of using online public services. Unless the lower SES groups are properly served, it will make harder for getting them ahead of socioeconomic advancement.

Maximizing the potential of underprivileged and disabled groups

Findings from recent research indicated, low incomes group, and people with disabilities are particularly unlikely to make use of ICT. To a population that is often social as well as physically isolated, ICT can offer access to information, social interaction, cultural activities and employment opportunities. By doing so, it also helps to broaden the lives and increase the independence of the disadvantaged group.

Relieving manpower shortage

² Stephen Kaye (2000), Disability and the Digital Divide, *Disability Statistics Abstract* (22). Washington DC: U.S. Department of Education. National Institute on Disability and Rehabilitation Research: Disability Statistics Center.

Technology skills are in short supply, demand for services is increasing, and experienced workers are retiring. The combination of skills shortage and workforce experience deficits threatens continued economic growth. We are already feeling the pinch from a shortage of experienced older workers and few entry-level technology-skilled younger workers.

From recent manpower projection of Hong Kong, the manpower requirement in IT sector is expected to grow at an annual average rate of 11.8% over the next five years.³ The demand in manpower, however, is projected to grow at a faster pace than the corresponding manpower supply. From the figures in a Consultancy Study on the Manpower and Training Needs of the IT Sector in Hong Kong, the industry has projected that it will need 85 000 workers by the year 2005 and the demand will surge to 130 000 by the year 2010⁴.

ICT skills are becoming an increasingly important in area of employment. Many new jobs are created which require IT skills while existing jobs changing to encompass ICT related activities. To upkeep Hong Kong's competitiveness in the Information Age, it depends on the skills and creativity of the whole workforce. Therefore increasing the technology experience to the youngster and older worker could be a way to mitigate the manpower shortage and bring the overall benefits to our economy.

Facilitating development of democracy

The emergence of Internet is expected to transform society by disseminating information in an efficiently and seamless way. The new technology can be used to facilitate democracy by giving the power of these new devices to connect political groups and organizations across regions. This will help raising the awareness of our citizen and eventually making them actively participate in the community. In addition, the electronic delivery of services will help widening the accessibility and transparency of government data. This will make our government to work better and more responsively.

1.5. Conclusion

ICT, is clearly the trend of the future. Our government and many organizations are incorporating ICT into various aspects of their business processes, be it marketing, financial, operations or corporate communications processes. If all these changes are not designed to be accessible by the disadvantaged group, the presence of ICT is an additional barrier in which a segment of population will be marginalized in our society.

In next chapter, we will examine the prevalence of digital divide problem in a global perspective.

³ HKSAR (November 2000), *Report on Manpower Projection to 2005*.

⁴ Education & Manpower Bureau of HKSAR and PricewaterHouseCoopers (February 2000), *the Consultancy Study on the Manpower and Training Needs of the Information Technology Sector*.

2.0. GLOBAL DIGITAL DIVIDE

2.1. Introduction

The previous chapter has provided a brief account on the nature of digital divide and why it is important to solve this problem. In this chapter, we shall go on to explore the prevalence of digital divide problem from a global perspective.

2.2. The United States

In the United States, the notion of digital divide was recognized and touched off a public debate starting in around 1994. With a goal to connect all Americans to the information infrastructure, the profile of universal access to telephone and computer across the United States was the first time extensively examined and published in its official report on digital divide - *Falling Through the Net: A Survey of the "Have Nots" in Rural and Urban America* in July 1995. By gaining the insights about the "information disadvantaged" in America, the report established an objective baseline to enable the policymakers to formulate policy to connect all American in the nascent Information Age and, also to facilitate the American people to understand how the access of technology are transforming the economy and their lives.

Falling Through the Net: Toward Digital Inclusion, the fourth report of its series, was published in October 2000. From the report, the overall uptake of ICT is increased in a striking way. The share of households with Internet access soared from 26.2% in December 1998 to 41.5% in August 2000. Now, more than half of all households (51%) has computers. The share of individual using the Internet rose by a third, from 32.7% in Dec 1998 to 44.4% in Aug 2000. Given the growth continues at that rate, it is projected that more than half of all Americans will be using the Internet by the middle of 2001.

However, there are some sectors of Americans are not being connected. The digital divide still remains along with the line of socio-economic status, for example the different level of income and education, different racial and ethnic group, old and young, single and dual-parent families, and those with and without disabilities.

The Internet penetration rate for the households with less than US\$15 000 in income only stands at 12.7%, though there are more than two-thirds of all households earnings more than US\$50,000 have Internet connections.

Better-educated people are more likely to use and become more familiar with computers and the Internet. Only 11.7% and 29.9% of someone with less than a high school degree and educated at high school had Internet access.

People of 50 years of age and above are among the least likely to be Internet users. The Internet use rate for this group was only 29.6%.

For people with a disability, only half of them have access to the Internet as compared to those without disability. The ratio is 21.6% compared to 42.1%. And while just under 25% of people without a disability have never used a personal computer, close to 60% of people with a disability fall into that category. When taken the disability status into account, specific disabilities are associated with different access rate. For instance, only 15% of people with walking problem are having Internet access and, nearly 80% of people with visually impairment are never have Internet access. However, the rate of Internet access is much higher for people with learning disabilities by which over one-third of them are having Internet access.

2.3. The United Kingdom

As access to the technological resources are increasingly viewed as a critical factor to the social and economic development, UK has begun to examine the nature and extent of the digital divide since 1998. The prevalence of the digital divide problem in UK is being extensively analyzed and published in the PAT 15 Report - "Closing the Digital Divide in March 2000"¹.

From the latest Ofcom residential survey on the use of Internet, it indicated that 30% of UK homes had connected to the Internet in November 2000². Although access of Internet remained highest amongst younger and middle aged groups, higher income and large households, there was a slight shift towards the lower socio-economic status families.

For gender differences in the overall Internet penetration rate, men appear outpacing women. There were 34% of men and 26% of women using the Internet.

Age pattern in the use of computers and the Internet highest in 35-45 year age group in which it accounted for 40% of the overall Internet penetration rate. Penetration rate of the Internet were lower for the elderly than the youngster. Only 13% of people aged 55 or above were the Internet user.

The disparities Internet access by household income were very large. While the higher household income group accounted for nearly 60% of Internet penetration, the lower income counterpart only stood at 12%.

2.4. Japan

The digital divide exists in Japan, where Internet access seems to be largely determined by income, age and geographic location.

Estimates released by NUA Ltd. Indicated that there were 27.06 million Internet users in Japan, representing of 21.4% penetration rate which ranked 13th among the world's nations.³ According to the figures of Nomura Research Institute,

¹ www.pat15.org.uk

² www.ofcom.gov.uk/publications/research/2001/q3intr.htm

³ Ministry of Post and Telecommunications (2000) *IT in the 21st Century: The Expanding Internet and Mobile Telecommunications Frontiers*,

the overall computer ownership was 42% in 1999.⁴

According to a survey of Internet penetration by Nikkei Business Publications, 49.9% of Japanese people with annual incomes over 10 million yen (USD 93,000) are Internet users in Nov 2000. In contrast, only 11% of those in the 3.5 million yen (USD 32,500) or less income group have web access.⁵

A significant disparity also exists between Internet access of urban and rural areas. Over 30% of Japan's urban population are online, compared to 18% of people living in small towns and villages.

Gender difference is identified in the use of Internet. Nearly 60% of Internet users are men whereas women only account for 40% of Internet use.

Among all users, over 70% of Internet users are in the age of 20s or 30s, with the proportions in these two groups are equal. Internet users aged 50-59 and 60 or above are accounted for 22.6% and 10.6% respectively.

To understand the motivation of the senior citizen on the Internet use, the Japanese Government conducted a Senior Internet User Survey. It reported that the initial impetus of the seniors for using the Internet was "read about it in a newspaper or magazine" (57.2%), significantly higher than "recommended by family member, acquaintance, or colleague" (32.9%) and "needed to use it at work (25.9%).

Similar surveys were taken in the disabled people. Survey of the Disabled reported the most frequency ways in which the Internet has improved the lives of disabled people are that it is now easier to gather and send out information" (64.4%) and that they "have more hobbies and pastimes" (61.1%).

2.5. Singapore

There has been rapid IT deployment in Singapore over the last few years. It reflects an encouraging leap towards the attainment of an information society. Compared with other countries, Singapore has a relatively high ownership of home computers. Computer and Internet penetration has been increasing drastically in the past ten years. Computer ownership rose from 19% in 1990 to 59% in 1999⁶. The rapid increase in ownership can be attributed to the government efforts in promoting computer and Internet usage among the general public.

Home Internet access has grown rapidly in the past few years, with the availability of public access since 1994. It is revealed that 42% of the Singapore homes currently have Internet access in 1999, representing the total number of home Internet users at 764 680. The significant increase in home Internet access over

Japan

⁴ Nomura Research Institute, May 1999.

⁵ http://www.nua.ie/surveys/?f=VS&art_id=905356162&rel=true

⁶ Information Technology (IT) Household Survey 1999, IDA of Singapore

the last past year can be attributed in the following factors: low Internet subscription fee by the three Internet Service Providers, free Internet account given by schools or low/subsidized subscription rate, high home computer ownership.⁷

In terms of the Internet users profile, the typical of Internet user is below 40 years old (> 60%) and has tertiary education (> 50%). Those aged over 50 or above only accounted for 5.3% of Internet ownership.

Overall, women Internet users are not as men as heavy users. While there are 56.7% of men are Internet users, women only accounted for 43.3%. For the employment status, however, only 7% of housewives/retirees and unemployed are go online.

2.6. Korea

Taking into account of the growing importance of the information-based economy, the government of Korea initiated much effort on the promotion of telecommunication and information technology in 1999.

As of June 2000, the number of Internet users in Korea is about 16 million. That means 34% of the population now regularly surfs the Net.⁸ This represented a one-fold increase compared to 1999. By the end of 2000, the eTForecasts rated Korea as the 7th in the world in the number of Internet users, which represented nearly 4% share of the worldwide Internet population.⁹ Computer usage and Internet access are highly stratified in term of education, occupation, age and income.

In Korea, computer usage and Internet access are far lower among the high school graduates or below, the elderly over and fishermen. Individuals aged over 50 are only accounted for 4.3% of the Internet users. The ratio of computer usage of the disabled is 20%.¹⁰

2.7. Taiwan

Promotion of universal use of Internet is one of the main focuses in the National Information Infrastructure Development in Taiwan. By doing so, the Taiwanese government set up the goal of "having 3 million Internet users" by 1999. The goal was however accomplished in Dec 1998, which was nine months ahead of the schedule.¹¹

According to the latest statistics on Internet usage in Taiwan provided by FIND Center of Institute for Information Industry, the Internet users in Taiwan has reached 5,570 thousands and the online penetration rate is 25% as of June

⁷ Ibid.

⁸ Korea Network Information Center (June, 2000)

⁹ www.etforecasts.com

¹⁰ Ministry of Information & Communication, Korea (2001)

¹¹ www.nii.gov.tw

2000¹². The number represents an increase of 770 thousand Internet users and 16% growth compared with the 4.8 million online population in December 1999. The online population as well as other Internet usage in Taiwan has kept stable growth in these years. This is mainly attributed to the implementation of National Information Infrastructure (NII) project and many other governmental and private organizations, which have made much effort to promote the development and usage of Internet in Taiwan.

Among the Internet users, both female and male receive equal shares of the regular net users. People who are young or well educated are still the main group of regular net users. It is found that the people who have not used the Internet mostly are those with lower education qualification - below high school education (22%), lower income and the senior citizens (10%).

For the barriers for the non-Internet users, interestingly, cost of ICT is their least concern (8.1%) while more than one-third of them attributed lack of interest or need to the Internet as the main cause.

2.8. Conclusion

Overseas experience shows that the digital divide is a problem faced by every nation in the advent of information revolution. In the next chapter, we will look into how these nations concerted their effort in tackling this problem.

¹² Figures from FIND Center of Institute for Information Industry, Taiwan (June, 2000) www.isoc.org.tw

3.0. GLOBAL INITIATIVES

3.1. Introduction

As examined in the last chapter, the digital divide is a global phenomenon. This chapter examines how this problem is being sort out by these nations. Some of the key initiatives taken by the overseas governments, non-profit and private sector will also set out in this chapter. (More details are attached at Appendix)

3.2. The United States

Since 1994, the United States has been taking pro-active approach to combat the Digital Divide problem. Closing the digital divide was particularly given a top priority under the Clinton's administration. The goals were to ensure ICT access is available for every child in every school and, the digital opportunity can be expanded to every American family and community. Considerable cross-department initiatives are up and running to address the issue. And echo with the US Government's initiatives, private and non-profit organizations have also followed and taken numerous measures to make information age available to all American citizens. The key programmes are described as follows.

- **The Universal Service Fund (E-rate)** - a FCC program to provide all K-12 schools and public libraries up to \$2.25 billion a year in discounts for telecommunications services.
- **Neighborhood Networks** - a community-based initiative of the US department of Housing and Urban Development (HUD) that encourages the development of resource and computer learning center in privately owned HU-assisted and/or - insured housing.
- **ClickStart** - a program partnership with private sector to place Internet-ready PC, computer training for households.
- **"Net Days"** - local firms install Internet equipment in schools in return for recognition
- **Lifeline¹ /Link Up Program²** - provides monthly reductions in telecommunications services charges and in initial connection charges to low-income consumers.

In addition to these programmes, the US government also intended to expand access ICT for people with disabilities, for examples FCC helps to ensure that telecommunication equipment such as cellular phones, is designed to be accessible for people with disabilities.

As well as the programmes discussed above, there are a range of non-profit

¹ The Federal Lifeline program provides between US\$3.5 and US\$7 per month to providers to enable them to reduce eligible consumers' monthly telecommunications services charges.

² The Federal Link Up offers eligible low-income consumers: 1) a reduction in the local telephone company's charges for starting telephone service (the reduction is one-half of the telephone company's charge or \$30

and private organizations providing ICT access and services for the disadvantaged population. Most of them are run either by non-profit organizations or private companies or collaboration between them. Some of these examples are showed as follows:

- **Computers in Our Future (CIOF)** - a five year model program that seeks to strengthen the health of Californians by increasing access to computer technology, training and jobs for young people in low-income communities.
- **Computers for Youth** - a campaign for high-level recycled computer and contribute them to inner-city households along with low-cost access and extensive training.
- **Computers for Homebound and Isolated Persons (CHIPS)** - CHIPS is a non-profit project aimed at reducing the social isolation of people who are homebound by providing a computer and free Internet
- **Ford Motor Co. and Delta Airlines** offered home PCs and Internet access to 72000 workers for US\$12 a month.
- **Cisco** partnership with US Dept of Housing and Urban Development's (HUD's) and Communities in Schools (CIS) via Networking Academy Program to promotes jobs and economic opportunities in underserved communities.
- **Microsoft, Compaq, Dell, Gateway and others** - initiated laptop programs that enable students to take computers home.

3.3. The United Kingdom

Under the UKonline campaign, the UK government aims to 1) ensure everyone who wants the Internet access can obtain such services by 2005, 2) ensure that all Government services are online by that date and 3) make Britain be one of the world leading knowledge economies. UK has been launching a number of key programmes, which involved the government, business and non-profits sectors to harness the ICT to help create a better and more inclusive society. The key programmes are described as below.

- **BBCWebwise and Computer Don't Bite** - a basic introduction to computers and Webwise is the follow-on campaign focused on improving awareness of the Internet.
- **IT for All** - focuses on providing beginners an opportunity to try out computers, the Internet, e-mail and so on via 3000 centres across the UK.
- **Information Society Initiative (ISI)** - promotes the take-up of ICT among UK firms, particularly SMEs by providing neutral advice, hands-on access to and awareness of technology.
- **City Learning Centres** - 85 City Learning Centres provides local ICT facilities with the aim of improving education standards and skills levels, thereby promoting employment opportunities.
- **Get On-line: Get into the Internet"** - a plan to offer low cost computers to 100000 low-income families.
- **Loans for Teachers' ICT** - Pilot schemes equipping teachers with state of the art multimedia portable computers and Internet access have shown positive benefits for teaching and learning. This scheme will help teachers acquire ICT at lower than normal cost.
- **Computer Gym** - a mobile computer classroom, workshop and library using up-to-date INternet enabled, multimedia computers and the latest software courseware and curriculum sourced from all over the world.

- **Newham Training and Education Centre (NEWTEC)** - provides courses from introductory to degree level to unemployed women.

In UK, a wide range of local non-profit agencies are available to bring the good of ICT to the underserved community. In regard to the importance of developing partnerships with private sector, a number of these organizations has worked successfully with the private sector to bring ICT access and training to disadvantaged groups. Some examples are demonstrated as below.

- **Landport Web** - a ten week pilot project aimed at raising interest in formal IT training. It offered free use of computers on two evenings per week to help overcome fear of ICT.
- **Barton IT Hub** - a six year scheme combining public, private and community companies which aims to enhance the employment prospects, education and skills of young and those at a disadvantage.
- **TS2K** - an organization to help young people develop their creative ICT skills and experience. Young people are offered opportunities to work with professionals in the areas of new media and technologies.
- **Synergy Project** - an accredited learning project for disadvantaged young people through the CyberSkills programme.
- **FI Group** - provide specialist IT, business and financial support to regional community organizations.

3.4. Japan

Japan has taken comprehensive measures to eradicate the digital divide problem through cultivating information literacy and establishing an information barrier-free environment to ensure all people can fully benefits and opportunity of information technology. The Ministry of Post and Telecommunications (MPT) is the major department to tackle the digital divide issue. The following examples are amongst Japan key initiatives that help to create a "digital opportunity society".

- Every teacher and student in every school and grade can make use of a computer in class by 2005.
- Provide preferential tax treatment for companies training internally for information literacy; for developing user friendly technology and devices to the aging and disabled population.
- IT Basic Bill -passed by Japan's Lower House to call for revision of regulations blocking the growth of ecommerce and Web access. It also encourages the promotion of an online government to streamline the activities of bureaucracy.
- Support private R&D for The Telecommunications Access Council examined concrete plans to create telecommunications equipment that meets everyone's needs.
- Enforce and adopt the Telecommunications Accessibility Guidelines to all related industries.
- Construct telework centers and provide tax reductions for telework and SOHOs in order to facilitate the community participation of the aged, disabled and homemakers.
- Develop voice recognition, automated translation and other technologies to allow non-English speaking peoples to use the Internet easily.

- Broadcast Programming for the Visually and Hearing Impaired - the MPT is devising means of encouraging TV programming producers and broadcasters to include more closed-captioning, spoken explanations, and sign language interpretation in their programming to ensure that the visually and hearing impaired can better enjoy TV.

3.5. Singapore

To drive Singapore to be a global infocomm center and world-wide digital hub, the Singapore government has been playing a catalytic role to bridge the digital divide under the Inforcomm21 Masterplan, with ultimate goal to develop Singapore as one of the top five information societies in the world. Infocomm Development Authority of Singapore (IDA), as the main responsible department to address the digital divide issue, has "dot-com" the People sector in order to facilitate Singaporean to go online. Most of these are cross-department or with collaboration with community organizations. Some key areas of work are summarized as follows.

- **"Dot.com" the People Sector** - a movement costs \$25 million which involves community groups and local government, industry and unions, institutions and civic organizations, volunteer welfare groups and the media to enable every citizen to reap the benefits of an enhanced e-lifestyle. This nation-wide effort centres on 5 thrusts: improve access for all, change mindsets, promote online culture, nurture e-Ambassadors and spawn e-Communities, and develop multilingual Internet content.
- **"Dotcom the Public Sector"** - S\$1.5 billion to transform itself into a leading E-Government to better serve Singaporeans in the new online knowledge-based economy.
- **e-Celebrations Singapore** - a month-long public outreach programme, aims to get everyone to go online.
- **Singapore@Work 2000** - an integrated awareness and educational TV programmes that involves IDA, PSB, nine companies and eight chambers of commerce and infocomm associations to showcase e-businesses, targeting at local enterprises to encourage EC adoption.
- **PC Reuse Scheme and the Easy PC Plan** - a public-private partnership campaign range from the donation of hardware (such as used or new PCs, printers, etc.) and software, to the provision of Internet access and support services. Tax incentives will be sought for vendors and e-service providers
- Offer special training through partner organizations, with an aim to encourage people to try out services and applications such as e-shopping, e-auctioning, e-mailing, e-filing of income tax, e-banking and e-learning.
- Work with other government agencies such as the Housing Development Board (HDB) and private sector property developers to facilitate the deployment of public infrastructure for Internet access.
- **TRUSTe** - the online privacy seal programme will be made an industry 'trustmark' seal to build up consumer's confidence towards online shopping.
- **"e-ambassadors"** - a special group of 2500 people will act as counselors to their peers to motivate the non-ICT users among them to embrace an e-lifestyle.
- Community Development Councils (CDCs) to organize Internet training programs for senior citizens as well as homemakers.
- Work with industry and community groups to develop relevant content in different languages to cater to different population segments.

Apart from the above programmes, the Singapore government has initiated a series of project by involving the participation of private sector. Here are some examples.

- **Intel** donate used PCs and new processors (S\$500,000)
- **SingTel** provide internet access with sponsored toll-charges for 2,500 needy families - 6 months access [max. 15 hours / month / line]; Additional lines for future projects - 6 months access [max. 100 hrs / month / line] (S\$500,000)
- **Speednames** provide 2,500 e-Ambassadors with personal domain names at a sponsored cost (over three years) (S\$75,000)
- **Lexmark** collect and refurbish old printers, and donating new printers to voluntary welfare organizations / charities; Sponsorship of additional color printers for future projects (S\$30,000)
- **SGNIC** Partial sponsorship for 2,500 e-Ambassadors to subscribe to personal domain names (S\$12,500)

3.6. Korea

Cyber Korea 21 is the masterplan that the Korean government aims to make Korea as a top 5 knowledge-based nation in the Asia. Like other nations, the Korean government recognized the widening gap among the Internet user and non-Internet users will be one of obstacles to accelerate the digitization of Korean. In order to close such digital disparity, various measures which are set off by the Ministry of Information and Communication (MIC) are now running or about into stream. Some of the key programmes are shown as below.

- Computer classes are mandatory for primary school students.
- Provide about 50,000 students in the low-income bracket with PCs and an Internet subscription coupon for five years free access while second-handed PCs will be collected and provided to social welfare institutions.
- Promote the supply of PCs across the nation by giving tax incentives to companies who donate PCs.
- Set up a translation company to translate high-quality contents into English so that those contents can penetrate into the larger market of English users.
- Establish websites to help farmers and the handicapped use a wide array of information
- Provide subsidized Internet training program for the housewives under the theme of "**Computer Training to One Million Housewives**" with designated private computer training institutes
- Initiate computer labs to conduct computer training to over 100,000 senior citizens by collaborating with locally-based universities.
- Support the R&D of voice-oriented web browsers, touch screen computers and etc, through which disabled people can readily access information at their disposal.

3.7. Taiwan

National Information Infrastructure (NII) is the major roadmap to facilitate Taiwan reaping the opportunities and benefits of digital era. To achieve this goal, substantial measures are available to ensure that no one is excluded in the transformation to digital society. Some of the examples are shown as

below.

- All middle and primary schools in Taiwan have computer classrooms connected to the Internet through ADSL facilities in July 1999.
- 46 teaching material centers for education via Internet have been established.
- Subsidize all special facilities needed and promote the universal adoption for special rules of content design, and establishing websites with information importation to the handicapped so as to assist the handicapped to access the Internet.
- For people of the handicapped, the underprivileged, and of remote residence, we emphasize the concept of equal access to web content. The major applications plan to promote include: developing electronic and network government, promoting Internet commerce, developing electronic/network libraries, creating digitized culture wealth, and utilizing Internet for better medical care and social welfare.

3.8. Conclusion

This chapter looks at how the other developed nations in combating the digital divide problem. In view of importance of this issue, the governments in worldwide have placed this issue in top priority in the agenda. With the support of private and non-profit sector, different initiatives targeted to close such technological disparity have already been operated. In the next few chapters, we will go on exploring how prevalence and what measures have been done on the digital divide in Hong Kong.

Global Initiatives

The United States

National Goal	<ul style="list-style-type: none"> ■ Ensuring Access to 21st Century Learning Tools for Every Child in Every School and ■ Expanding Digital Opportunity for Every American Family and Community
Responsible Government Dept	<ul style="list-style-type: none"> ■ Involve members of the Cabinet (including Secretaries of Commerce, Agriculture, Justice, Education, Health and Human Services, Housing and Urban Development and Labor) to take specific steps to address the issue.
Government's Initiatives: (General)	<p><u>Training and Education</u></p> <ul style="list-style-type: none"> ■ Tech for America - a national service program to provide training in basic computer literacy for youth, youth adults, workers and teachers. Technology teachers were assigned to work at community technology centers, schools, colleges, and training programs run at nonprofit organizations. The program would seek to forge public/private partnerships with corporations willing to donate computers, software, expertise, and other resources. ■ ClickStart - a program partnership with private sector to place Internet-ready PC, computer training for households. ■ \$150 million to help train all new teachers entering the workforce to use technology effectively; ■ \$100 million to create 1000 Community Technology Center in low-income urban and rural neighborhoods; <p><u>Accessibility</u></p> <ul style="list-style-type: none"> ■ The Universal Service Fund (E-rate) - a FCC program to provide all K-12 schools and public libraries up to \$2.25 billion a year in discounts for telecommunications services. Typically eligible services range from basic local and long-distance phone services and Internet access services, to the acquisition and installation of equipment to provide network wiring within school and library buildings. ■ Technology Opportunity Program (TOP) promotes widespread use of advanced telecommunications and information technologies in the public and non-profit sectors and provides matching demonstration grants to state and local governments, health care providers, school districts, libraries, social services organizations, public safety services and other non-profit entities to help them develop information infrastructures and services that are accessible to all citizens in rural as well as urban areas. ■ Neighborhood Networks - a community-based initiative of the US department of Housing and Urban Development (HUD) that encourages the development of resource and computer learning center in privately owned HU-assisted and/or -insured housing. Typically, a Neighborhood Networks center is a room or series of rooms filled with computers and located on-site or near a HUD-assisted and/or -insured housing development. Centers usually offer computer access, staff assistance and a range of training resource to housing residents. Center programs may include computer training, Internet access, job readiness support, etc. The mission is to foster economic opportunity and encourage life-long learning for the needs of lower-income families and seniors where

	<p>they live.</p> <ul style="list-style-type: none"> ■ "Net Days" - local firms install Internet equipment in schools in return for recognition. ■ 2 billion in tax incentives over 10 years to encourage private sector donations of computer, sponsorship of community technology centers and technology training for workers; ■ 25 million to accelerate private sector deployment of broadband networks in under-served urban and rural communities - using grants and local guarantees. ■ Interactive voice response (IVR) has been incorporated into e-government strategies in Fairfax County, so that citizens can access web-based government services over the telephone. <p><u>Affordability</u></p> <ul style="list-style-type: none"> ■ Lifeline Program - provides monthly reductions in telecommunications services charges and in initial connection charges to low-income consumers. The Federal Lifeline program provides between US\$3.5 and US\$7 per month to providers to enable them to reduce eligible consumers' monthly telecommunications services charges. ■ Link Up Program - The Federal Link Up offers eligible low-income consumers: 1) a reduction in the local telephone company's charges for starting telephone service (the reduction is one-half of the telephone company's charge or \$30. ■ \$50 million for a public/private partnership to expand home access to computers and the Internet for low-income families, such as parental involvement in education, high-tech companies to provide discounts on computers and access, libraries offering training on "information literacy", government agencies at all level seeking to save taxpayer dollars through the electronic delivery of government services.
<p>Government's Initiatives: (Specific to the Disadvantaged group) Non-Profit Sector/partnership with private sector Initiatives</p>	<ul style="list-style-type: none"> ■ Expand access to technology for people with disabilities, for example, FCC help to ensure that telecommunications equipment, such as cellular phones, is designed to be accessible for people with disabilities. <hr/> <ul style="list-style-type: none"> ■ Markle Foundation - \$1 million to encourage the development of online content that can serve best the needs of low-income Americans. ■ Computers in Our Future (CIOF) - a five year model program that seeks to strengthen the health of Californians by increasing access to computer technology, training and jobs for young people in low-income communities. 6 million grant from the California Wellness Foundation is used to support all these programs. ■ Computers for Youth - a campaign for high-level recycled computer and contribute them to inner-city households along with low-cost access and extensive training. ■ Benton foundation - an organization for research, policy analysis and print, video and on-line publishing as well as an outreach organization to non-profits and foundations. It has updates on communications policy and event, a forum for discussion and working papers in related to digital divide issues. ■ Computers for Homebound and Isolated Persons (CHIPS) - a non-profit project aimed at reducing the social isolation of people who are homebound by providing a computer and free Internet access through KORRnet, who manages the project. The primary participants in this project are persons who are elderly or caregivers, although some recipients are also disabled and homebound. Volunteer mentors visit the CHIPS Participants once per week to provide basic instruction on how to use email and the Internet. This instruction results in the participant's

ability to use email to contact families and friends, meet other homebound and isolated persons through the CHIPS mailing list, and use the internet for purposes such as research on medications or health concerns. CHIPS also offers free computer and internet access at the KORRnet Community Access Lab.

- **FirstGov for Seniors** - FirstGov for Seniors empowers senior citizens by helping them obtain valuable health information and services. The site is one of several projects created at the direction of the National Partnership for Reinventing Government (NPRG). The Social Security Administration hosts and maintains the site.

Private Sector Initiatives

Training and Education

- **America Online and New Line Cinema** seeded the HEAVEN - encourage youths to learn leadership through acquiring multi-media skills
- Launched technology-in-education initiatives aimed at teachers, including **Bertelsmann's** Media Workshop (helps educators integrate new media into schools); **AOL@School** (extensive lesson plans and free access programs; **Intel's**: "Teach to the Future"

Accessibility

- **Cisco** - partnership with US Dept of Housing and Urban Development's (HUD's) and Communities in Schools (CIS) via Networking Academy Program to promote jobs and economic opportunities in underserved communities.
- **Oracle's Promise** - to provide network computers to economically challenged, disenfranchised public schools. Announced 100 million donations to be used for providing network computer access to every school child in America.

Affordability

- **Microsoft** - supplied computers and software to more than 11000 cyberchallenged institutions since 1997.
- **Ford Motor Co. and Delta Airlines** - offered home PCs and Internet access to 72,000 workers for \$12 a month.
- **Microsoft, Compaq, Dell, Gateway and others** - initiated laptop programs that enable students to take computers home

Others

- The entrepreneurs in the private sector are addressing the lack of black and Hispanic-oriented online content by creating websites such as Quepasa.com, NetNoir.com, and BlackPlanet.com, which provide online services that are likely to broaden Internet use among minority populations.
- **iCan** - bring the information, products, services and resources to the disability community.

The United Kingdom

National Goal	<ul style="list-style-type: none"> ■ Under the UKonline campaign, the threefold aim is to ensure everyone who wants it has access to the internet by 2005, that all Government services are online by that date and to make Britain one of the world leading knowledge economies.
Responsible Government Dept	<ul style="list-style-type: none"> ■ Cross Government initiatives Social Exclusion Unit (SEU) with collaboration with other government departments, such as Cabinet Office, DfEE, etc.
Government's Initiatives: (General)	<p><u>Training and Education</u></p> <ul style="list-style-type: none"> ■ BBCWebwise and Computer Don't Bite - a basic introduction to computers and Webwise is the follow-on campaign focused on improving awareness of the Internet. ■ ICT Learning Centres - aim to establish 700 centres in disadvantaged communities by March 2000. ■ City Learning Centres - 85 City Learning Centres are providing local ICT facilities with the aim of improving education standards and skills levels, thereby promoting employment opportunities. ■ University for Industry (Ufi) - providing learning packages to help people and companies to learn ICT. ■ Library Network - a network of libraries with trained staff and access to content developed for lifelong learning. ■ IT for All - focuses on providing beginners an opportunity to try out computers, the Internet, e-mail and so on via 3000 centres across the UK. ■ Information Society Initiative (ISI) - promotes the take-up of ICT among UK firms, particularly SMEs by providing neutral advice, hands-on access to and awareness of technology. A national network of Local Support Centers has been set up to act as 'one-stop-shop' sources of advice and support on ICT. ■ £20m funding to train 20,000 library staff. This aims to train all library staff to a standard so they can support the use of DfEE National Grid for Learning and other library IT services. ■ The New Opportunities Fund and the Community Access to Lifelong Learning Programme - aims to encourage more adults into learning and so contribute to the achievement of the national target for adult participation in learning. ■ The NOF has £230m for training school teacher in the curriculum use of ICT in the classroom. The aim is to ensure that teachers feel confident and are competent to teach using ICT within the curriculum. ■ National Grid for Learning (NGfL) - The Grid is the national focal point for learning on the Internet. It is both an architecture of educationally valuable content on the Internet and a programme for developing the means to access that content in schools, libraries, colleges, universities, workplaces, homes and elsewhere. £555m from the Standards Fund has been set aside for the Grid. ■ Learning Workbank - This involves the development of an Internet portal to job vacancy, careers, work-related learning and training opportunities information and advice. <p><u>Affordability</u></p> <ul style="list-style-type: none"> ■ Get On-line: Get into the Internet" - a plan to offer low cost computers to 100 000 low-income families. ■ Loans for Teachers' ICT - Pilot schemes equipping teachers with state of the art multimedia portable computers and Internet access have shown positive benefits for teaching and learning. This scheme will help teachers acquire ICT at lower than normal cost.

**Non-Profit
Sector/partnership
with private sector
Initiatives**

Others

- **E-Government** by 2002, the public will be able to do a quarter of its dealings with government electronically through their television, telephone or computer.

Training and Education

- **Landport Web** - a ten week pilot project aimed at raising interest in formal IT training. It offered free use of computers on two evenings per week to help overcome fear of ICT.
- **Barton IT Hub** - a six year scheme combining public, private and community companies which aims to enhance the employment prospects, education and skills of young and those at a disadvantage. 7500 half hour IT taster sessions are held at the Barton IT Hub.
- **TS2K** - an organization to help young people develop their creative ICT skills and experience. Young people are offered opportunities to work with professionals in the areas of creative art, new media and technologies through its Creative Enterprise centers. Since 1997, 18000 young people have benefited from TS2K activities. 800 young people have entered work.
- **Synergy Project** - an accredited learning project for disadvantaged young people through the CyberSkills programme. With the support of local enterprises, 6500 workshop places are offered.
- **Computer Gym** - a mobile computer classroom, workshop and library using up-to-date Internet enabled, multimedia computers and the latest software courseware and curriculum sourced from all over the world. Their target audiences ranged from the children, parents and unemployed people.
- **IT for Terrified** - an organization provide an introduction to IT, teaching basics of word-processing, spreadsheets and access to the Internet, including e-mail. The trainers are volunteers who only started to learn IT.

Accessibility

- **The Manchester Community Information Network (MCIN)** - a non-profit making charity to improve public access to community information by providing an Online Community Information :Portal site free at the point of use. The MCIN website is accessible at computer terminals, computer kiosks and on the Internet generally. It offers a comprehensive source of community information on a wide range of topics from health and education to community advice and information.

Affordability

- **RECOMMIT** - a service provided by CHG Environmental Ltd to collect IT equipment from various locations and audit, sanitize and redeploys the machines to community, schools, charities, libraries, and some government departments. Activities undertaken by the RECOMMIT include full audit trail, electrical testing, secure collection of re-used IT devices, loading of various software packages, sanitizing of data and fix, physical cleansing, secure collection of IT waste for environmentally sound disposal.

Others

- **FI Group** - provide specialist IT, business and financial support to ten regional community organizations.

Singapore

National Goal	<ul style="list-style-type: none"> ■ To develop Singapore as one of the top five information societies in the world. (Infocomm21 masterplan)
Responsible Government Dept Government's Initiatives: (General)	<ul style="list-style-type: none"> ■ Infocomm Development Authority of Singapore (IDA) <p>■ "Dot.com" the People Sector - a movement costs \$25 million which involves community groups and local government, industry and unions, institutions and civic organizations, volunteer welfare groups and the media to enable every citizen to reap the benefits of an enhanced e-lifestyle. This nation-wide effort centres on 5 thrusts: improve access for all, change mindsets, promote online culture, nurture e-Ambassadors and spawn e-Communities, and develop multilingual Internet content.</p> <p>■ "Dotcom the Public Sector" - put S\$1.5 billion to transform itself into a leading E-Government to better serve Singaporeans in the new online knowledge-based economy.</p> <p><u>Training and Education</u></p> <ul style="list-style-type: none"> ■ Provide training to 30,000 parents who are keen on learning the Internet and who are also concerned about their children do in the Internet. ■ Offer special training through partner organizations, with an aim to encourage people to try out services and applications such as e-shopping, e-auctioning, e-mailing, e-filing of income tax, e-banking and e-learning. <p><u>Awareness</u></p> <ul style="list-style-type: none"> ■ e-Celebrations Singapore - a month-long public outreach programme, aims to get everyone to go online. The interactive and experiential activities will raise awareness of how infocomm technology can change people's lifestyles and prepare Singaporeans for the technological challenges ahead. ■ Singapore@Work 2000 - an integrated awareness and educational TV programmes that involves IDA, PSB, nine companies and eight chambers of commerce and infocomm associations to showcase e-businesses, targeting at local enterprises to encourage EC adoption. <p><u>Affordability</u></p> <ul style="list-style-type: none"> ■ PC Reuse Scheme and the Easy PC Plan - a public-private partnership campaign range from the donation of hardware (such as used or new PCs, printers, etc.) and software, to the provision of Internet access and support services. Tax incentives will be sought for vendors and e-service providers <p><u>Accessibility</u></p> <ul style="list-style-type: none"> ■ Give 30,000 households used computers with free Internet access and will also provide basic training. ■ All Singaporeans will also have free broadband access at public Internet kiosks, community centers and clubs. ■ Give every citizen over the age of 5 a free personal email address and web site. ■ Work with other government agencies such as the Housing Development Board (HDB) and private sector property developers to facilitate the deployment of public infrastructure for Internet access, for example, Internet kiosks; and infrastructure that supports e-Commerce fulfillment, for example, locked boxes to hold deliveries. <p><u>Others</u></p> <ul style="list-style-type: none"> ■ Work with companies on projects that involve innovation or significant

<p>Government /partnership with non-profit sector's Initiatives: (Specific to the Disadvantaged group)</p>	<p>Improvement and develop new capabilities within the e-learning industry. Such as the Innovation Development Scheme (IDS) and Education Local Industry Upgrading Programme (Education LIUP).</p> <ul style="list-style-type: none"> ■ Promote definition and standard of e-learning by setting a special committee to achieve interoperability and reusability of e-learning resources. ■ Initiate virtual shopping malls where online shoppers can buy basic necessities like groceries, lifestyle items such as music, movies and games, and services like on-line tuition. The aim is to attract 200,000 shoppers to shop online. ■ TRUSTe - and online privacy seal pogramme will be made an industry 'trustmark' seal to build up consumer's confidence towards online shopping. <hr/> <ul style="list-style-type: none"> ■ "e-ambassadors" - Under a formal training and qualification programme, a special group of 2500 people will act as counselors to their peers to motivate the non-ICT users among them to embrace an e-lifestyle. The government agency is expected to tap groups like the People's Association's Youth Movement, the Retired and Senior Volunteer Programme, and the Parents Advisory Group for the Internet (PAGI). ■ Community Development Councils (CDCs) to organize Internet training programs for senior citizens as well as homemakers. ■ Work with industry and community groups to develop relevant content in different languages to cater to different population segments. Incentives are provided for the development of useful applications and relevant content to bridge the language barrier and generate interest in infocomm among all Singaporeans.
<p>Private Sector Initiatives</p>	<p><u>Accessibility</u></p> <ul style="list-style-type: none"> ■ SingTel provide internet access with sponsored toll-charges for 2,500 needy families - 6 months access [max. 15 hours / month / line]; Additional lines for future projects - 6 months access [max. 100 hrs / month / line] (\$500,000) ■ Speednames provide 2,500 e-Ambassadors with personal domain names at a sponsored cost (over three years) (\$75,000). ■ SGNIC Partial sponsorship for 2,500 e-Ambassadors to subscribe to personal domain names (\$12,500) ■ Ezihub Inc, a Singapore portal company has ambitious plans to bridge the digital divide across Singapore, with the launch of its TownOnline Programme. Along with partners such as Pacific Internet, StarHub and Sun Microsystems, it aims to help all households in Singapore get online by providing affordable hardware, Net access and technical support, backed by a comprehensive lifestyle portal. <p>■</p> <p><u>Availability</u></p> <ul style="list-style-type: none"> ■ Microsoft Singapore sponsoring a range of software (mainly consumer OS & productivity applications) (\$2 million) ■ Intel donate used PCs and new processors (\$500,000) ■ Lexmark collect and refurbish old printers, and donating new printers to voluntary welfare organizations / charities; Sponsorship of additional color printers for future projects (\$30,000) <p><u>Training and Education</u></p> <ul style="list-style-type: none"> ■ CISCO collaborate with the Nanyang Technological University and to establish Singapore as an e-learning hub for CISCO networking training.

Korea

National Goal	Cyber Korea 21, with the objective of establishing a nation based on creative knowledge.
Responsible Government Dept	The Ministry of Information and Communication (MIC)
Government's Initiatives: (General)	<p data-bbox="491 409 818 443"><u>Training and Education</u></p> <ul data-bbox="491 443 1402 768" style="list-style-type: none"> ■ Earmark 7.3 billion won as fund for information education. ■ Allocate 3.5 trillion won to open 4,000 job training courses that will benefit 220,000 unemployed people. ■ Computer classes are made mandatory for primary school students. ■ Nurture ten thousand teachers who are capable of teaching computer classes. ■ Set up 500 free education centers by 2003. ■ Provide computer training through remote-education systems and broadcast media including terrestrial TV, CATV and satellite broadcast For instance, civil servants who sometimes can not afford to attend computer courses will be trained on line through the remote-education system. <p data-bbox="491 813 659 846"><u>Accessibility</u></p> <ul data-bbox="491 846 1402 1149" style="list-style-type: none"> ■ Provide a high-speed online connection to 196 small towns and local areas. ■ Internet plazas where citizens can access the Internet will be installed at post offices, town halls and local libraries. ■ Operate the "Internet Information Center" at public places such as post offices and ward offices for those who don't have their own personal computer at home. ■ Elementary, junior and senior high schools in Korea are equipped with LAN and computer labs. ■ Build hundred computer labs in the rural and mid-sized cities to further boost the computer literacy of the local residents. <p data-bbox="491 1193 643 1227"><u>Availability</u></p> <ul data-bbox="491 1227 1402 1597" style="list-style-type: none"> ■ Provide about 50,000 students in the low-income bracket with PCs and an Internet subscription coupon for five years free access while second-handed PCs will be collected and provided to social welfare institutions. ■ Promote the supply of PCs across the nation by giving tax incentives to companies who donate PCs. ■ In the case of remote areas including islands where physically laying a high-speed network is not cost-effective and difficult, around a hundred satellite-based Internet Plazas are set up at local post offices and government-run healthcare centers. ■ Provide software related training to students from low-income and no-income households so as to expand their career opportunities and to provide financial security. <p data-bbox="491 1641 635 1675"><u>Awareness</u></p> <ul data-bbox="491 1675 1402 1753" style="list-style-type: none"> ■ Launch public campaigns to raise public awareness on on-line ethics come up with the legal framework to penalize on-line criminals (ex. on-line sexual harassment) and infringement of human rights (ex. On-line defamation). <p data-bbox="491 1798 579 1832"><u>Others</u></p> <ul data-bbox="491 1832 1402 1877" style="list-style-type: none"> ■ Set up a translation company to translate high-quality contents into English so that those contents can penetrate into the larger market of

	English users.
Highlights of the Government's Initiatives: (Specific to the Disadvantaged group)	<ul style="list-style-type: none"> ■ A new hardware design, voice recognition technology, closed captioning and screen keyboards will be developed to help the handicapped use PCs more conveniently, ■ Establish websites to help farmers and the handicapped use a wide array of information ■ Offer information classes to local residents, the handicapped and senior citizens. ■ Provide subsidized Internet training program for the housewives under the theme of "Computer Training to One Million Housewives" with designated private computer training institutes ■ Initiate computer labs to conduct computer training to over 100,000 senior citizens by collaborating with locally-based universities. ■ Support the R&D of voice-oriented web browsers, touch screen computers and etc, through which disabled people can readily access information at their disposal.

Taiwan

National Goal	
Responsible Government Dept	National Information Infrastructure Unit (NII)
Government's Initiatives: (General)	<ul style="list-style-type: none"> ■ All our middle and primary schools in Taiwan have computer classrooms connected to the Internet through ADSL facilities in July 1999. ■ Teachers have been trained intensively to acquire knowledge in information technology and Internet. ■ 46 teaching material centers for education via Internet have been established.
Government's Initiatives: (Specific to the Disadvantaged group)	<ul style="list-style-type: none"> ■ For people of the handicapped, the underprivileged, and of remote residence, we emphasize the concept of equal access to web content. The major applications to promote include: developing electronic and network government, promoting Internet commerce, developing electronic/network libraries, creating digitized culture wealth, and utilizing Internet for better medical care and social welfare. ■ To assist the handicapped to access the Internet, the government is subsidizing all special facilities needed, promoting the universal adoption for special rules of content design, and establishing websites with information importation to the handicapped.

Japan

National Goal	<ul style="list-style-type: none"> ■ To create a "digital opportunity society" in which the full benefits of IT can be realized.
Responsible Government Dept	Ministry of Post and Telecommunications (MPT)
Government's Initiatives: (General)	<ul style="list-style-type: none"> ■ Provide Internet access for every public school by 2001. ■ Every teacher and student in every school and grade can make use of a computer in class by 2005. ■ Establish "IT Literacy Centers" and equip city halls, post offices, and other regional public facilities with Internet access. ■ Provide preferential tax treatment for companies training internally for information literacy. ■ IT Basic Bill -passed by Japan's Lower House to call for revision of regulations blocking the growth of ecommerce and Web access. It also

Government's Initiatives: (Specific to the Disadvantaged group)	<p>encourages the promotion of an online government to streamline the activities of bureaucracy.</p> <ul style="list-style-type: none">■ Support private R&D for the development of user friendly technology and devices to the aging and disabled population; sign-language recognition to allow disabled people to use the Internet easily.■ Conduct R&D into Broadcast Programming for the Visually and Hearing Impaired - the MPT is devising means of encouraging TV programming producers and broadcasters to include more closed-captioning, spoken explanations, and sign language interpretation in their programming to ensure that the visually and hearing impaired can better enjoy TV. During fiscal 1999 the MPT significantly expanded its budget for these activities to encompass support for closed-captioning, explanatory programming, and programs with sign language interpretation.■ Develop voice recognition, automated translation and other technologies to allow non-English speaking peoples to use the Internet easily.■ The Telecommunications Access Council examined concrete plans to create telecommunications equipment that meets everyone's needs.■ Enforce and adopt the Telecommunications Accessibility Guidelines to all related industries.■ Construct telework centers and provide tax reductions for telework and SOHOs in order to facilitate the community participation of the aged, disabled and homemakers.
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4.0. The Digital Divide in Hong Kong

4.1. Introduction

Since 1999, the Census and Statistics Department (C&SD) started to conduct an annual Thematic Household Survey (THS) on IT usage and penetration in Hong Kong. Information on the penetration of personal computer (PC), Internet and Chinese software in the household sector as well as the utilization of PC, Internet service, Chinese input methods and electronic business services amongst household members are collected to formulate a baseline for the IT policy. This section provides a brief summary on the overall uptake of computer, Internet and electronic business services in 2000.

4.2. Current uptake of ICT in HK

The 2000 THS on IT Usage and Penetration¹ found that 49.7% of households in Hong Kong have PCs at home while 73.3% of them indicated that their PCs are connected to Internet, representing 36.4% of total wired households in Hong Kong. Breakdown on the usage of computer and Internet as well as the adoption of e-commerce is set out as below.

Usage of personal computer

- The rate of using PC was 43.1% among all persons aged 10 or above.
- There were 75.7% of them had used PC at home. Some 54.8% had used PC at workplace and 22.1% at place of study.

Usage of Internet

- The rate of using Internet service was 30.3% among all persons aged 10 or above.
- There were 76.2% of them had used Internet services at home. Some 36.9% had used Internet service at workplace, 19.3% at place of study and 18.3% at other places.
- The most popular use of Internet is for "communication with others" at 73.2% and "browsing the web pages" at 72.1%.
- 10.3% persons who have PCs at home connected but not used Internet services. Out of 38.4% reported "no specific application" to use it, followed by 28.6% and 25.0% indicated that they were lack of skills and time in using Internet respectively.

¹ Census and Statistics Department - HKSAR (Nov 2000), *Thematic Household Survey Report No. 2 - Information Technology Usage and Penetration*.

Usage of electronic business services²

- Eighty-four per cent of persons aged 15 or above had used one or more types of electronic business services for personal matters.
- Octopus card was the most popular among all types of electronic business services, constituting 78.9% of persons had used it. The other commonly used services followed were "withdrawing/depositing/transferring money or checking account balance via ATM" (64.3%); "using e-cash/EPS" (34.6%) and "using telephone to settle payment by PPS" (19.5%).

The above data shows that more and more Hong Kong people got used to the ICT, particularly in the application on e-business services. As envisaged, electronic business mode will soon replace or transform that most of the traditional business activity in Hong Kong.

4.3. Who are at disadvantage?

To have a better understanding on the diffusion of ICT to the disadvantaged group, more detailed analysis covering the demographic profile, needs, attitudes and difficulties towards ICT is needed. However, available data on disadvantaged group is very limited in Hong Kong. We, therefore, can only rely on the data of THS to postulate a general picture on their current situation on the use of ICT.

Age - Elderly are less likely to use ICT.

- Lower rate was recorded for older persons in using PC. Only 6.6% of persons aged 55-64 and 0.6% of persons aged 65 or above had used PC.
- The rate of using Internet services is further lower for these two groups. Persons aged 55-64 and 65 or above had used Internet at 3.2% and 0.2% respectively.
- A relatively higher usage of electronic business services is found in which 69.9% of persons aged 55-64 and 43.9% of persons aged 65 or above had used such services, even though these groups still accounted for the lowest usage as compared to the younger group.

Gender - Slight gender differences are identified in the use of ICT.

- Men were at a higher rate of having used computer, Internet and electronic business services than women. But it only constituted very slight differences. For instance, 44.1% of men and 42.0% of women had used PC; 32% of men and 28.5% of women had used Internet services; 87.1% of men and 82.8% of women had used electronic business services.

² The electronic business services included using/settling payment/shopping of Automatic Teller Machine (ATM), Payment by Phone Service (PPS), Easy Pay System (EPS), phone banking services, Octopus card, Interactive Voice Response System (IVRS), online financial information, job vacancies online, trading stock online, booking tickets online, auction service online, cyber-banking, etc.

Educational attainment - The use of ICT is less common among people with lower education or illiterate.

- People with primary or lower educational attainment were at the lowest rate of using all form of ICT.
- While 6.3% of persons with primary or lower educational attainment has used PC, only 3.3% of them had used Internet.
- The rate of using electronic business services is relatively higher for this group. Out of 63.3% persons with primary education or below had used such service but the rate is much lower than those persons with higher education. It was 93.9% for those with secondary/matriculation educational attainment and 98.5% for those with tertiary educational attainment.

Household income - Lower income group are much less likely to access ICT than their higher income counterpart.

- The median household income with PC and connected to Internet at home were \$27,500.
- While 82.8% of monthly household income at \$50,000 or above had PC at home, only 15.3% of monthly household income less than \$10,000 could do so.
- The uptake became lower for connecting to Internet. Only 7.7% of monthly household income less than \$10,000 had a PC connected to the Internet service, giving a great divergence to the highest income group who were accounted for 71.5% of having a connected PC.
- Similar results were obtained from another survey targeted to the youth.³ While more than sixty percent of respondents whose fathers were professional or semi-professional were more likely to have a PC connected with Internet, only forty percent of those father were manufacturing workers had such facilities at home. Similar pattern also applied to the their ability on Internet use.

Occupation - Home-makers and retired people tended to be the late ICT adopters.

- The rates of using PC were lower for home-makers and the retired persons, at 12.4% and 1.6% respectively.
- This pattern was consistent in the use of Internet services. Only 6.8% of home-makers and 0.7% of retired persons were the Internet users.
- The majority of the persons who had used electronic business services were economically active. Among the lowest usage group, 14.5% were home makers, followed by 8.7% were students and 8.2% were retired

³ 香港青年協會(1999),〈青少年問題研究系列(十九)－資訊科技教育與中學生學習的研究〉。(The Hong Kong Federation of Youth Groups)

persons.

People with disability

For the prevalence of ICT in the disabled community, there is no data available. Even in the THS, there is no specific exploration on this aspect. The lack of such research points to an urgent need for comprehensive data to be collected in these population so that a clear picture on the overall penetration of ICT in Hong Kong can be obtained.

Who are at risk?

- Based on the above data, the profile of the ICT laggards in Hong Kong is characterized as below.
- People with lower economic advantage; and/or
- People with limited educational attainment; and/or
- People with less active economic activity, e.g. the retired people and the home-makers;
- The elderly.

4.4. Where do we stand?

According to the latest ITU PC and Internet indicators⁴ over the world, Hong Kong is at top 20 both on the penetration of PC and Internet. (Fig. 4.1) Hong Kong, at 34.72% of the PC penetration, is ranked at 16 which is lagged behind of US at 58.52% (Rank No. 1) and Singapore at 48.31% (Rank no.5) but slightly higher than UK (33.78%) and Japan (31.52%), and far higher than Taiwan (22.46%) Korea (19.03%).

Rank for the Internet diffusion of Hong Kong is even higher at No. 14, accounting for 29.42% of penetration rate. (Fig 4.1) However, such rate is much lower than other countries as compared in this report, except UK and Taiwan both are slightly below Hong Kong.

Fig.4.1 A Cross-country Comparison on PC and Internet Penetration

Nation	Penetration of PC	Penetration of Internet
Hong Kong	34.72%	29.42%
Japan	31.52%	30.44%
Korea	19.03%	40.25%
Singapore	48.31%	29.86%
Taiwan	22.46%	22.46%
United Kingdom	33.78%	25.76%
United States	58.52%	34.65%

Source: ITU (April 2001) PC and Internet indicators

From a global perspective, the take-up of PC and Internet in Hong Kong is keeping at a moderate pace among the major developed countries in Asia. In this sense, the digital divide between Hong Kong and other nations seems not require our imperative concerns. However, such inference might be unsound when we take a look at the local disparity in the use of PC and Internet.

⁴ ITU, April 2001

In section 4.3, a profile of a disadvantaged group in terms of the use of ICT has been depicted. Ostensibly, the Hong Kong "information have-nots" possess similar characteristics like other nations have. However, one major difference is that the rate of ICT diffusion is far slower in our disadvantaged group as compared to other nations. (Fig. 4.2)

In the case of people with lower education attainment, only 3.3% were the Internet user while there were 22% at Taiwan, 11% at US and 4.5% at Singapore.

Another case of people with inactive economic activity, again, Hong Kong is also at the lowest rate at 7.5%, followed by Singapore at 7.8%, UK at 17% and US at 45.3% for those not employed persons and at 29.0% for those not in the labor force.

The lowest usage of ICT in the aged population is most striking. There was only 3.4% of Hong Kong elderly has used the Internet. Great divergence is identified as compared to Japan at 33.2%, US at 29.6%, UK at 13.0%, Taiwan at 10.0% and Singapore at 5.3%.

One exception is for the Internet use of people with lower income. Hong Kong accounted for the highest penetration rate at 15.3% among the other compared nations. But the difference is very modest as US at 12.7%, UK at 12% and Japan at 11%.

**A Cross-country Comparison on the Internet Penetration Rate -
Profile of the Disadvantaged Group**

Nation Internet penetration rate	Overall	People with lower income	People with lower education attainment	People with disability	People with inactive economic activity (such as home makers and the retired people)	The elderly⁵
Hong Kong	36.4%	15.3%	3.3%	-	7.5%	3.4% ⁶
Japan	21.4% ⁷	11% ⁸	-	-	-	33.2%
Korea⁹	34.0%	-	-	20.0%	-	4.3%
Singapore¹⁰	42.0%	-	4.5%	-	7.8%	5.3%
Taiwan	25.0%	-	22.0%	-	-	10.0%
UK	30.0% ¹¹	12.0%	-	-	17.0%	13.0% ¹²
US¹³	44.4%	12.7%	11.7%	21.6%	45.3% ¹⁴ / 29.0% ¹⁵	29.6%

4.5. Conclusion

From what limited information we have, it appears that **the gap between the "information-haves" and "information have-nots" is huge and seems to be widening.** Some of us might be already aware that the gap between the poor and rich became more critical in Hong Kong. As the digital divide is actually an "economic divide", we believe that **the digital divide problem is real and exists in Hong Kong.** The problem is never as our Administration claimed as "less than an issue to Hong Kong as compared with other places"¹⁶. Rather, we believe the problem is more complicated and serious as we imagine. And the problem is simply overlooked by our Administration.

⁵ Refers to those people aged 50 or above

⁶ Refers those people aged over 55 or above

⁷ NUA Ltd.

⁸ Nikkei Business Publications

⁹ Korea Network Information Center (June 2000)

¹⁰ IDA of Singapore, Information Technology (IT) Household Survey 1999

¹¹ OFTEL of UK, Q3 Nov 2000.

¹² Refers to those aged over 55 or above

¹³ Figures from the US Department of Commerce (October 2000), *Falling Through the Net: Toward Digital Inclusion*.

¹⁴ Refers to those not employed persons.

¹⁵ Refers to those not in the labor force.

¹⁶ ITBB of HKSAR (2001), *Digital 21 (Revised edition)*

5.0 Current Provision to Bridge the Digital Divide

5.1. Introduction

In the previous chapter, we have already examined the current uptake of ICT and the magnitude of Digital Divide in Hong Kong. In this chapter, we will move on to explore what measures have been taken by the Government, non-profit and private sector help people for grasping the opportunities in the Information Era.

5.2. Government Initiative

Under the "Digital 21" IT strategy, number of works are suggested and some of them are already operating. The key programmes are described as follows.

Survey on IT Usage and Penetration

The Government started to conduct regular survey on IT usage, including collecting statistics related to Internet use and IT penetration in both the business and household sectors since 2000. The data is then formed as a baseline to assess the overall progress in the IT development and help to formulate relevant IT policy to Hong Kong.

Community Cyberpoint Project

To widen public access to IT services provided through the Internet, Home Affairs Department (HAD) and ITSD has launched the "Community Cyberpoint" project since June 1999. Over 2 200 computer-facilities are installed at convenience locations including community centres, post offices, public libraries and other public facilities around the territory for public use of free-of-charge.

Twenty-eight computers with special design facilities were installed at dedicated community cyberpoints and public libraries to cater for the needs of the blind and the visually impaired. These special facilities include screen enlarging software, voice synthesizer software, power Braille hardware and large-size flat LCD monitor to facilitate usage by the blind and the visually impaired.

ICT Training in Schools

Under the 5-year strategy on "Information Technology for Learning in a New Era" launched in Nov 1998, the Government has initiated numerous programmes to provide training to our next generation.

One of the initiatives is to ensure all teachers are equipped with basic ICT competency. Up to March 2001, more than 38,000 teachers have completed the "basic" level training. It is expected that all teachers will reach at least the "basic" level of ICT competency, all pre-service teachers will reach the "upper-intermediate" level; and by the 2002-03 school year, about 75%, 25% and 6% of teachers will reach at least the "intermediate", "upper-intermediate" and "advanced" levels respectively.

To facilitate the next generation has the capabilities to process information effectively and efficiently, the Government also targeted to deliver 25% of the school curriculum with the assistance of ICT by the 2002-03 school year.

Computer Access for Needy Students

A sum of \$200 million from the Quality Education Fund has been allocated to provide funds to secondary schools to buy notebook computers with free Internet access for loan to needy students. Moreover, incentive grant has been provided to schools to encourage them to make available their computer rooms and ICT facilities for use by students after the school hours.

Life-long ICT Training Programme

The Vocational Training Council (VTC) has offered about 10,000 training places under its IT skills upgrading courses for in-service personnel and IT conversion courses for non-IT university graduates. Moreover, it also provided 1,000 training places for the IT modules in 2000-01 through the Youth Pre-employment Training Programme.

Apart from the IT courses provided by the VTC, the Employees Retraining Board (ERB) is providing over 40,000 short-term basic IT skills training places each year to help trainees sustain their employment in a knowledge-based society. Another 200 training places under the IT Technical Assistants Programme is also offered to trainees for taking up low-end IT jobs.

Code of Practice on the Provision of Telecommunications Services for the Elderly and People with a Disability.

Code of Practice on the Provision of Telecommunications Services for the Elderly and People with a Disability was introduced on March 2001. The code is aimed to govern the responsibilities of Fixed Telecommunication Network Services (FTNS) operators, Payphone Service Providers (PSPs), mobile telephone operators, paging operators and internet service providers who provide corresponding services and special billing services for the elderly and people with disability. Obligatory requirements and recommended requirements are set out in this Code. All the mentioned operators should be complied with the former requirements. The latter requirements will be included for reference for all the operators who intend to provide enhanced facilities to the elderly and people with disability. The Code of Practice has entered into force on April 2001 (for the mobile telephone operators, paging operators and Internet service operator will come into effect on April 2, 2002).

Web Accessibility Guideline

The Home Affairs Bureau (HAB), Information Services Department (ISD), Information and Broadcasting Bureau (ITBB) and Information Technology Services Department (ITSD) had conducted a review of the Guidelines for Setting Up Home Pages (the Guidelines) in early 1999. The Guidelines was further revised in Nov 2000 with suggestions from the Hong Kong Blind Union. Guidelines were then issued to all bureaux and government departments.

As a result, twenty-five bureaux/departments have already revamped their websites. Sixty-seven bureaux/departments will complete the exercise within 2001 and four departments in 2002.

A capital account commitment at \$4.5million was created to provide funds to those Bureaux/departments which need financial assistance for their revamping work.

Similar action was also applied to public bodies and Government subvented organizations. They have been requested to submit return to the Government by end April 2001 on their target dates for enhancing their websites to cater for the needs of different user groups.

Web Accessibility Promotion Programme

A seminar was held in May 2000 for webmasters of all Government websites to promote awareness and understanding of usability and accessibility of websites to people with disabilities.

Similar awareness programmes were organized to the IT industry. Various seminars were held between December 2000 to January 2001 so as to enhance their understanding of auxiliary technologies and design considerations to facilitate access to websites by people with disabilities

Tips for improving accessibility of web pages which place special emphasis on the needs of users who have impaired vision or hearing was also posted in "Digital 21" website.

Electronic Services Delivery (ESD)

ESD website is a scheme the government aimed to promote the online public services to the community. The website is designed in conformity with international standard and provides text only version for use by the blind and the visually impaired. The interface and navigation path of the web site have also passed the Bobby Test with the conformity of "Web Content Accessibility Guidelines" used internally. Community cyberpoints have been set up at different locations to provide public computers for the community to obtain free-of-charge ESD services and other information over the Internet. The design of these facilities has also taken into consideration the needs of wheelchair-bound persons and people with visually impaired.

IT Hong Kong

ITB, HAD and ITSD had jointly organized an IT promotional campaign named "IT Hong Kong" to promote IT awareness to the community, particularly to those who have less opportunity to use IT in their daily lives, such as the elderly, the disabled and housewives.

In December 2000, a TV show "IT Hong Kong Night" and a series of episodes introducing the "IT Hong Kong" campaign, "Digital 21" and "ESD" Life were also broadcast on television.

Social Welfare Department (SWD), HAD, ITBB and ITSD had jointly organized IT Awareness Course for the elder, housewives, new arrivals, people with disabilities and those who are at disadvantage to use and learn IT skills. The training programmes include basic IT knowledge such as the basic operations of a personal computer, browsing the Internet, sending and receiving e-mails, etc. A total of about 17 300 places have been offered. The total expenditure of \$3.4 million is used for the IT Awareness Programme.

Working Group on Web-enabling Women.

The working group which is formed by the HAD in 2000, is aimed to promote IT use among the women population. ICT training and activities organized by the Government, non-profits organizations and private sector for women are initiated and encouraged.

Opportunity for the Elderly Project

In 2000, the SWD provided financial subsidy of \$0.3 million to welfare sector NGOs, etc. to launch 43 ICT related projects benefiting 13,600 senior citizens. The projects included basic training on the use of Octopus cards, ATM and basic web surfing, etc.

5.3. Public bodies/Non-profits Organization

Apart from the Government initiatives, many public bodies and non-profits

organization had already been aware of impact of technology bringing to the community, particularly to those disadvantaged groups. Numbers of projects have been taking place. Here are some of the examples.

Cybersenior Network Development Association Limited

Established by a group of people who are committed to serve the elderly of Hong Kong in January 2001, this non-profit organization aims to promote the effective use of IT among the aged population. The existing services include an information website, which provide useful resources, elderly residential information, health tips and online aged community, etc.

Equal Opportunity Commission (EOC)

EOC, a statutory body aims to eliminate all kinds of discrimination in Hong Kong has released a report regarding to web accessibility for people with disabilities¹ in December 2000. Of 163 homepages were identified from the Government Information Center (GIC) directory to test on 9-10 November 2000 by using Bobby Test, nearly 80% of them could not pass the test. The result was further pressurized the Government to quicken its pace on the universal accessibility of all Government websites.

Other programmes initiated by EOC included liaison with the Hong Kong Association of Banks for universal access of the digitalization of banking service; suggestion on computerization of library service so that people with visual impairment could have equal access to library services; an IT Task Force also formed to discuss IT development.

Hong Kong Blind Union

The Hong Kong Blind Union is a self-help organization formed by visually impaired people to represent their views on policies and practices affecting their life. It is the first organization to promote computer literacy in Hong Kong. As a partner organization of the World Wide Web Consortium on Web Accessibility Initiative, HKBU had co-operated with the HAB for a comprehensive policy on web accessibility.

The HKBU has also set up a group of users who are themselves IT professionals with visually impairment to monitor on web accessibility. In January 2001, the HKBU has also launched a Consultative Services on Web Accessibility to the public. Free advice and suggestions on web accessibility will be provided upon request.

Hong Kong Seniors IT Advocates

Another non-profit organization to promote the IT use among the aged population. Established in Nov 2000, the membership has already reached 500. The organization is now running numerous basics IT training courses,

¹ Equal Opportunity Commission of HK (December 2000), *Report on Web Accessibility of Public Service Homepages in Hong Kong*.

awareness programmes to the aged community. A permanent IT center for the elderly will soon come into operation in this year.

Oxfam Hong Kong

Oxfam is a well-known non-profit organization concerning poverty issues. Oxfam Hong Kong had launched info@people.fairer.world to raise people's awareness on IT development. An info@people.fairer.world Forum was held in March 2000 to call for a more affirmative People-centred IT policy in Hong Kong.

Pegasus

Pegasus Social Service Christian Organization is a non-profit making organization aims to carry out comprehensive IT education for all the people in Hong Kong. Since 1997, the organization has already provided IT education services and IT training course to the community. The Pegasus Truck is one of its main areas of works to eliminate IT illiteracy through the provision of IT access and education in mobile facility. More than 66 000 participants have joined this program. Pegasus also worked with other partners to run IT promotional programmes to facilitate the community's IT awareness and help other organizations to set up the computer facilities as well as provide them with expert advice and consultant services.

Webmasters (Hong Kong) Association

Webmasters (Hong Kong) Association was formed in November 1999 by a group of Hong Kong Internet and web professions. In regard to the possible threats brought by the rapid IT development to some disadvantaged communities, a Web Care Special Task Force with the goal to establish a barrier-free IT environment was formed in February 2001. A series of educational and promotional campaign with the focus on public interest and, web accessibility standard and technology has initiated. This include reference booklet & guidebook on web accessibility issue, Web Care Award Campaign, IT Volunteer Recruitment Campaign and Unify Internet Training Program, Train the Trainer Program as well as various promotional programmes.

5.4. Private sector

Being realized the impact of digital divide to the overall IT development of Hong Kong, a number of private sector companies has successfully worked with the government and non-profit organization to provide IT related facilities, equipment, training and other services to the disadvantaged community. Some of their initiatives are set out as below. (The list is not exhaustive)

MingPao and HKNet

- **PC recycled campaign**-organized by MingPao and HKNet since 1999. It aims to collect the second-hand PCs and donate them to the

disadvantaged community.

Microsoft (Hong Kong)

- **Microsoft Hospital Visit Program** - to introduce IT to young patients in local hospitals. The program aims to use edutainment software and digital devices to ignite young patients confidence in their ability to fight against and deal with their illnesses.
- **Cyber Action Program** - to recruit volunteers who can share their IT proficiency with thousand underprivileged Hong Kong youngsters, teaching them the computer skills that are vital to their development.
- **Microsoft Charity Open Licensing Program** - aims to provide charitable organizations the simple and cost effective way to access Microsoft software, so as to allow their beneficial encounter the latest technologies and gain up-to-date IT skills.
- **Project CompuAid** - a local computer donation campaign, since 1998. The campaign aims at helping disadvantaged students to acquire computers and to help them to learn. After inviting companies and individuals to contribute their unused personal computers, Microsoft Hong Kong donated software and then contributed the hardware and software package to students who cannot afford computers. The "Project CompuAid" initiative encourages the use of genuine software and advanced technology in education.

PCCW - HKT (previous Hong Kong Telecom)

- **Hong Kong Sheng Kung Hui PCCS-Cyber World for the Senior Citizen** - a \$600 000 sponsorship project to the Hong Kong Sheng Kung Hu Welfare Council to help Hong Kong's senior citizens pursue their lifetime education. The center is equipped with 20 computers, up-to-date curriculum materials that will support a series of computer courses and free Internet access.
- **Cable & Wireless HKT Information Age Development Scheme** - the company had spent \$10 million to stimulate public interest in information technology (IT) applications. This includes "60min IntroNet Course" applied to different areas of Hong Kong, IT Teaching & Learning Centre, PCCW IT Mobile Centre and Family Life Education on the Net, etc.

5.5. Conclusion

This chapter has identified a number of programmes to remove the barriers that prevent people in disadvantaged community from accessing and learning ICT skills. However, all these initiatives are less than sufficient. Based on our information presented in our last chapter, we must admit that the Digital Divide problem is real and is widening in Hong Kong. More pro-active approach is needed to ensure no one is falling at the wrong side of the information revolution. Recommendations to tackle the Digital Divide will be set out in the next two chapters.

6.0. Promoting the Universal Access

6.1. Introduction

Building on the current practice identified in Chapter 5, we will go on to examine the key enablers, influential actors as well as a list of recommendations in bridging the Digital Divide in this chapter.

6.2. A Vision for A Digital Inclusive Society

A Digital Inclusive Society is a place where everyone

- feels fully able to explore the potential and benefits of the new technology
- can access and share information and services freely
- can advance the ability to participate effectively in the community.

In transition to this society, we have to ensure no one becomes laggard stagnating on the wrong end of the digital revolution. A clear vision with specific targets is central to its realization. Governments around the world have adopted similar vision and reflected it in their public policy.

In United States, the Clinton administration committed to wire "every classroom, library, community center, clinic and hospital to a national information highway by 2000". Recently, the administration has set goal to make access to computers and the Internet as common as connection to telephones is today.¹ United Kingdom is seriously considering this problem. Prime Minister Blair stated his goal to have complete national penetration of the Internet by 2005.

The Singapore Government also committed to offer "most public services over the Internet by 2001" and it will take an aggressive approach to help Singaporean go online by 2003. South Korea and Japan also adopted similar approach to combat the Digital Divide problem in their own countries.

The Hong Kong administration formulated its second "Digital 21 Strategy" in May 2001 with the grandiose objective of becoming a leading e-business community and digital city in the globally connected world. But it is sad to accept that the administration only admitted that "Digital Divide is less an issue to Hong Kong as compared with other places".² With such insensible attitude and tunnel vision, it is not surprise that the administration never customized its vision and comprehensive strategy on the ride of the Digital Divide in Hong Kong.

Can we rely on market force to solve the digital divide problem?

We understand that there are some views, mainly from the market determinists for concluding that there is no role for the Government and, that efforts to shorten disparity between information-rich and information-poor are basically absurd. The

¹ The Clinton-Gore Administration: From Digital Divide to Digital Opportunity, Press Release (February 2, 2000)

² HKSAR, ITBB (May 2001), *Digital 21 Hong Kong*.

best thing to resolve the problem is to allow the market forces be the determinants. From the economic point of views, we agree that market forces are required for economic growth, but such ideology is not equivalently applied to public policy.

Digital Divide is basically an "Economic Divide". Because of poverty, underclass is impeded from having access, fluency and motivation of using ICT. In return, their employment prospects in knowledge driven economy and their potential income levels as well as their potential for a fulfilling life will all be denied as they lack skills and tools to participate in knowledge-based economy. This is a downward spiral. Poverty causes digital impoverishment and, it contributes to continued povertization.³

The solution to the problem is not the market. The problem itself is indeed partly created by the market forces. Imagine, there is no market for food in areas where people are starving because the food cannot be profitably sold.⁴ So there will be no market for them - a group always be ignored and marginalized in our society.

We are not the utopian call for everyone to be "equal". Social differences somehow exists. However, if the digital disparity persists, we are all losers. In the previous chapter, we have already outlined the impacts on Hong Kong if this problem is left unsolved. As the information-poor become poorer, they cannot be the skilled worker or potential customers that are vital to the sustainable development of knowledge driven economy. Is this a scenario we want to gain during the digital revolution?

Role of the Government in bridging the social differences in the digital revolution is critical. From the experience of UK in achieving universal Internet access, market forces and current initiatives will bring UK to around 60% penetration by 2003. However, the overall penetration will push to 70% when initiatives from the government are taken into account. Such penetration of 70% implies 55-60% of the unemployed and 40-55% of the retired population using Internet.⁵

The above statistics suggested that success in the knowledge driven economy requires the Government direct intervention by shaping an environment for the growth of our economy, focusing on facilitation and creating conditions to increase uptake rate.

We recommend that the Government's first job to alleviate the problem as other nations are doing is to set out a vision on building a "**Digital Inclusive Society**" where

- all people is possible to access ICT beginning from schools, public facilities, homes, workplaces, and extending to all public and business activities
- all people have the skills and knowledge to access what they need online and use of ICT.

³ Don Tapscott (1998), *Growing Up Digital - the Rise of the Net Generation*, NY: McGraw-Hill

⁴ Ibid.

⁵ *Achieving Universal Access* (March 2000), Booz.Allen & Hamilton, London

6.3. 4As' Enablers

History shows that time for new technology to fully seep into a culture may require several decades. But once people perceive a new technology to be useful and affordable, wide adoption can take place rather quickly.⁶ Everett Rogers mentioned that the success of any new form of communication is also dependent upon how comfortably and easily it fits into people's lives.⁷ All these reflect that the diffusion rate not only required the advances and functionality of technology, but also correlated to changes on our mindset and perception as well.

We identify there are four enablers, namely affordability, awareness, availability and attractiveness that influence diffusion and uptake of ICT.

6.3.1. Affordability

Affordability is an important contributing factor to the Digital Divide. It contributes in a sense that people with lower income or social status do not have the resources to acquire ICT, leading them inevitably shut out in the "new economy". The cost of ICT and the subscription payments, for example can directly affect the rate of adoption.

Following the liberalization of mobile communication market Hong Kong, we witness that the drastic falling price of equipment is encouraging take-up, in which Hong Kong is one of the economics in the world with the high mobile phone penetration of 78%⁸. Thus, public policy to promote competition, which in turn lowers prices and improves services is prerequisite to influence the ICT diffusion rate.

So when considering "price" is affecting the uptake rate, it is therefore necessary to recognize that the "financing" of the market when the cost of ICT is not sufficiently afforded by the disadvantaged group. In other words, it is a question on how all or some the final price can be borne or "indirect financing" by the end-users themselves, by public subsidies, by subsidies from industry, or by other sources.

6.3.2. Availability

Availability refers to the necessary and fundamental technological and services infrastructure. It depends on the availability of telecommunications facilities, equipments and access, security services, and some also depends on the provision of assistive technology and other relevant services. Without these basic ingredients there will be no opportunity for people to utilize the application and therefore no take-up of ICT as resulted.

6.3.3. Awareness

This is the degree to which ICT are made known and visible to others. The more

⁶ Paul Saffo and the 30-Year Rule, *Design World*, 24 (1992): 18.

⁷ Roger Fidler (1997), *MediaMorphosis - Understanding New Media*, California: Pine Forge

⁸ 8HK SAR, ITBB (May 2001), *Digital 21 Hong Kong*.

that people actually are seen using ICT and are perceived to be benefiting from it, the more likely someone is to form or change an attitude about his or her own need to adopt the technology. The greater the perceived advantage, the faster the rate of adoption.

Availability of equipment and access is just one of the hindrance, but not sufficiently to close the information-gap. For many information have-nots, they remain very passive because they either lack encouragement or motivation or are technophobia - a fear of learning new technology. People's attitude is the key issue.

Uptake rate will accelerate through interaction with other communications channels such as early adopters, interpersonal networks; observations of people are seen actually using the technology; information levels towards ICT and marketing strategy used by the industry.

6.3.4. Adaptation

This refers to the evolution and complexity of ICT. More complicated technology will be adopted more slowly. The rate of adaptations depends on the compatibility of technology to the existing technology, services and daily life activities and how people acquire sufficient skills and knowledge to adjust ever-changing of technology development. So accessibility is one of the key issues to facilitate people's adaptation to the technology.

6.4. Collaboration

The lack of co-ordination or co-operation or sharing of knowledge between different sectors of the society usually means that resources are not being effectively allocated. Piecemeal efforts will do little to alleviate the complex and massive Digital Divide problem. By creating a collaborating and better coordinated environment, teamwork among and between public, private and non-profit sector can be made in order to offer the better services and demonstrate the benefit of ICT in effective and efficient manner.

In this section, we will propose the role of three main actors - **the government, private and non-profit sector**, who can exert their influence on the diffusion of technology.

The Government

The government can influence the diffusion of technology through:

- formulating and implementing relevant policy
- providing financial investment for various initiatives and infrastructure
- leading partnership programs to initiate and maintain dialogues between other actors

The Private Sector

The private sector can influence the uptake of technology through:

- sponsoring and providing financial investment for various initiatives that

- resolving the digital divide problem
- evaluating and formulating relevant strategies to overcome such barriers that impede the universal access of ICI

The Non-profit Sector

The Non-profit sector can influence the uptake of technology through:

- developing their own levels of awareness and expertise in the use of ICT
- communicating and soliciting their needs and barriers on ICT to the Government, private sector, other relevant agencies and to their members as well.

Summary

To get all people go wire and reap the benefits of information technology, we suggest that the Government has not only to formulate a policy on Digital Divide with a clear vision; but also has to devise strategies based on the 4As' enablers and the concerted effort of influential parties. Only when all people are able and will place value on ICT, we are getting closer to our digital inclusion future.

6.5. Recommendations on the Universal Access in Hong Kong

Building on the elements presented in the last section (6.4), we will then set out some general initiatives which are building on the 4As' enablers, can be adopted by each actors. The initiatives suggested aim to improve the overall universal access in Hong Kong. For specific recommendations targeted to resolve the Digital Divide problem to disadvantaged group, we will examine more closely in next chapter.

6.5.1. In General

The Government

- Digital Divide is a problem matter with every facets of our society. Because of its complexity, **a working group which comprises of representatives from the Government, private and non-profit sector** to focus on Digital Divide should be formed so as to develop a more "collaborative" approach to tackle the problem. An example is that ITBB how have in place a Advisory Committee working on IT (IIAC). It is convened by the Government, with membership including Legislative Councillor, representatives of IT professional bodies, academia and relevant government departments. Similar approach can be adopted in order to solicit concerted effort from different parties.
- The Government has for the first time to conduct Thematic Household Survey Report No.2 grasp the penetration and use of ICT in Hong Kong. We suggest the Government to develop a set of benchmark - **Digital Divide Index** so as to further review the rate of information literacy and progress of reform against world standard on digital divide.
- A clear policy on the issue of digital divide needs to be set out as soon as possible. The use of ICT is barely included into the existing social and welfare policy. The Government has to take the leading role to ensure the IT polices can be mutually integrated with other relevant policies in order to support, secure and structure a balanced development in both fields.
- In Hong Kong, there is lack of information about the ICT development in the

disadvantaged group. We recommend the Government to conduct relevant studies to evaluate the social impact and particular needs of ICT development on the disadvantaged group so that specific programmes can be developed for them.

Private Sector

- Needs of niche market are often being overlooked by the private sector. For example, people from the low-income families or elderly are now unable to connect Internet at home because the ISPs in Hong Kong only accept credit card payment. Owing to their underprivileged economic situation, the private sector might not be aware that most of the disadvantaged groups are having difficulties to have a credit card. Therefore, we hope the private sector might consider recognizing the significance of market of the disadvantaged group by carrying out more market research to identify their needs and devising flexible marketing strategy to the different sectors of population.

Non-profit Sector

- As presented in previous chapters, many non-profit agencies have been aware of the challenges imposing by the information revolution. Given their expertise and understanding of the needs of disadvantaged group, we hope the non-profit sector keep on to identify and communicate the relevant issues to the Government and to the service providers. In the public hearing of Legco Panel in ITB held in May 2000, a number of non-profit organizations have proactively reflected their views on the Digital Divide problem. Such concerted effort could continue and serve as momentum for building a digital inclusive environment in long term.
- It is obvious that join-up approach among non-profit agencies and private sector can be one of the effective ways to enhance the competency of disadvantaged group in participating fully in the information-based society. The join-up project initiated by the Hong Kong Seniors IT Advocates and Microsoft Inc. is a good example. We recommend the non-profit agencies to seek opportunities for co-operation to the private sector.

6.5.2 Affordability

Recent studies have demonstrated that cost of hardware, software and telecommunications services is seen by those living in the deprived community as a major barrier to the use of ICT. To overcome this barrier, a number of initiatives should be considered. This includes:

The Government

- Provide tax credits for vendors who donate equipment, Internet access and professional ICT training to the community.
- Give tax incentives to encourage employers to provide computer and Internet access for employees at home.
- Offer bonus, discounts or priority service for those who use online public services, such as filing tax return, paying bills, driving license registration, etc.
- Provide tax credits for companies to design products and services for the disadvantaged group, such as elderly and people with disabilities.
- SWD should consider additional allowance to subsidy the CSSA families on the

purchase of computer-related facilities or Internet services charges. In addition, the SWD might consider to partner with the non-profit agencies and private sector to equip low-income group (e.g. receiving CSSA families) with a used PC bundled with free Internet access and basic training to each of these families.

- Allocate additional funding for the project promoting online automated translation, speech technology and other technologies to allow non-English speaking people or illiterate to use the Internet easily.
- Allocate funding for tech-education researches so as to accelerate the goal set by the Education and Manpower Bureau to deliver 25% of the school curriculum with the assistance of ICT as soon as possible.
- Promote the wide use of ICT in the public and non-profit sector by providing grants to them to develop ICT infrastructure and services that are accessible to all.

The Private Sector

- Develop flexible and creative pricing strategies to meet needs of different sectors of population. Services providers are encouraged to offer a wide range of pricing options, ensuring no one are being denied of services owing to method of payments.
- Consider more rental or leasing services packages to the needy population.
- Allocate funding to the projects that drive the penetration of the community, such as donate equipment, Internet access and professional training to the community.
- Offer free access and basic level ICT course to disadvantaged group, such as unemployed, housewives from low-income families (e.g. families receiving CSSA) and retired.
- Offer free training course and technical and maintenance services to all schools and non-profit agencies.
- Work with the Housing Department to facilitate the deployment of public infrastructure for Internet access in all coming public housing estate project.

The Non-profit Sector

- Lobby and communicate with the Government and private sector for flexible pricing strategies and sponsorship opportunity.

6.5.3 Awareness

One of the key factors in promoting the ICT uptake is to convince the target audience to understand and aware of the potentials of ICT. Initiatives that are targeted to engage people who feel alienated or have few opportunities to experience of using ICT should be encouraged. This includes:

The Government

- Co-opt with schools for running "**eFamily**" programs. Nowadays, while children are having more opportunities to experience with new technology in schools, parents with low education attainment are approaching greater generation gap with their children. "eFamily" program is to recruit children to train their parents and family. Weekend training session led by teachers and

student helpers is operated in school venue. Parents, through the interactive training, are expected not only to acquaint with basic computer skills, but also to learn about the online safety and shorten their gap to their children.

- Develop fora to encourage public debate and discussion of concerns about the Digital Inclusive Society and the benefits of utilizing technology in everyday life.
- Extend the existing "IT-ambassadors" to facilitate the early adopters of ICT to guide late adopters in their use of online services. We suggest the Home Affairs Department (HAD) recruit volunteers from different segments of population to train late adopters. Initiate tapping can be targeted to volunteers group of large corporation, self-help groups and social services agencies.
- Various government departments such as ITBB, HAD, ITSD, SWD can partner with private sector to organize events and opportunities such as "IT Awareness Campaign" to build awareness of the value proposition of the Internet. Through active participation, it is aimed at motivating people to understand the advantage bringing by the new technology, enlightening their interest on technological advancement, and eventually getting online.

The Private Sector

- Invest more in advertising and marketing, and actively disseminate information and carry out awareness-raising programs about opportunities provided by ICT.
- Establish volunteer teams to provide basic computer training to schools, non-profit agencies and the disadvantaged groups in need.

The Non-profit Sector

- Develop information and expertise is essential for supporting the lobbying and influencing standards in the area of Digital Divide. A good example can be cited is the effort initiated by the Hong Kong Blind Union (HKBU) on the web accessibility.
- Facilitate public discussions of concerns about the use of ICT and its impacts to our society.
- Monitor the social implications of the development of ICT on the disadvantaged group.
- Disseminate information and raise awareness amongst policy makers, the private sector and the wider public.

6.5.4. Availability

Appropriate hardware, software and access to the facilities are the prerequisite for the people to gain experience in using ICT. Range of provisions includes:

The Government

- ITSD, SWD and HAD coordinate Recycled PC Scheme and Reused PC Clearinghouse to centralize all the donations from the corporation and allocate the reused PC to the people in need.
- ITBB and ITSD adopt voluntary security-rating system for users to recognize security level of e-commerce sites.
- HAD and ITSD should extend the existing plan of Community Cyber Terminals by increasing the numbers of terminals to all the community center, shopping mall of public housing estate and all public facilities.

- Leisure and Cultural Services Department transforms all public libraries into e-libraries so as to enable people to access Internet.
- Accelerate the development of e-government and demonstrating that ICT is a very effective tool for increasing the efficiency of government administration and wider disclosure of government information.

The Private Sector

- Speed up the provision of broadband services to all residential users as quickly as possible.
- Participate Recycled PC scheme actively by donating reused PC and other related facilities.
- Develop better links with non-profit agencies and co-operating with them to develop appropriate on-line services and technical support services for the disadvantaged groups. Such services include advice on equipment purchase, method of physical networking, training programmes, installation and maintenance services.

The Non-profit Sector

- Lobby the private sector to speed up the provision of broadband services to all non-profit agencies as quickly as possible.
- Co-operate with the private sector to develop complete technical support services for the disadvantaged groups.

6.5.5. Adaptation

Even where hardware, software and access to facilities are available, people in disadvantaged community are less likely to encounter environment where they can learn the use of ICT. Range of provisions should therefore offer to enhance their ICT capability. Moreover, assistive services and technology is also essential to accelerate their adaptation to the new technology. This includes:

The Government

- Implement comprehensive anti-discriminatory guidelines to deal with all aspects of the accessibility telecommunications and ICT services
- Borrow approach adopted by other nations, such as Netherlands and Australia on developing standardized web guidelines on usability and navigation across all government websites. This is to generate common interface for user to familiar with common interface.
- HAD transform all Community Center as an e-learning center by providing free broadband access and Internet training sessions for all people, especially in the poor area.
- Education and Manpower Bureau has to accelerate the overhaul of the existing structure and curriculum to encompass emerging educational tools and new teaching methods which make use of digital media and, integrate cyber civic education into curriculum in order to promote a proper online culture. Besides, it should also promote the development of a local online education and training content market through public funded projects and other strategic intervention.

The Private Sector

- Accept and encourage technical standard, which ensure the existing products and services are accessible to all people.
- Ensure that concept of accessibility should be part of industry design, development, marketing and customer support and the methods for policing and enforcing adherence to the guidelines.
- Develop better co-ordination across the industry and value-chain to ensure products and services are accessible for all people.
- Direct more resources and efforts on R&D in the areas of applications, which are made more accessible and meet the needs of different people.

The Non-profit Sector

- Examine the technical standard of all ICT is accessibility for all people.
- Work with the Government for a comprehensive accessibility guideline. The Webmasters (HK) Association is taking great effort to co-operate with the Government and other social services agencies for promoting web accessibility for all. This is also a good example to demonstrate how IT professionals can help to address the accessibility problem to the community.
- Incorporate and promote the use of ICT in the existing social services.
- Lobby the Government and private sector to ensure all ICT equipment and services are accessible to all.
- Initiate partnership with the Government and private sector to provide knowledge and training to the disadvantaged groups.

6.6. Conclusion

In this chapter, we proposed some initiatives in a collaborative approach in closing the digital disparity in our society. These initiatives targeted to motivate and push up the overall penetration and use of ICT. Since some disadvantaged communities are now facing specific barriers in using the ICT, we will examine these barriers and present recommendations on how these barriers can be removed in the next chapter.

7.0. Wiring Population Left Behind

7.1. Introduction

In this chapter, we will discuss how the technology bringing enormous challenges and opportunities to the three vulnerable groups, namely **elderly, people with disabilities and women in low-income families**. Due to their unfavorable economic status, limited education attainment and work skills, most of them are usually having less opportunity to access ICT. In Chapter 4, we have already depicted a clear picture that these three groups are being polarized in the digital society. In the following section, our discussion will place on the unique problem faced by each of these groups, followed by some particular recommendations aim to bridge such digital disparity among these disadvantaged population.

7.2. Elderly

The real IT generation isn't the youngsters.

The promise of technology is to involve segments of every population to build a fairer society. We are on the wrong side if someone are being isolated if we leave them even further behind as they grow old. When ICT becomes more and more a part of our lives, it becomes increasingly important to address issues concerning the impact of technology on the well being of older adults.

Where are the barriers from?

As we presented in the Chapter 4, there are only 6.6% of person aged 55-64 had used PC in Hong Kong. For person aged 65 or above, only 0.6% are the computer user. The situation is even worse in the use of Internet. Only 3.4% of person aged 55 or above are Internet users. So why they are so hesitated to use ICT? What are the obstacles they are now facing? Where are these barriers from?

- **The absence of gerontological community from most policy discussions about information technology** is the prominent obstacle for the elderly to take part in the information driven society. The Government's social and welfare policies barely include ICT on their agenda, putting the elderly in an isolated position from learning and adopting ICT. Inclusion of aging policy in future structure of ICT policy is essential for the success and widespread use of these technologies.
- **Stereotypes about the ability and willingness of older adults** to learn intellectually challenging tasks are the hurdles faced by some of the elderly. With such impression, they might feel incapable and fear to learn computing-related skills. Many researches demonstrated that with suitable applications and training, elderly can also be an energetic and enthusiastic computers users like youngsters¹.

¹ Phil Shapiro (1995), Computers Use and the Elderly, *Washington Apple Pi Journal*

- **For elderly with limited income, cost of ICT equipment and on-line access** are the luxury items. As shown by the research of Oftel and the Policy Studies Institute in the UK, income is by the single most significant barrier to ownership of ICT. The financial situation of older people is therefore an important factor taken into account when examining the current barriers experienced in accessing the information society.²
- **Language and literacy** are another hurdles. The majority of services and computer language are in English which prohibitive for many low educated elderly to use ICT.
- **Lack of sufficient information** may be the other reason for the elderly hesitant about using and purchasing ICT even though they are economically capable to do so. Older people need to be well informed about the advantages they will derive from the new services. A consumer survey by CREDOC³ in France shows that only a few older people acknowledged the usefulness of the Internet and over 18% of these people said they did not know of what benefit the Internet could be to them.
- **Availability of suitable equipment** is a crucial factor in making the information society accessible to all citizens. Therefore some technical barriers, which hinder the access of older people to ICT can be major obstacles to them.

How do the Elderly benefit from using ICT?

ICT can help foster **independence** in the elderly. For instance, for the elderly who can't travel as before, the Web brings the world to them for daily living, providing information, convenience, entertainment and connection to family. Using them on an everyday basis would promote a sense of self-efficacy in the elderly and less dependence on others.

Constructive use of leisure time can provide opportunity for elderly develop their skills and abilities, expand social network, and feel good about themselves. An increase use of Internet and technology might give them more choice over their activities that lead to an increase **feeling of satisfaction, competency and self-esteem**.

Technological advancement also presents so much potential for lifelong learning for older adults. Much evidence in the gerontological literature suggests that older adults are both interested in and capable of continued learning. Learning and mastering computer-related skills would contribute to the well being by allowing older adults to maintain **a sense of integrity and continuity** with their past.

The **therapeutic uses** of ICT recognize as a valuable contribution to the lives of elderly. The elderly can obtain rehabilitative benefits in utilization of fine and gross

² Oftel Market Research (1994). *Households without a telephone*, London; Policy Studies Institute (1995). *To telephone ownership*.

³ French country report <http://www.ispo.cec.be/g7/>

hand-motor movements by working on the keyboard. Computer program also stimulated cognitive abilities including reading, comprehending, listening memory and information processing. Some studies even proved that using video games to improve a variety of perceptual-motor and self-esteem of elderly was significant. (Drew, B. & Waters, J; McGuire, F.A.)

7.3. Women

As computer, Internet, e-mail, e-commerce, etc. all are fast becoming household words, the important of women's access to information technologies is emerging as a priority. In the Platform for Action of the Fourth World Conference on Women, it states that women can be empowered by information technology by increasing access and participating of women so as to overcome negative stereotypes of women in our society.⁴

While the digital revolution clearly introduces new opportunity to woman, the division between the information-haves and have-nots is also splitting along this social line, especially for those women with low income, limited education and newly came to Hong Kong.

Where are the barriers from?

In the findings of recent 2000 THS, there are only slight gender differences in the use of ICT. However, the penetration of ICT is obviously not prevalent among the housewives. While we assume and believe that most of home-makers in Hong Kong are women, there are only 6.8% of home-makers were the Internet users. The use of ICT among the housewives is relatively low in Hong Kong. So where are the barriers from?

- **Economic hardship** suffered by women in low income group make it impossible for them who have to pay school fees for children and to cater for other basic needs, while to save money to buy computer hardware and software and to attend computer courses for themselves at the same. This problem is particularly identified in those women who newly came to Hong Kong. In a recent study⁵, it indicated that around half of them are living with a monthly income below \$9000. There are 71% of them are not participating in labour market due to various reasons. Tight family budgets and their limited opportunities in entering the labour market can be a major hurdle for them to learn and know about ICT.
- **Language and education** are another obstacles as most of the Internet content and computer languages are in English. This issue is intensified especially for those women from Mainland and those in middle age with low literacy of English and low education attainment. From the same study as mentioned, only 14% of women from Mainland are having high school education or above. In other words, most of them are low education or illiteracy in which further impeding them to acquire ICT knowledge.

⁴ Sophia Huyer (1997), *Supporting Women's Use of Information Technologies for Sustainable Development*. A Paper submitted to the Gender and Sustainable Development Unit, IDRC

⁵ 香港婦女中心協會(2000)新來港婦女的需要與現行相關政策及服務的疏漏 (Hong Kong Federation of Women's Centres)

- **Psychological barrier** is another reason that women may lag behind to use new technologies. In our traditional concept, women, especially the housewives engage solely in domestic activities that require a lower level of technological skills in their lives. Women profoundly seem to stand aloof from the technology. Such relationship or conception to technology is somehow affecting women's attitudes toward ICT. Some of them may feel "fear and embarrassment" when dealing with ICT and some even believe that dealing with ICT would drive them mad or discomfort.

How do Women benefit from using ICT?

The development of ICT provides an alternative mode of communication to empower woman in a way that women are encouraged to **voice out their concerns** through electronic communication. ICT allows the exchange of views, opinions and news. It helps women to develop confidence and experience in expressing their viewpoint publicly by enabling them to find allies and moral support across communities and regions.

ICT can benefit women in other ways. They can facilitate participation among women in different sectors and in different regions. The active participation of women in the society also helps to **strengthen women's confidence and to overcome certain portrayals and stereotypes of women.**

Another advantage of ICT for women is they can provide the information that women need to **improve their own wellbeing** and that of their families, personal and professional development.

Women's roles and responsibilities in family are pivotal. The presence of ICT facilitates mothers and children to learn, collaborate and discover together. It provides **a medium for mother to education, to understand and to communicate with their children** and in doing so, it also brings families closer together.

7.4. People with Disabilities

Imagine, one day you find that you have little or no ability to move your fingers. Have you ever considered ICT would become a barrier to you? Because you simply cannot use the keyboard anymore, you are now unable to use the computer to type your work, to communicate with other via email, to browse the Internet for more public services or information. Finally, you will then be shut out of the mainstream where the application of ICT as the major mode of communication in every facet of daily life.

Where are the barriers from?

To understand the difficulties experienced by the people with disabilities, here are few examples that most of us might not be aware of:

For people with visually impairments (such as low vision, tunnel vision, colorblindness or severe case of astigmatisms) - multimedia presentations, small type faces, poorly contrasting color schemes and small icons can make many visually impaired users shutting out of a potentially Web site because of accessibility problem.

For people with physically impairments (such as multiple sclerosis, palsy or various forms of arthritis) - the task of manipulating a mouse, typing and mouse/key combinations can give many difficulties to many physically impaired users in web navigation.

For people with hearing impairments - they may not be able to use distinguish audible computer prompts or make use of online video if assisted auditory technology is not well-equipped.

From the above examples, we recognize that in the use of ICT, people with disabilities not only have similar problems (such as literacy, language, psychological barriers and so on) experienced by the other vulnerable groups, but they also need to face severe **inaccessibility problem** and another hurdles that are entailed by this problem.

But do you think that the barrier is really with the technology per se? The technology is just a manageable tool creating an environment, products and services we desire. The real barrier comes from **the insensibility and lack of awareness** of the individuals, corporations and governments who develop and apply the technologies.

In other words, the problem is a problem of awareness in the wider community of the needs and wide-ranging requirements of people with a range of disabilities.³ When such awareness is not present in the minds of the experts involved in IT development, not as a major priority in the Government agenda, how can we believe that there will be full participation in the digital society for everyone?

How do people with disabilities benefit from using ICT?

The stretch of technology is to maximize the human potential. For people with disabilities, ICT is about the creation of plentiful opportunities **that can enhance their accessibility of information, communication skills, learning ability, employment and quality of life.** Let me give you some real life examples.

For a blind user, electronic communications makes it possible for him or her to deal with personal matters involving the government through self-help and independently of help from a seeing assistant.

For a person with physically disability, accesses through the Internet is possible for him or her to get most of the public information even though the premises where information is provided are not physically accessible.

³ Accessible E-Commerce in Australia: A Discussion Paper About the Effects of Electronic Commerce Developments on People with Disabilities.

For a deaf user, they can use e-mail to avoid barriers in communicating through telephone or other voice-based technologies.

Electronic publication also offers vision impaired students the prospects of access to the textbooks and course materials as their classmates, at the same time, not months after waiting for transcription, recording onto tape or otherwise processing if it is early availability in electronic formats.⁶

These are only some of the examples showing how ICT can re-vitalize the life of the disabled community. The challenge now for us is how to establish a community that the disadvantaged communities can be supported and better integrated through the use of ICT, in ways that improve the conditions of their lives.

7.5. Building the Digital Inclusive Society for the Disadvantaged Group

Identifying diversified needs with respect to ICT

To eliminate any technology inequity in the digital world, the first thing we need to do is to fully understand and have sufficient knowledge on the needs and problems faced by different disadvantaged group in the widespread use of ICT. More research is needed into their expectations, fears, difficulties, benefits, requirements from technology, and any prejudices they may encounter in learning about and using technology.

Raising IT awareness among the disadvantaged group

There is a need for the public campaigns, which promote the potential benefits of the information society and advertise the opportunities available for learning about ICT. We understand that the Government has launched promotional activities in the past, like "IT Hong Kong", in an attempt to raise public awareness about ICT issues.

To enhance people's consciousness and acceptance towards the use of ICT, we hope the Government to step up its effort, with particular emphasis on the underprivileged groups. The purpose of these campaigns is to enhance them gradually to understand the benefits bringing by ICT to their life; to aware the importance of ICT in our society; to overcome the psychological barriers that they usually perceive to the new technologies.

Promoting the principle of universal design

Universal Design has been defined as

"the design of different products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. The intent of the universal design concept is to simply life for everyone by

⁶ Human Rights and Equal Opportunity Commission (2000), *Accessibility of electronic commerce and new service and information technology for older Australians and people with a disability*, Australia.

making products, communications, and the built environment usable by more people at little or no extra cost. The universal design concept targets all people of all ages, sizes and abilities".⁷

This design philosophy endeavors to design software and equipment in a way that it can accommodate a wider range of users and it is relatively inexpensive at the outset, compared to the potentially huge expense involved in post-production software redevelopment, or extensive reformatting or re-keying of information.

Customized approaches are often very costly. When a product is designed from the outset to satisfy the needs of a much wider group of users, the products will be much cheaper than the customized version. In this way, public sector expenditure for special facilities would simultaneously be reduced, thus releasing funds for assistive technologies in cases where universal design cannot solve a particular problem.⁸

In short term, we believe much efforts should be devoted to raising the wider use of assistive technology when principle of universal design is not pervasive in Hong Kong. But in long term, we urge the Government to

- should take the lead and set requirements that is integrating into universal design principle on the quality and accessibility for the ICT services and products;
- should invite the IT industry and assistive equipment industry to launch R&D and other projects in this area aim at demonstrating the advantage of universal design.

Fostering the Use of Assistive Technology

Assistive technology is about the inclusion of people with disabilities and elderly in every aspects of society and how technology can serve as a tool to facilitate that process, in schools, at home, in the workplace, and in the community. The assistive technology is particularly important when the concept of universal design is not prevalent in Hong Kong.

To achieve this goal, we urge the Government to

- Coordinate telecommunications access equipment programs by providing the device needed by people with hearing, vocal communications, motions, visual, or other disabilities so that they may use the telephone network. Examples of the kind of equipment available include speakerphones, text telephones, phones with large buttons and amplified phones.
- Address the importance of the integration of assistive technologies, such as electronic books to the existing curriculum, modified keyboards/speech technologies in the community cyberpoint terminals, etc.
- Allocate additional funds for schools, corporate and relevant agencies such as Vocational Training Council to train the trainers for the learners with disability.
- Provide additional subsidy or loan for people with disability to purchase

⁷ Accessible E-Commerce in Australia: A Discussion Paper About the Effects of Electronic Commerce Developments on People with Disabilities

⁸ Danish Ministry of Research and Information Technology (August 1996), *Freedom to Choose - Action Plan for IT Use by People with Disabilities*.

assistive equipment and software.

- Offer tax deduction to the corporate where relevant assistive technology and technology access are arranged for their employees with disability.
- Encourage the IT industry and academia to develop research and development on the local customized software and assistive technology to the people with disability.

Improving Web Accessibility

There is a variety in the approaches that different governments take in establishing the detailed requirements for Web accessibility. Some governments have referenced WAI guidelines generally; some have written their own version of Web accessibility guidelines or combined these with general usability or best practice guidelines.

But one common goal for the governments around the world is to provide clear leadership in this area to ensure no one will not be excluded from enjoying the latest communication channel. The Government has been already taking attention on this issue. ITBB, ITSD, HAD have taken the lead to formulate a set of web page accessibility guidelines and revamp the Government websites. We urge the Administration not only to accelerate this action but also step up efforts to ensure Web accessibility by

- Formulating a long-term web accessibility policy to ensure that the design of ICT services and equipment is such that they are accessible to older people and people with disabilities. Where it is not possible to ensure that the design of ICT services and equipment are accessible, special services and equipment are needed to establish where the above aims cannot be achieved in a successful way.
- Emphasizing accessibility issues and providing accessibility guidelines to all government departments and private sectors once it is defined.
- Promoting public and private sector to adopt "senior friendly" web design for senior users. Simple, easy-to-understand presentation and user-friendly interfaces are all the usability consideration might the web designers and marketers take into account.
- Promoting other mode of access, such as alt-text, textual description of pictures and graphics and sufficient color contrast for low vision users, instead of limiting text-only version.
- Allocating resources to set up a support team in ITSD to provide advice and technical support to private companies where difficulties may arise on web accessibility.
- Establishing periodic monitoring mechanism on the public sector sites.
- Encouraging the private sector, especially those major corporate to adopt web accessibility guidelines.

Developing suitable content

Content is crucial, in motivating older people and housewives to learn how to use ICT, and in getting and keeping them online. There are specific services which are particularly attractive and practical to them, such as information on health care, financial and investment plans, pensions and retirement. Content service providers should consider older people and housewives as a potential user group

and develop relevant ICT services for them. They also need to consider ways of making content of more interesting and easy to understand for these targeted groups.

Promoting easy-to-use devices

One of the limitations for elderly is the difficult use of computers. Some specific adaptations of hardware and software which would make applications more suitable to many of the elderly might further increase senior use. Such modification as magnified screens, increased contrast, modified keyboards, and voice entry systems would be of specific benefit to individuals with visual or manual problems.

To do so, the key will be to nurture an entrepreneurial spirit for providers to create those devices that are helpful. The government and aging services providers need to be encouraged to hasten their application of existing technologies for the benefit of the senior community. Grants program to encourage innovation and a climate within the aging community that the provision of high quality long term and community care services will utilize information technologies, as well.

Improving affordability and access of ICT

Community cyberpoints which are equipped with sufficient assistive facilities, need to be increased in most public places, such as community center, libraries, government offices and hospital, etc. Where elderly and people with disabilities can be easily accessed.

There is also a need for more public-private partnerships for more donations on the computer-related facilities and bringing Internet access to the homes of elderly and people with disabilities. Industry has been active in public-private partnerships to bring Internet access to schools and the same principles could apply for elderly center and old aged home.

For the connection charges, the industry may consider to reduced access fees or special service package for the elderly and disabled groups.

Developing potential of disadvantaged group in ICT

The Government needs to create an environment that encourages disadvantaged group to become involved in the application, development and deployment of the technology.

For women with low education, the Government has to earmark more resources and to re-evaluate the existing computer-related vocational and retraining courses. Basic training is the first step, but not the last. The training courses must be equipped them for careers at all levels of the IT sector. This is to ensure the skills they learned are sufficient to support their participation in the community and their workplace, as well.

There is a need for a greater number of general introductory courses and inter-generational project on ICT targeted at older people and people with disabilities. We suggest the learning environment, and course content and materials of all these programs should be adapted and tailor-made to meet their specific needs.

Lack of resources and professional trainers are the most visible problem experienced by many NGOs, especially agencies for the elderly and people with disabilities to make expansion of high-tech training courses to sustain. Public funding or public-private partnership needs to be available to subsidize resources for training the trainers that are essential for service expansion.

Incorporating ICT into existing services

There is evidence that improved health care and innovative services, such as computer assistance program can extend life expectancy, promising a better lifestyle for the aging and disabled community. However, the existing aging and rehabilitative services have rarely begun utilizing information technologies.

To improve the quality of life of elderly and people with disabilities, more innovative programs need to be developed and integrated into existing programs to keep this population healthy and productive. Computer programs can be written to offer health education on a diverse set of topics, such as uses and misuses of prescription, nutrition and physical exercises, ways of coping with depressed moods and feelings of social isolation. The Hospital Authority needs to incorporate the use of ICT in the existing rehabilitative programmes.

Flourishing accessibility of e-commerce and financial services

e-commerce is moving to become a principle communication channel in our daily life. A variety of e-commerce-related activities can now be undertaken via the web including buying and selling stocks and shares, online auctions, e-banking, etc. This section cites some kinds of activities and explores how these new ways of communication will provide difficulties and opportunities to the underprivileged groups.

Banking

The wide use of ICT in banking and financial areas offers many advantages to people with disabilities and old people, say, people who are homebound can conduct banking without the need of physically getting to the branch or people who are deaf-blind could independently undertake banking tasks and access their transaction records. But fairly speaking, in some of its present forms it isn't accessible to a large number of them.

For people who are deaf or hearing impaired, the audio-based telephone banking services present obvious problems, due to their auditory mode of output. Besides, there were very few banks in Hong Kong providing ATMs which are accessible to people who are blind or vision impaired as most of these machines are touch-screen-based or without Braille function keys. People with physical disabilities may not be able to access the ATM keypad, or cash dispenser, due to its height from the ground or due to other physical barriers.

Internet banking, as emerging banking services in Hong Kong, is usually very visual and aesthetic in design by which imposing plenty of challenges to people with visual impairment. World Wide Web Consortium (W3C) on web accessibility is rarely being adopted by most of the banks.

Shopping

Shopping is something that everyone in our community needs to be able to do. Often, for the elderly or people with disabilities, this basic task is quite difficult and cannot be conducted with independence or any degree of privacy.⁹ New forms of shopping (e-shopping) have the potential to make shopping more convenience and easier over the traditional shopping methods to the disabled groups.

For example, if Internet supermarket shopping site is well-designed and accessible to all, it offer lots of benefits for people who have difficulties to move around or to carry goods when they can purchase goods through the Internet and home-delivery shopping services.

Regrettably, few companies have designed its Internet shopping site accessible for all people. The approaches employed by most of the companies are heavily relied on visual presentation, complicated interfaces or which require use of inaccessible devices or software. Without providing alternative input options, the presence of these shopping sites presents barriers, instead of benefits to them.

ESD Life

To promote online public and commercial services, the Government introduced ESD Life last year. Public kiosks were installed in high-traffic location throughout the territory as a mean to allow people to access public information conveniently.

The problem of accessibility for information kiosks is widespread. For people of blind or visual impaired, screen-technology design is effectively excluded the users with visual impairment. People with physical disabilities may not be able to access the public kiosk keypad, due to its height from the ground or due to other physical barriers. Not all the public kiosk are equipped with assistive facilities, such as hand rail, speech/Braille display and keyboard, giving that people with disabilities are denied of such services.

The above examples are only some of the hurdles faced by the aging and disabled communities in conducting e-commerce. To turn all the barriers into advantages and made available to all people, we advise the Government to promote the e-commerce accessibility by

- Reviewing accessibility of e-banking facilities and services for people with disabilities and the elderly so that they would not be denied of these services with Hong Kong Monetary Authority.
- Conducting a comprehensive review on implications and barriers of e-commerce to the elderly and people with disabilities. Some governments in other nations, such as Australia and Denmark have taken in depth review on this aspect. Similar initiative is suggested.
- Working with business sector, IT professional bodies and disabled

⁹ Blind Citizens Australia (1997), *Accessible e-commerce in Australia: A discussion paper about the effects of electronic commerce developments on people with disabilities*.

- groups to draw up a code of practice on e-commerce accessibility.
- Providing tax incentives to the companies who have made its site fully accessible.
- Establishing Quality Mark Scheme to encourage the business sector to adopt the accessibility guidelines in their websites. One of the methods is to ask the site owner to include accessibility principle on their e-commerce marketing strategy.
- Installing appropriate assistive equipment and facilities to all the ESD information kiosks so as to broaden the services accessibility to the elderly and people with disabilities.

7.6. Conclusion

We reviewed the barriers and opportunities of ICT in three disadvantaged communities in this chapter. Where these communities are often in poverty, jobs non-existent, poor education level, they are experiencing more disadvantage than other segments of population. To tailor their specific needs, some recommendations to these communities have been set out in this chapter. Most of the actions we recommend require the working alliances of the Government, private sector, non-profit sector and the underserved communities as well. By building partnership to flourish more provisions to people in need, we look forward to having a digital inclusive society where no one are being left behind.